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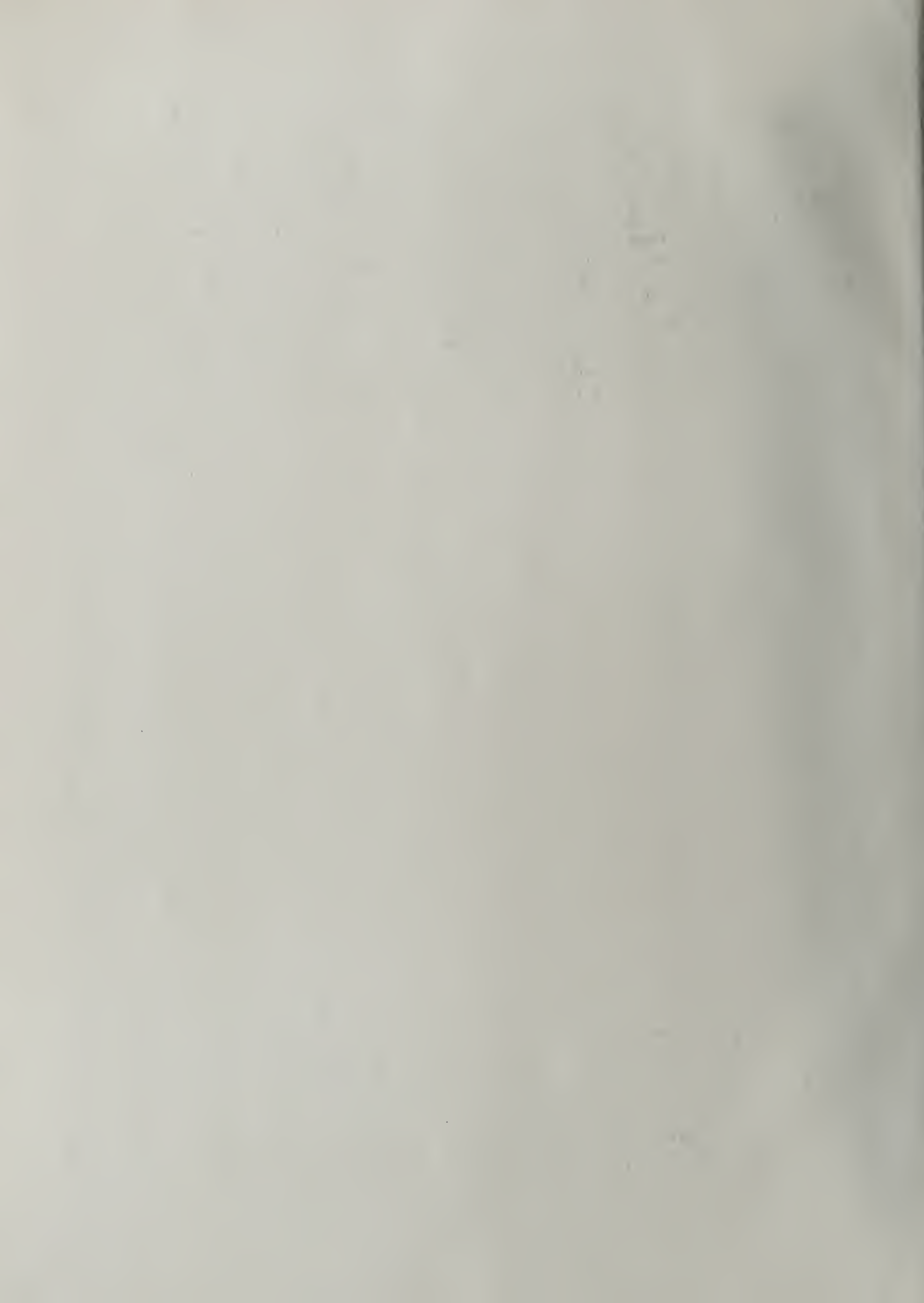
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L162



THE CLAY-WORKER



Published Monthly by
T.A. RANDALL & CO.
INDIANAPOLIS, IND.
OFFICIAL ORGAN OF THE N.B.M.A.

"Detroit"

RETURN TRAPS

insure against sluggish steam dryers. Automatically return every bit of condensation directly to the boiler.

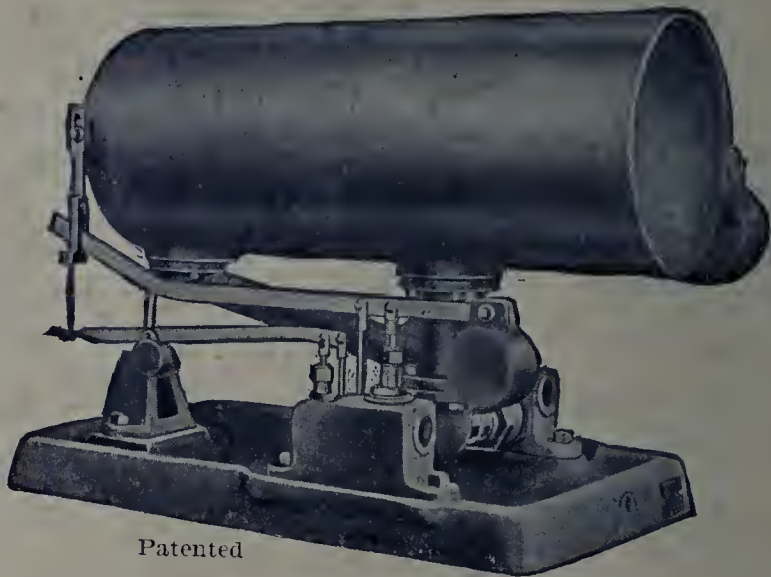
No boiler feed pumps or vacuum system needed where "Detroit" Return Traps are at work. Every tilt means a saving of heat units in the condensation.

Why cool down the condensation to accommodate a pump? Use "Detroit" Return Traps and return direct to the boiler at practically the temperature at which it is condensed.

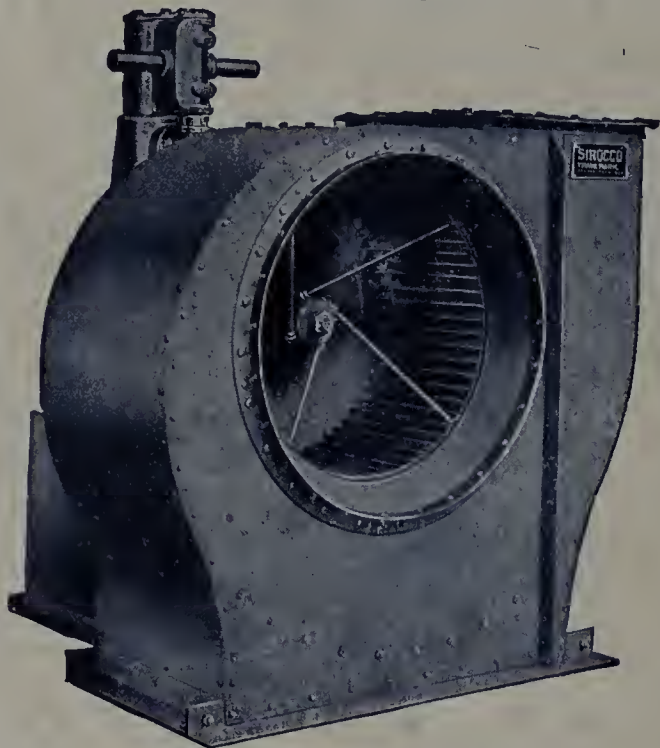
Heating feed water costs money.

"Detroit" Traps benefit the brickmaker. Pumps help the coal dealer.

Trap Book No. 266--C.W. goes into detail.
Yours upon request.



Patented



"Sirocco" Induced Draft Fan.

"Sirocco"

TRADE MARK

Fans for Waste Heat Dryers and Induced Draft on Brick Kilns.

The advantages of "Sirocco" Fans for brickyard work lie in the great power saving quality and low cost of installation.

The speeds of "Sirocco" Fans are suitable for direct connection to reciprocating engines, turbines or electric motors.

"Sirocco" Fans direct connected to "ABC" Vertical Enclosed Self-Oiling Engines make economical steam driven outfits.

"Sirocco" Bulletin No. 284--C.W. upon request.

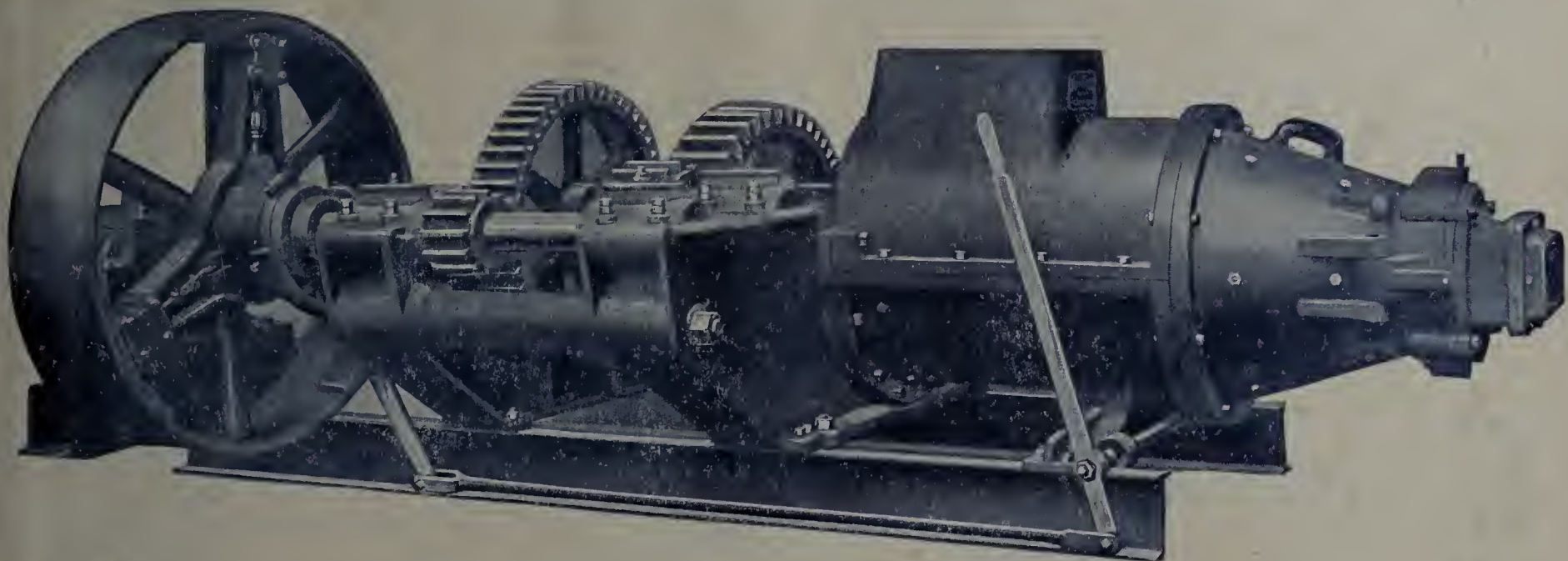
A skilled engineering staff awaits the opportunity to assist you in boosting your production and reducing your costs.

AMERICAN BLOWER COMPANY

DETROIT, MICH.
U. S. A.



YOU MUST HAVE A BRICK MACHINE



In order to make brick and if your present machine is not satisfactory, let us tell you about ours.

No. 10 machine has a capacity of 5,000 to 7,500 brick per hour and is built strong enough to do that amount of work without undue wear. The main shaft is forged steel 6 in. diameter, all the gearing is **steel** and the bearings large. The thrust is of the collared or marine type and located in the front frame.

No trouble with the back thrust when you have this type of bearing. The machine is entirely self-contained on steel I beams so there is no danger of getting out of line. It is the kind of a machine that will give the **every-day service** that you want.

Write us if you are interested.

THE BONNOT CO.

909 N. Y. Life Bldg.,
Kansas City, Mo.

CANTON, OHIO





A Healthy Business is a dividend paying business

If your brick business does not show a good profit at the end of the year, there's a weak point somewhere.

The Dryer is the measure of a brick plant's capacity. Are you drying your product quickly, uniformly and economically? If not, remember that **Up-to-date Economy is profiting by Another's Experience without Experimental Expense,** and what we have done for others, we can do for you.

For many years we have been the leading exponents in **America** of the **Waste Heat System of Drying.** Our system is installed in the largest plants from coast to coast, and the name "RODGERS" on a dryer means **Durability, Efficiency and Economy.**

We dry *Satisfactorily* most of the brick of Western manufacture.

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists,
Brick Works Engineers.

Largest Manufacturers of Brick Drying Equipment in the United States.

30 NORTH LA SALLE STREET, CHICAGO.



PERFORATED STEEL SCREENS.

No Doubt You Use Screens—Let's Get Acquainted.

¶ You may never have obtained them from us. It would pay you to do so.

¶ There's more to a Perforated Steel Screen than a sheet of metal with some holes in it. The shape, the spacing, the size and accuracy of the perforations and the quality of the metal of which the Screen is made, all have a bearing on the working and wearing of the Screen—all must be *exactly right*.

¶ There are Screens that cost less than ours, but then guess-work always does seem cheaper than know-how.

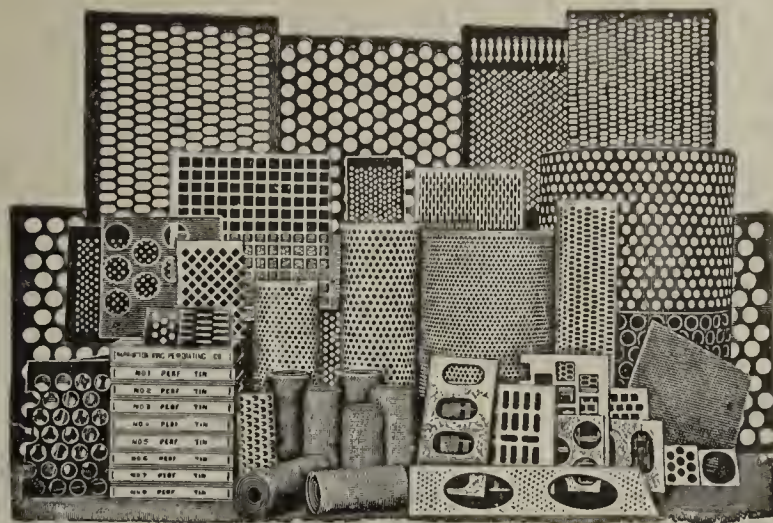
¶ We make Screens for Clay, Sand, Gravel, Cement, Stone, etc., and for Drying Floors, Car Bottoms, Conveyers, Dry Pans and cleaning and grading apparatus.

¶ You are not likely to want a size that we can not furnish. During our experience of over thirty years in the business (and that counts for something) we have acquired patterns by the thousand.

¶ Give us the size of sheets, the guage (or thickness), the size and shape of holes, the number of sheets wanted and what for.

¶ With quotation we will send samples or Blue Prints.

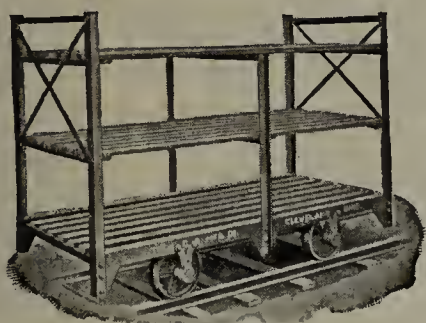
¶ The work is made entirely to order.



The Harrington & King Perforating Co.,

NEW YORK OFFICE,
No. 114 Liberty St.

No. 624 North Union St.,
CHICAGO, ILL., U. S. A.



No. 1205
Triple Deck Car.



No. 147
Steel Turntable



No. 913
Double Track Electric Transfer Car.



No. 217-S
Side Rocker Dump Car, small capacity. Self-Oiling Wheels.

Cars for Brickyards,
Quarries, Cement Plants

Dryer Cars, Dump Cars,
Locomotives,
Turntables,
Track, Switches, Etc.



No. 160-E
Side Dump Cable Bottom Car.



No. 103
Stiff or Soft Mud Car.



No. 108
Stiff Mud Flat Car.

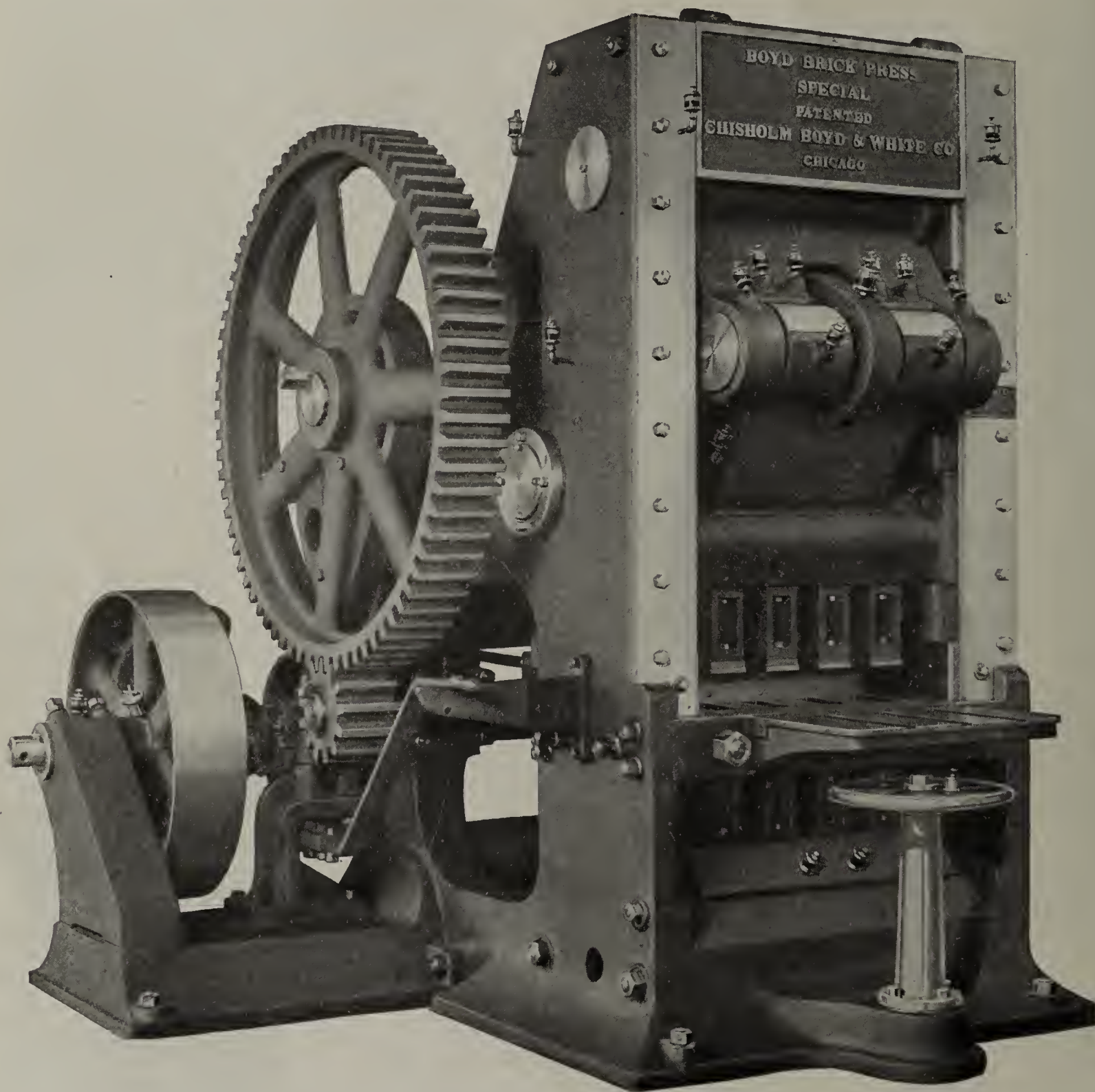


No. 1000
Portable Track, showing different styles of ties and connections.

THE ATLAS CAR & MFG. CO.
CLEVELAND, OHIO

The Boyd Brick Press

"Built Up to a Standard—Not Down to a Price."



SPECIAL FEATURES OF THE BOYD BRICK PRESS

BALANCED=PRESSURE—brick lifted in molds under pressure.

PRESSING TIME FACTOR—long duration, 50% of the cycle.

GEARS, SHAFTS, BEARINGS and other parts exceptionally large.

FREE from complicated parts—**ACCESSIBILITY** unequaled.

TOP and BOTTOM of brick equal hardness—**NO** granulated surfaces.

Write for latest Catalogue No. 25, which contains plans and suggestions concerning the design and equipment of brick plants.

Chisholm, Boyd & White Company

Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

The Boyd Brick Press in Canada

MILTON PRESSED BRICK CO. Limited

DR. ROBERTSON,
President.

J. S. McCANNELL,
Vice-Pres. & Man. Dir.

Manufacturers of
High-Grade Pressed Bricks
and
Terra Cotta Mantels

All quotations are subject to change without notice. All agreements are contingent upon strikes or other delays beyond our control, and all contracts must be approved by the head office.

MILTON, ONT.,

Nov. 7th, 1911.

Messrs. Chisholm, Boyd & White Co.,
57th & Wallace Sts.,
Chicago, Ill., U.S.A.

Dear Sirs:-

We are pleased to advise you that the new Four Mold "Special" Boyd Brick Press which we recently purchased from you arrived in good condition and is now making bricks.

We have now six Boyd presses in a row and expect to be in the market for another in the course of a few months. It is now nearly twenty-two years since we installed the first Boyd presses.

We tore out the first one put in to make room for the new Boyd "Special" which is built on a very much stronger scale than the ordinary machine. However, we have still one of these old machines in operation and producing first-class bricks. For a number of years this machine worked night and day.

We might state that we are well satisfied with the Boyd press or we would not be using your machine exclusively.

We are satisfied that we are making the best bricks made in Canada with your machines.

Thanking you for prompt shipment of the last press, we remain

Yours truly,

J.S. Mc/

Milton Pressed Brick Co., Limited.

J. S. McCannell
Man'g Director

CHISHOLM, BOYD & WHITE CO.

57th and Wallace Sts., CHICAGO



INSURE YOUR PLANT AGAINST LOSS AND DELAY

Through inclement weather adopt the Mathews Gravity Brick Carrier Policy. It protects you against delay in filling rush orders. It allows your men to work under cover. It makes every day a working day, in spite of adverse weather conditions. Saves labor, saves time, saves the brick from chipping and breakage—all of which mean larger profit on the output. The above is a photographic reproduction of a car-loading scene during a heavy thunder storm, showing what a simple proposition it is to keep the work moving when equipped with our Gravity Brick Carrier.

Installed, operated and maintained at a slight expense compared to the great saving effected. Write for catalog and special information.

Mathews Gravity Carrier Co.

Main Office and Factory:

ST. PAUL, MINN., U. S. A.

Branch Offices in all leading American cities.

Foreign Factories: { BRITISH MATHEWS, Ltd, London, Eng.
CANADIAN MATHEWS GRAVITY CARRIER CO., Ltd., Toronto, Can.

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To Find Any Particular Firm or Advertisement See "Index to Ads" as Cited on Front Cover Page.

Ammeters.

The Brown Instrument Co.

Analysts and Chemists.

Ceramic Supply & Con. Co.
N. J. State University.
Ohio State University.
Richardson-Lovejoy Engr. Co.

Automatic Clay Bin Emptier.

Raymond Co., The C. W.

Automatic Cutting Tables.

(See Cutting Tables.)

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American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
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Freese & Co., E. M.
Hensley, J. W.
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Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Barytes, Carbonate of

Gabriel & Schall.
Roessler-Hasslacher Chem. Co.

Bearings, Roller.

(See Supplies.)

Belting.

Gandy Belting Co.
Main Belting Co.
Sawyer Belting Co.

Belt Conveyors.

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
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Caldwell & Sons Co., H. W.
Ceramic Supply & Con. Co.
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Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Gandy Belting Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.

Blowers.

American Blower Co.
American Clay Machinery Co.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

Boilers.

American Clay Machinery Co.
Arbuckle & Co.
Frost Mfg. Co.
Morehead Mfg. Co.

Brick (Building).

Bloomfield Clay Co.
Bolivar Face Brick Co.
Fiske & Co., Inc.
Kushequa Brick Co.
Marion Brick Works.
Purinton Paving Brick Co.

Brick (Fire).

Chicago Retort & Fire Brick Co.
Evans & Howard Fire Brick Co.

Brick (Paving).

Barr Clay Co., The
Bessemer Limestone Co.
Clinton Paving Brick Co.
Danville Brick Co., The
Marion Brick Works.
Metropolitan Paving Brick Co.
Natl. Pav. Brick Mfgs. Assn.
Purinton Paving Brick Co.
Terre Haute Vit. Brick Co.
Thurber Vitrified Brick Co.
Shawmut Vit. Pav. Brick Wks.
Wabash Clay Co.

Brick Conveyors.

American Clay Machinery Co.
Mathews Gravity Carrier Co.

Brick and Tile Machinery.

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Eastern Brick Machinery Co.
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Fernholtz Brick Machy. Co.
Freese & Co., E. M.
Hensley, J. W.
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Stevenson Co., The
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Brick Machines (Soft Mud).

American Clay Machinery Co.
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Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Wellington Machine Co.

Brick Machines (Stiff Mud).

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Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice & Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Brick Machines (Dry Press).

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Chisholm, Boyd & White Co.
Chicago Brick Machinery Co.
Fernholtz Brick Machinery Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Mueller Bros.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.

Brick Recutter.

Raymond Co., The C. W.

Brick Setting Machinery.

American Clay Machinery Co.

Brickyard Engineering.

Heald, G. W.

Buffing Machine.

American Clay Machinery Co.

Burning and Drying Systems.

Boss, John C.
Buhner, Jacob.
Dennis, F. W.
Haigh, H.
Hoehne, Richard B.
Hoffmann Construction Co.
Illinois Supply & Con. Co.
Koch, J. J.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Rodgers Engineering Co., L. E.
Snowden & Co., Geo. E.
Standard Dry Kiln Co.
Tate, Jones & Co.
Trautwein Drying & Engr. Co.
Vogt, Anton.
Yates, Alfred.

Cars.

(See Dryer and Dump Cars.)

Castings.

Arbuckle & Co.
Caldwell & Sons Co., H. W.
Chambers Bros. Co.
Wallace Mach. & Foundry Co.

Ceramic Engineers.

Hoehne, Richard B.
Koch, J. J.
Richardson-Lovejoy Engr. Co.

Clay Crushers and Pulverizers.

American Pulverizer Co.
American Road Machine Co.
Arbuckle & Co.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
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Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
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Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Wallace Mfg. Co.
Wellington Machine Co.

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American Process Co.

Clay Feeders and Mixers.

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Arbuckle & Co.
H. Brewer & Co.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
E. M. Freese & Co.
Illinois Supply & Con. Co.
Raymond Co., The C. W.
Taplin, Rice-Clerkin Co.
Scott-Madden Iron Works.
Stevenson Co., The

Clay Gatherers.

(See Scrapers.)

Clay Steamers.

American Clay Machinery Co.
Raymond Co., The C. W.

Clay Technologists.

Koch, J. J.
Richardson-Lovejoy Engr. Co.

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(See Supplies.)

Coloring Materials.

Chattanooga Paint Co.
Clinton Metallic Paint Co.
National Paint & Manganese Co.
Rickertson Mineral Paint Co.
Roessler-Hasslacher Chem. Co.
Williams & Co., C. K.

Cones.

Orton, Edward, Jr.

Conveying Machinery.

American Clay Machinery Co.
Arbuckle & Co.

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Caldwell & Sons Co., H. W.
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Mueller Bros.
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Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.

Contracting Engineers.

Dennis, F. W.
Haigh, H.
Heald, G. W.
Hoehne, Richard B.
King, E. A.
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Wurz & Hillenbrand.
Vogt, Anton.

Couplings.

(See Supplies.)

Cutting Tables (Brick & Tile).

American Clay Machinery Co.
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Brewer Co., H.
Chambers Bros. Co.
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Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.

Cutting Wires.

Arbuckle & Co.
Brewer & Co., H.
Ceramic Supply & Con. Co.
E. M. Freese & Co.
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Raymond Co., The C. W.

Dampers.

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Dies.

(See Supplies.)

Disintegrators.

American Clay Machinery Co.
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Arbuckle & Co.
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Brewer & Co., H.
Chambers Bros. Co.
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Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Wallace Mfg. Co.
Wellington Machine Co.

Drain Tile.

Evans & Howard Fire Brick Co.

Drain Tile Machinery.

(See Brick & Tile Machinery.)

Drums, Hoisting and Winding.

(See Supplies.)

Dryers.

American Blower Co.
American Clay Machinery Co.
American Process Co.
Chambers Bros. Co.

(Continued on next page.)

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 Rodgers Engr. Co., The L. E.
 Standard Dry Kiln Co., The
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 Trautwein Dryer & Engr. Co.

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 Fate Co., The J. D.
 Ohio Ceramic Engineering Co.
 Raymond Co., The C. W.
 Rodgers Engr. Co., The L. E.
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 Steele & Sons, J. C.
 Trautwein Dryer & Engr. Co.
 Wellington Machine Co.

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 Raymond Co., The C. W.
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Electric Shovels.

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 Thew Automatic Shovel Co.

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Electric Instruments.

The Brown Instrument Co.

Electrical Locomotives.

Atlas Car & Mfg. Co.

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(See Conveyors.)

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 Trautwein Dryer & Engr. Co.
 E. H. Callaway.

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 Rodgers Engr. Co., The L. E.
 Trautwein Dryer & Engr. Co.

Feed Water Heaters.

American Blower Co.
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 Morehead Mfg. Co.
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Bloomfield Clay Co.
 Chicago Ret. & Fire Clay Co.
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Fire Clay.

Evens & Howard Fire Brick Co.

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Evens & Howard Fire Brick Co.

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 Evans & Howard Fire Brick Co.

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Rockwood Mfg. Co., The

Friction Clutch Pulleys.

(See Supplies.)

Furnaces.

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(See Supplies.)

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 Steele & Co., J. C.
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Mathews Gravity Carrier Co.

Gravity Haulage.

American Clay Machinery Co.

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 Mueller Bros.
 Ohio Ceramic Engineering Co.
 Raymond Co., The C. W.
 Scott-Madden Iron Works Co.
 Stevenson & Co.

Hand Winch.

(See Supplies.)

Hangers.

(See Supplies.)

Hoists.

(See Supplies.)

Hoisting Engines.

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Hollow Block Machinery.

American Clay Machinery Co.
 Arbuckle & Co.
 Bonnot Co., The
 H. Brewer & Co.
 Freese & Co., E. M.
 Raymond Co., The C. W.

Scott-Madden Iron Works Co.
 Stevenson Co., The
 Taplin, Rice-Clerkin Co.
 Wallace Mfg. Co.

Hollow Partition Tile.

Evens & Howard Fire Brick Co.
 Ohio Clay Company.

Jacks.

(See Supplies.)

Kilns.

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 Buhner, Jacob.
 Chisholm, Boyd & White Co.
 Dennis, F. W.
 Haigh, H.
 Hoehne, Richard B.
 Hoffmann Construction Co.
 Illinois Supply & Con. Co.
 Manufacturers Equipment Co.
 Raymond Co., The C. W.
 Richardson-Lovejoy Engr. Co.
 Snowden & Co., G. E.
 Shumaker, J. H.
 Vogt, Anton.
 Yates, Alfred.

Kiln Bands.

(See Supplies.)

Kiln Doors, Castings and Frames.

(See Supplies.)

Kiln Floor Tile.

Chicago Ret. & Fire Brick Co.
 Evens & Howard Fire Brick Co.

Kiln Irons.

(See Supplies.)

Kiln Furnaces.

Illinois Supply & Con. Co.

Kiln Lugs.

(See Supplies.)

Knives.

(See Supplies.)

Locomotives.

Davenport Locomotive Works.

Locomotive Cranes.

American Hoist & Derrick Co.

Manganese.

(See Coloring Materials.)

Mechanical Draft.

American Blower Co.
 Boss, J. C.
 Rodgers Engr. Co., The L. E.

Mineral Paint.

(See Coloring Materials.)

Molds (Brick).

Carnell, Geo.
 Eastern Brick Machinery Co.
 Hensley, J. W.
 Martin Brick Mach. Mfg. Co., H.
 Potts & Co., C. & A.
 Raymond Co., The C. W.
 Wellington Machine Co.

Mold Sanders.

Carnell, Geo.
 Eastern Brick Machinery Co.
 Hensley, J. W.
 Martin Brick Mach. Mfg. Co., H.
 Potts & Co., C. & A.
 Raymond Co., The C. W.
 Wallace Mfg. Co.
 Wellington Machine Co.

Mortar Colors.

(See Coloring Materials.)

Oil Burners.

Ill. Supply & Constr. Co.
 Tate Jones Co.

Paints.

(See Coloring Materials.)

Pallets.

Ohio Ceramic Engineering Co.
 Ohio Galvanizing & Mfg. Co.

Pans (dry and wet).
 (See Dry and Wet Pans.)

Patents.

Scientific American.
 Watson and Boyden.

Paving Brick or Block.
 (See Brick.)

Perforated Sheet Metal.

Caldwell & Sons Co., H. W.
 Harrington & King Perf. Co.

Pitch (Paving).

Barrett Mfg. Co.

Flows.

(See Scrapers.)

Portable Track.

Atlas Car & Mfg. Co.
 Ohio Ceramic Engineering Co.
 Raymond Co., The C. W.

Pottery Machinery.

American Clay Machinery Co.
 Rockwood Mfg. Co.
 Raymond Co., The C. W.
 Stevenson Co., The
 Taplin Rice Clerkin Co.

Power Plant Equipment.

Rodgers Engr. Co., The L. E.
 Trautwein Dryer & Engr. Co.

Presses.

(See Brick Machines, also Sewer Pipe Machinery, also Roofing Tile Machinery.)

Pug Mills.

American Clay Machinery Co.
 Anderson Fdy. and Mach. Wks.
 Arbuckle & Co.
 Bonnot Co., The
 Brewer & Co., H.
 Chambers Bros. Co.
 Fate Co., The J. D.
 Freese and Co., E. M.
 Hensley, J. W.
 Mueller Bros.
 Raymond Co., The C. W.
 Steele & Sons, J. C.
 Scott-Madden Iron Works Co.
 Stevenson Co., The
 Wallace Mfg. Co.
 Wellington Machine Co.

Pulleys.

(See Supplies.)

Pulverizers.

American Pulverizer Co.
 Illinois Supply & Con. Co.
 Scott-Madden Iron Works Co.

Pumps.

Dean Bros. Steam Pump Wks.
 Pulsometer Steam Pump Co.

Pyrometers.

Brown Instrument Co.
 Ceramic Supply & Constr. Co.
 Rodgers Engr. Co., The L. E.

Rails and Railway Equipment.

Atlas Car and Mfg. Co.
 Arbuckle & Co.
 Davenport Locomotive Works.
 Milwaukee Locomotive Mfg. Co.
 Ohio Ceramic Engineering Co.
 Scott Madden Iron Works Co.

Rattlers (Paving Brick).

Ceramic Supply & Con. Co.
 E. M. Freese & Co.
 Hetherington and Berner.
 Phillips & McLaren Co.

Recording Gauges.

Brown Instrument Co.
 Ceramic Supply & Constr. Co.

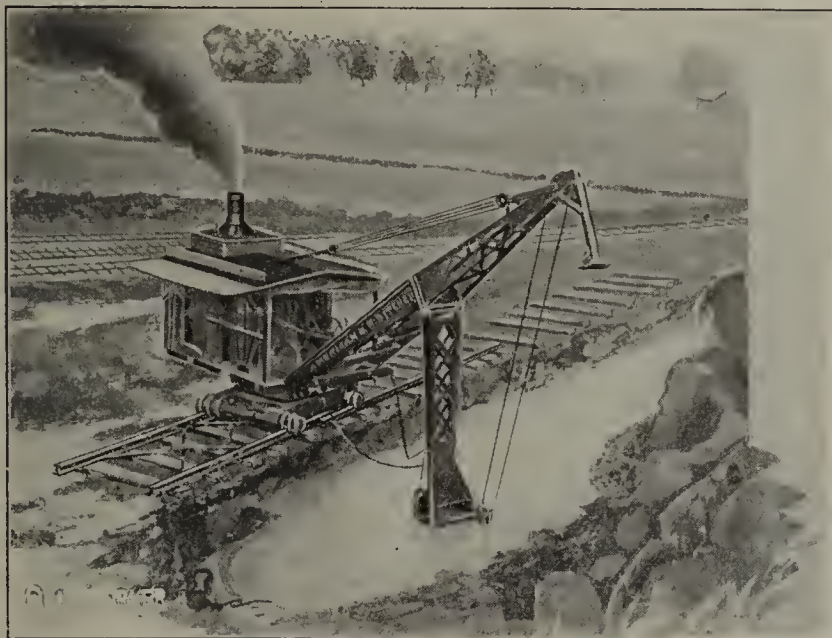
Represses.

American Clay Machinery Co.
 Bonnot Co., The
 Chambers Bros. Co.
 Fate Co., The J. D.

(Continued on page 12.)

12 DISTINCT ADVANTAGES POSSESSED ONLY BY THE "AMERICAN" STEAM SHOVEL

Any One of Which Justifies the Cost of the Machine



Examine All Other Steam Shovels CAREFULLY. Then Compare the Information You Have Gathered With the Following:

1. While the "AMERICAN" is a full circle machine, IT EMPLOYS NO OUTRIGGERS OR SIDE BRACES OF ANY KIND.

2. IT IS ABSOLUTELY ONE-MAN OPERATED. The operator stands well to the front of the machine, having an unobstructed view of the dipper and work at all times.

3. All motions of the machine are accomplished by a double cylinder, NON-REVERSING ENGINE, in connection with the "AMERICAN" friction, over 10,000 of which are in daily use.

4. Two patented, special, portable, telescopic track sections are furnished regularly with the machine. These sections are easily handled by the machine, and enable it to travel quickly to any part of the pit, over short or long distances, without laying regular track. It works with equal facility, without any alteration, on standard gauge surface track.

5. Where soft condition of the ground requires, ties can be spiked to the track sections, which gives a very solid foundation to work on while digging. This also permits the machine to go safely and rapidly over soft or uneven surfaces; ABSOLUTELY NO PLANKING REQUIRED.

6. It digs deep below the rail, dumps high above the rail, and has a working radius up to thirty feet. With the substantial portable track sections, and easily adjustable digging arrangement, it readily makes its

own face from perfectly level ground, to the required depth.

7. The digging depth and working radius are quickly changed without any alteration of machinery, at will of operator. It digs equally well in shallow stripping or in deep work. SUPPOSE YOUR PIT IS FLOODED and you can not shift the track. The extreme digging depth of the "AMERICAN" permits you to easily reach your material, where other methods or machines would not do so.

8. THE PLUNGER AT BOOM POINT IS FOUND ONLY ON THE "AMERICAN." When handling clay or other sticky substance that fouls the bucket, the plunger quickly pushes such material through and saves much valuable time.

9. It digs with equal effectiveness at any angle to the track. It will not back away from the work in the hardest digging.

10. It does switching when Locomotive is elsewhere. It can be used as a Locomotive Crane, for handling Clam Shell or Orange Peel buckets, etc.

11. It will run up onto a flat car on its own power and can be conveyed at train speed, when desired to move from one operation to another.

12. If desired it can be worked from the top of a flat car, standing on the car on the portable track sections, and in which situation it will load cars standing upon the first or second passing tracks.

THE "AMERICAN" STEAM SHOVEL IS BRISTLING WITH MANY OTHER SPECIAL FEATURES EQUALLY AS VALUABLE AS THOSE ABOVE MENTIONED, and we will gladly tell you all there is to tell about it. ASK US FOR CIRCULAR 15.

**AMERICAN HOIST & DERRICK CO.
ST. PAUL, MINN.**

Buyers Ready Reference List—Continued.

Freese & Co., E. M.
Illinois Supply & Con. Co.
Mueller Bros.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Taplin, Rice, Clerkin Co.
Stevenson Co., The

Revolution Indicators.

Brown Instrument Co.
Ceramic Supply & Constr. Co.

Revolving Steam Shovels.

Marion Steam Shovel Co.
American Hoist & Derrick Co.

Rock Crushers.

American Pulverizer Co.
Phillips & McLaren Co.

Roofing Tile Machinery.

American Clay Machinery Co.
Ill. Supply & Construction Co.
Mueller Bros.
Raymond Co., The C. W.

Rope.

(See Supplies.)

Rotary Dryers.

American Clay Machinery Co.

Sand Dryers.

American Clay Machinery Co.
Anderson Fdry. & Mach. Works.
Fate Co., The J. D.
Hensley, J. W.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wellington Machine Co.

Sand Lime Brick Machinery.

American Clay Machinery Co.
Anderson Fdry. & Mach. Wks.
Chicago Brick Machinery Co.
Chisholm Boyd and White Co.
Fernholtz Brick Machinery Co.
Ill. Supply & Construction Co.
Ohio Ceramic Engineering Co.

Raymond Co., The C. W.
Scott-Madden Iron Works Co.

School of Ceramics.

Illinois University.
New Jersey State School.
New York State School.

Scrapers, Flows and Clay Gatherers.

Arbuckle & Co.
Eagle Iron Works.
Ill. Supply & Construction Co.
Scott Madden Iron Works.

Screens.

American Clay Machinery Co.
American Pulverizer Co.
Arbuckle & Co.
H. Brewer & Co.
Bonnot Co., The
Ceramic Supply & Constr. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
E. M. Freese & Co.
Harrington & King Perf. Metal Co.
Ill. Supply & Construction Co.
Mueller Bros.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.
The Stevenson Co.

Sewer Pipe.

Evens & Howard Fire Brick Co.

Sewer Pipe Machinery.

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Arbuckle & Co.
Brewer & Co., H.
Taplin Rice Clerkin Co.
Scott Madden Iron Works Co.
Stevenson, Co., The.

Steam Gauges.

(See Supplies.)

Steam Shovels.

American Hoist & Derrick Co.
Marion Steam Shovel Co.
Scott-Madden Iron Works.
Thew Auto. Steam Shovel Co.

Steam Specialties.

Dean Bros. Steam Pump Wks.
Frost Mfg. Co.
Morehead Mfg. Co.
Pulsometer Steam Pump Co.
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Frost Mfg. Co.
Morehead Mfg. Co.
Standard Dry Kiln Co.

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Ohio Galvanizing Co.
Ohio Ceramic Engineering Co.

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Arbuckle & Co.
Atlas Car & Mfg. Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. & W.
Carnell, Geo.
Ceramic Supply & Constr. Co.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd and White.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Ill. Supply & Construction Co.
Ohio Ceramic Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin Rice Clerkin Co.
Wallace Machine & Foundry Co.
Wallace Mfg. Co.
Wellington Machinery Co.

Switches.

Atlas Car & Mfg. Co.
Ohio Ceramic Engineering Co.

Tempering Wheels.

Carnell, Geo.
Raymond Co., The C. W.

Thermometers.

Brown Instrument Co.
Ceramic Supply & Engr. Co.
Rodgers Engr. Co., The L. E.

Tile Machines.

American Clay Machinery Co.
Anderson Fry. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Ill. Supply & Construction Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Wallace Mfg. Co.
Wellington Machine Co.

Time Recorders.

Brown Instrument Co.

Tracks and Switches.

(See Rails.)

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(See Supplies.)

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American Clay Machinery Co.
Raymond Co., The C. W.

Voltmeters.

The Brown Instrument Co.

Wheels and Axles.

(See Supplies.)

Wheelbarrows.

(See Barrows.)

Wet Pans.

(See Pans.)

Wire.

(See Cutting Wire.)

The Taplin, Rice-Clerkin Co.

The Machinery Folks of Akron, Ohio, U. S. A.

SOME PLANTS WE INSTALLED

"The 'Pioneer' Wet Pan
Is the best known to man."

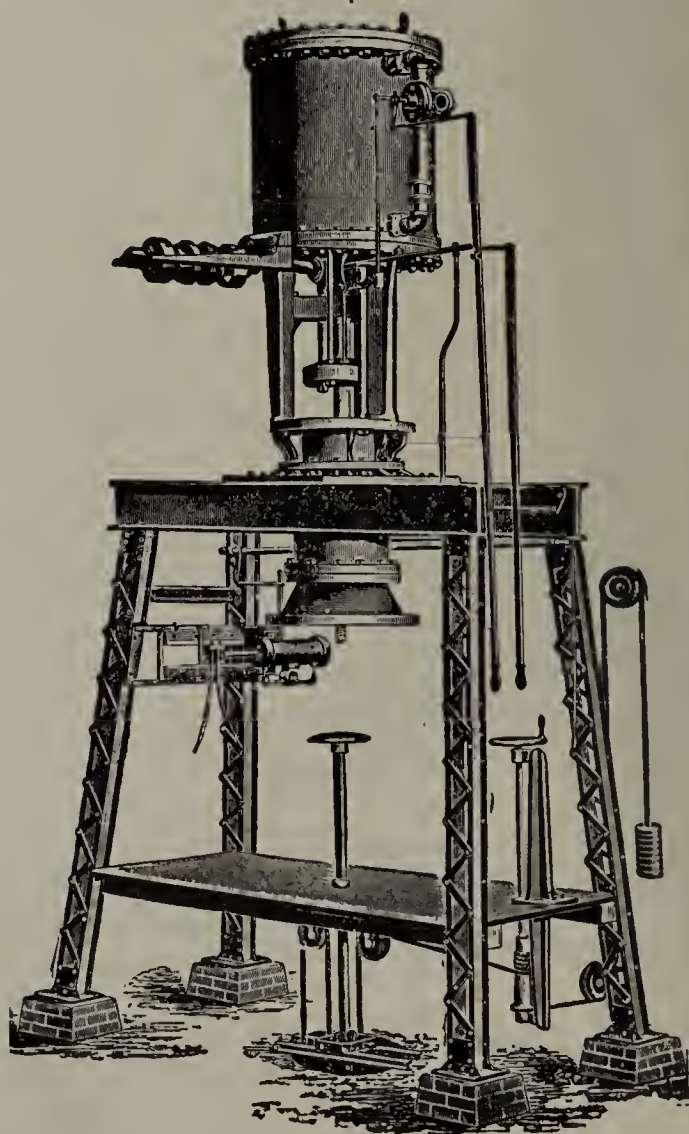
"Pioneer has no Peer."

"Pioneer Machinery is simply the best,
And Used in Clay Products it stands every test;
Durable, high-class, efficient, and true,
It does for its users what others can't do."

"Make things from Clay the
'Pioneer's' way."

"Established Eighteen-Sixty
Five,
But growing fast and much
alive."

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The Gladding-McBean Co., San Francisco, Cal.
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Post Pipe Co., Texarkana, Tex.
San Antonio Sewer Pipe Co., San Antonio, Tex.
Henry Stevens Sons & Co., Macon, Ga.
Pomona Terra Cotta Co., Pomona, N. C.
Shawmut Clay Co., Shawmut, Pa.
Ohio Clay Co., Cleveland, Ohio.
Robinson Graves Sewer Pipe Co., Uhrichsville, Ohio.
Dominion Sewer Pipe Co., Swansea, Ont., Can.
The Hamilton & Toronto Sewer Pipe Co., Toronto, Can.
British Columbia Clay Products Co., Vancouver, B. C.



Send for Catalog No. 29.

1912



HE steady and unrelenting progress of time has brought us through the many vicissitudes of old 1911 until now, when we greet you with the tidings of the glad New Year of Nineteen Hundred and Twelve.

The past year has not been one lacking event, as it saw with us the opening of our New Factories, the perfection of the Raymond Soft Mud Machinery and the hearty approval of the Gas-Fired Continuous Kiln by the practical brickmakers of the world.

Nineteen Hundred and Twelve is now with us, bringing many things new, and prepared to do its share towards the advancement of the world and the betterment of the world's people.

We, for ourselves, have been contemplating many things of interest to the Claycrafters, and in 1912 these things will be opened to you as you are prepared to receive them. Their development has been going on and their perfection now reached; each an improvement and betterment for the Claycrafter.

And so, again, here is to prosperity, advancement and perfection for the Claycrafters for Nineteen Hundred and Twelve.

THE C. W. RAYMOND COMPANY
DAYTON, OHIO, U. S. A.

"This is What They All Say—"

Leavenworth Post
Oct. 19 1911
Leavenworth Kansas

ARE MAKING FINE BRICK

Convicts at the Military Prison Are Turning Out a Superior Quality.

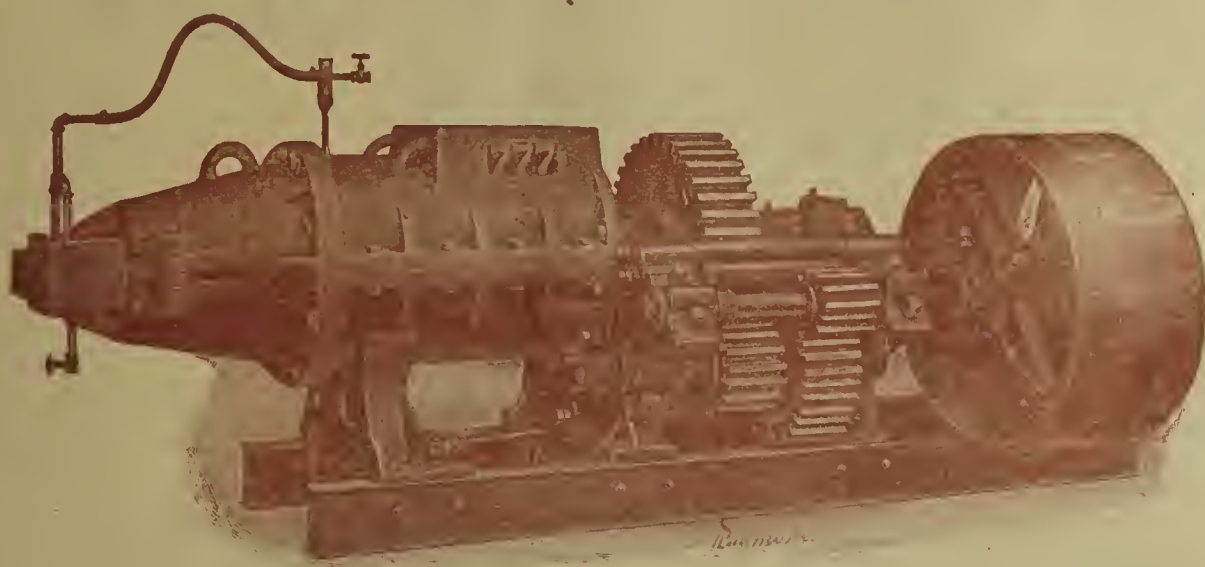
Yesterday a dozen prison guards from various parts of the camp visited the penal institution here. All were particularly impressed with the fine quality of brick being manufactured at the "blue states" military prison at Fort Leavenworth. Senior Master Sillings, who was in the party and who is a brick expert, pronounced them the finest he has seen in a long time. "I cannot understand why they are so far superior to the Leavenworth brick when the materials are the same," he said. "At Leavenworth we generally have a run of fine brick here and then a run of poor brick. These seem to be uniformly good."

It is possible that the fact that the Fort Leavenworth bricks are made from dry powdered shale and clay accounts for their fine quality. The Lansing bricks are pressed from wet clay which is more difficult to burn. The brick plant at the military prison is one of the finest in this section, being superior even to the Federal prison plant. The capacity of the plant is 10,000 bricks a day but the plant is not running at capacity because the bricks cannot be hauled off fast enough.

LESS NOT RITUAL JUST

Raymond Equipment

Raymond Equipment



The Brick Plant of
The United States Military Prison
 at

Fort Leavenworth, Kansas
 is equipped with

- 2—Raymond 9 ft. Standard Dry Pans
- 2—Raymond Cup Elevators
- 1—Raymond Piano Wire Screen
- 1—Raymond 10 ft. Standard Pug Mill
- 1—Raymond "777" Brick Machine
- 1—Raymond No. 2 Automatic Cutter
- 1—Raymond Victor Repress
- 1—Raymond 10 Tunnel Radiated Heat Dryer

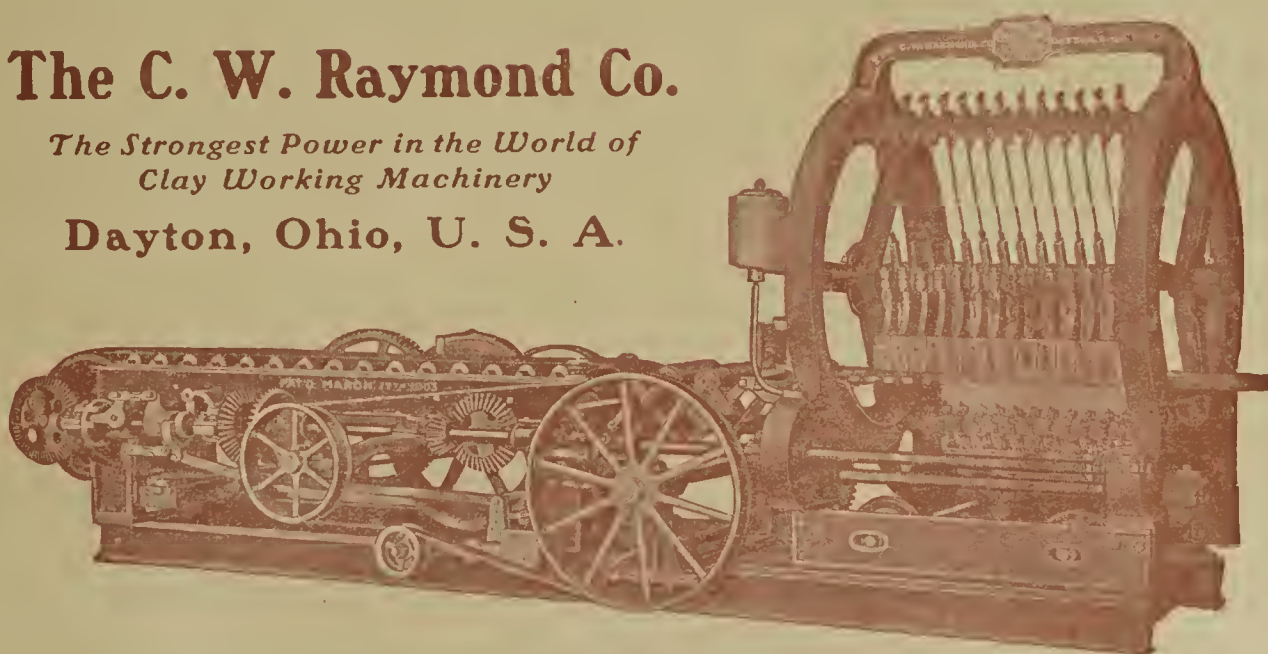
—And They Said,

"—particularly delighted with the quality of the brick manufactured at the Military Prison, and could only attribute its **SUPERIORITY** over the Lansing brick, which is of the same material **TO THE IMPROVED MACHINERY USED.**"

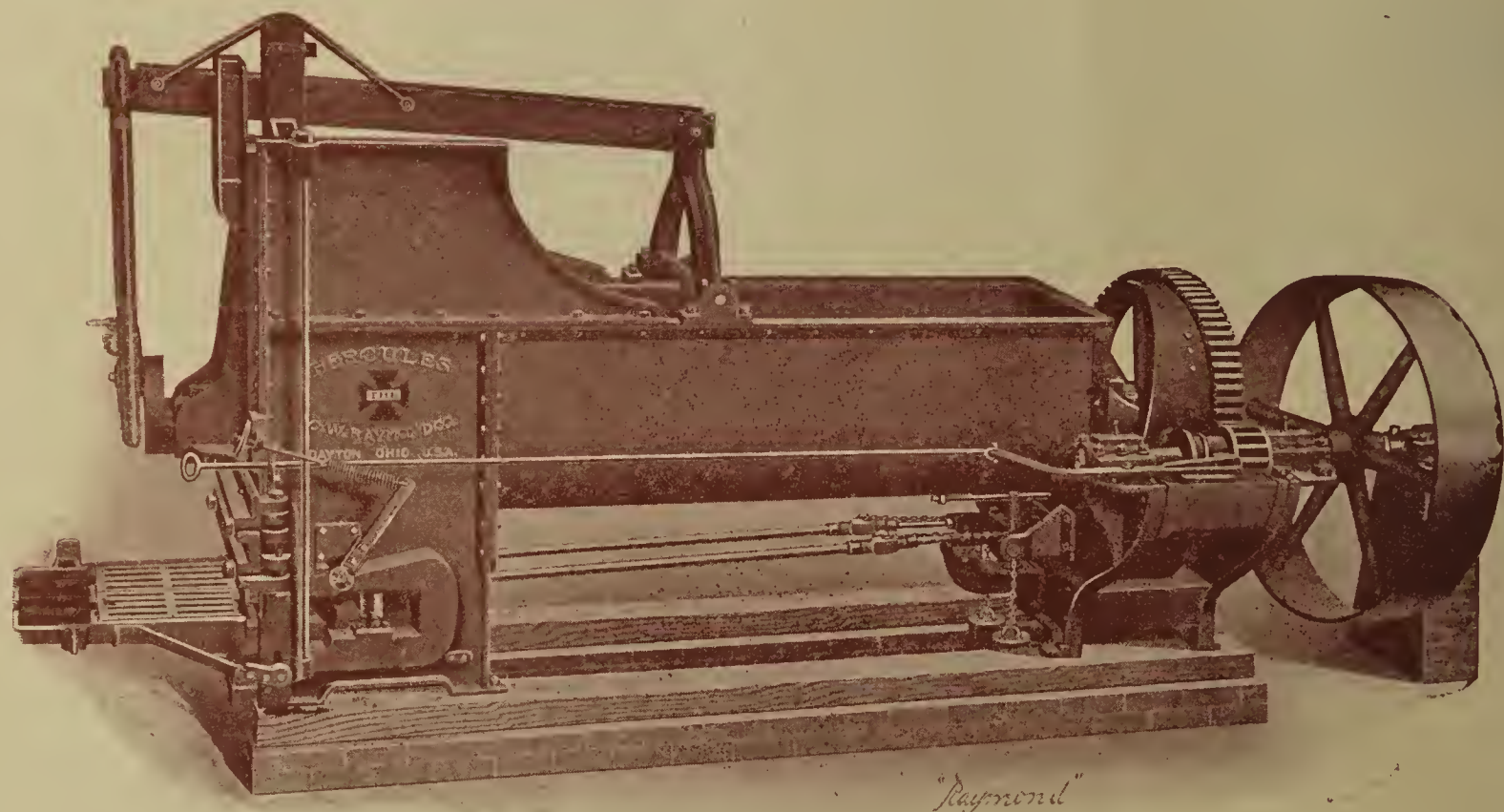
The C. W. Raymond Co.

*The Strongest Power in the World of
 Clay Working Machinery*

Dayton, Ohio, U. S. A.



THE RAYMOND HERCULES BRICK MACHINE



Among the numerous improvements made in our machines for the year of 1912 the Soft Mud machinery has come in for its full share and the Hercules Soft Mud machine is now constructed with a vastly improved pushout device, making a positive return and of such shape and size to insure sufficient bearing at this important point that it will not stick nor clog in any manner.

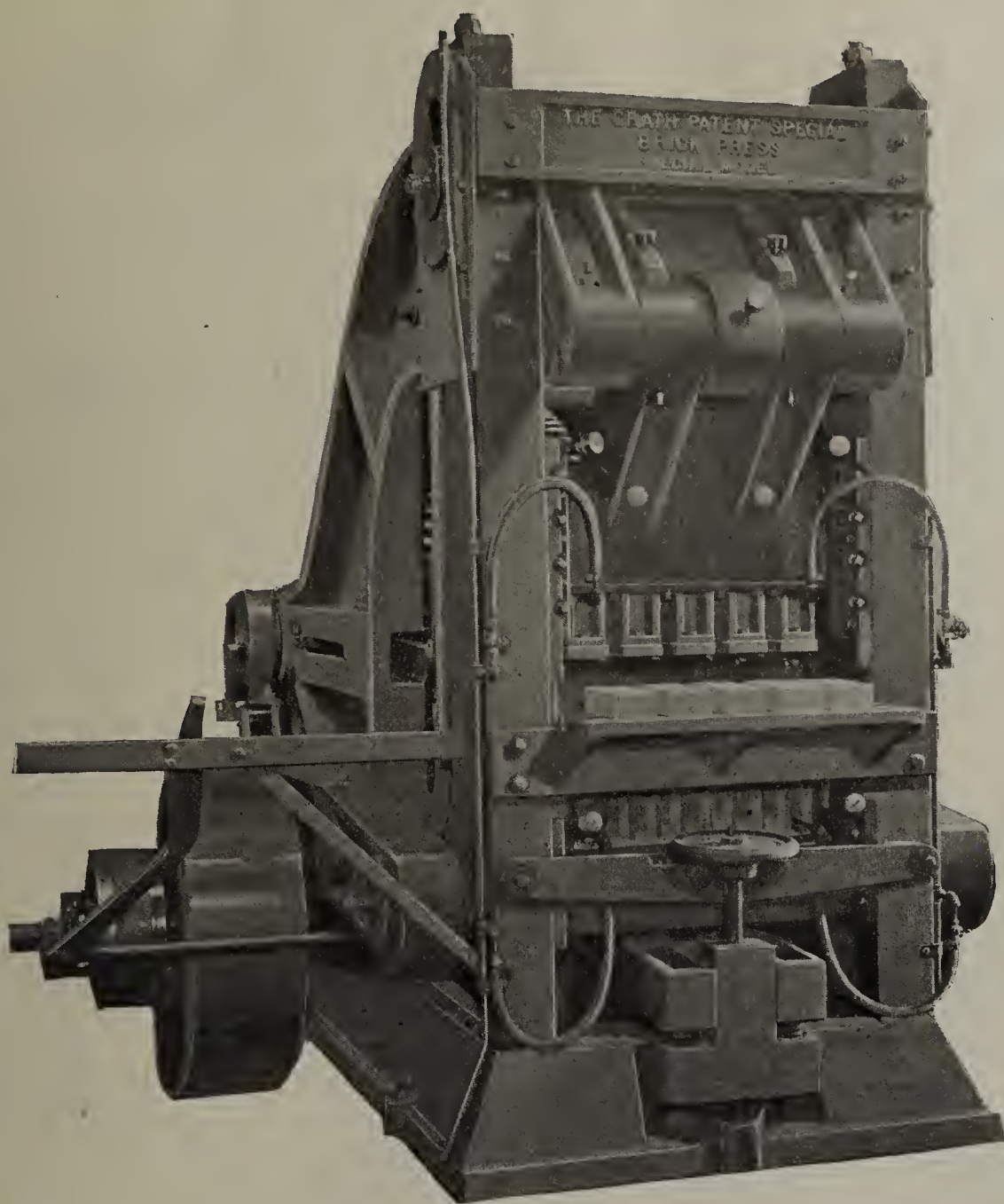
The safety feature of the pushout device has not been lost sight of, but has been improved over the old method by paying more attention to the workmanship and every part of the machine now is put together with the same care and precision as are the most careful adjustments on our Automatic Cutting Tables. The result of this is clear, making as it does a higher grade machine, smoother working, better product and longer life.

Photographs and full description of this improved machine are yours for the asking.

THE C. W. RAYMOND CO.

The Strongest Power in the World of Clayworking Machinery

DAYTON, OHIO, U. S. A.



The Grath BRICK PRESSES

ARE THE BEST

All side and cross strains and twisting of crank shaft eliminated.

Brick free from granulations and weak centers, pressed evenly throughout with balanced pressure.

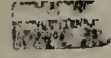
Made in one-two-three-four and five mold sizes.

The best hand power brick press is the **Grath Hand Press**.

Roofing tile presses and machinery.

THE GRATH 5 MOLD SPECIAL.

All machinery guaranteed to make highest grade of ware and against breakage.

 We have the best and most practical kilns and furnaces for all purposes.

Selling Agents for Schurs Patent Fuel and Crude Oil Burners for kilns, boilers and all places where heat is wanted. The best and cheapest made.

OVER 9000 IN USE GIVING FINE RESULTS.

For further information write

Illinois Supply & Construction Co.

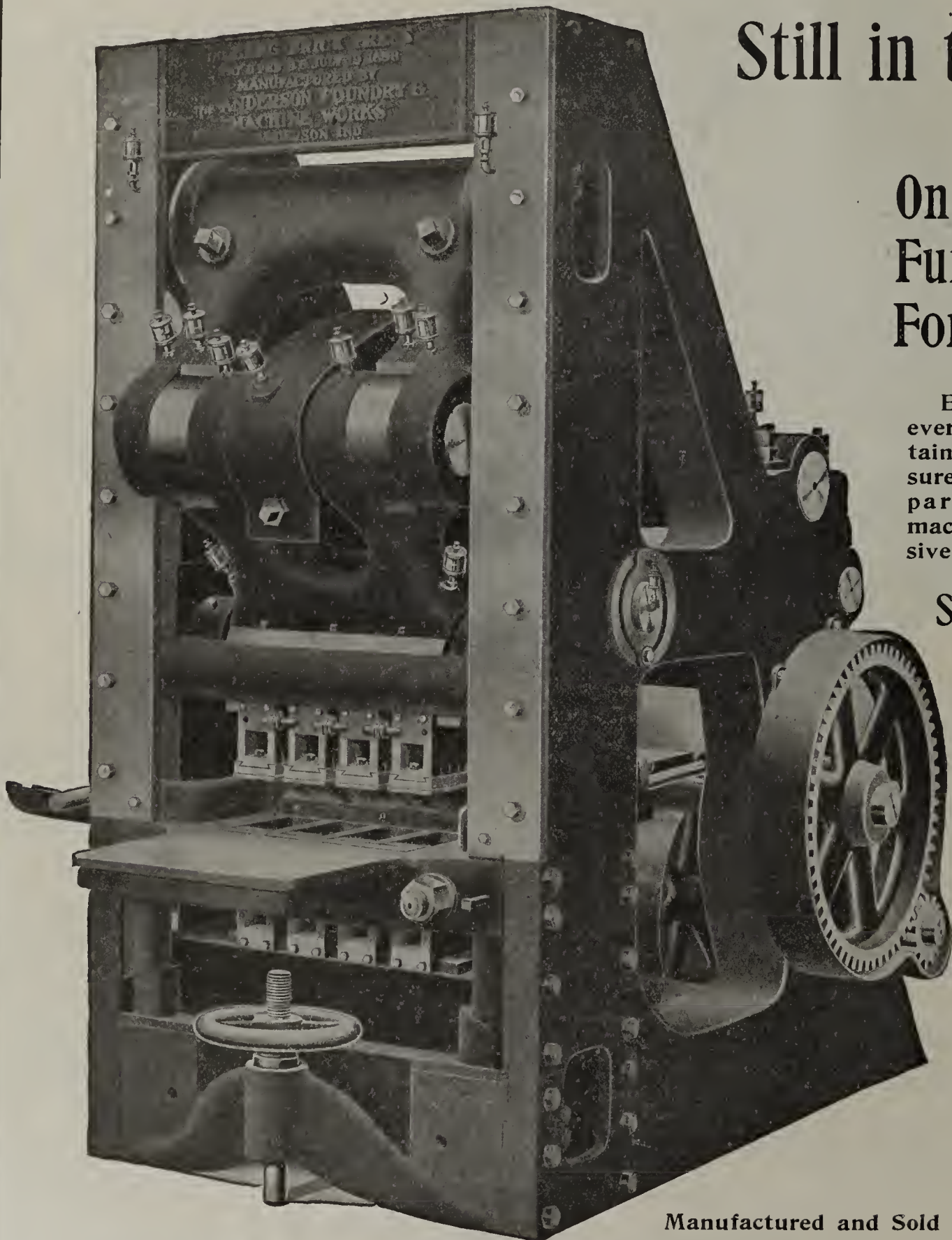
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Liebers' Code.
Cable Address,
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Long Distance
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NEW MODEL BERG BRICK PRESS

WE MANUFACTURE AND INSTALL COMPLETE PLANTS UNDER GUARANTEE FOR THE MANUFACTURE OF SAND-LIME BRICK.



Still in the Lead

and

One Step Further Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact and

SHIPPED IN ONE PIECE.

All Machines
Are
Equipped With

CUT GEARING.

Manufactured and Sold by

THE ANDERSON FOUNDRY & MACHINE WORKS

Manufacturers of Soft Mud Brick and Drain Tile Machinery

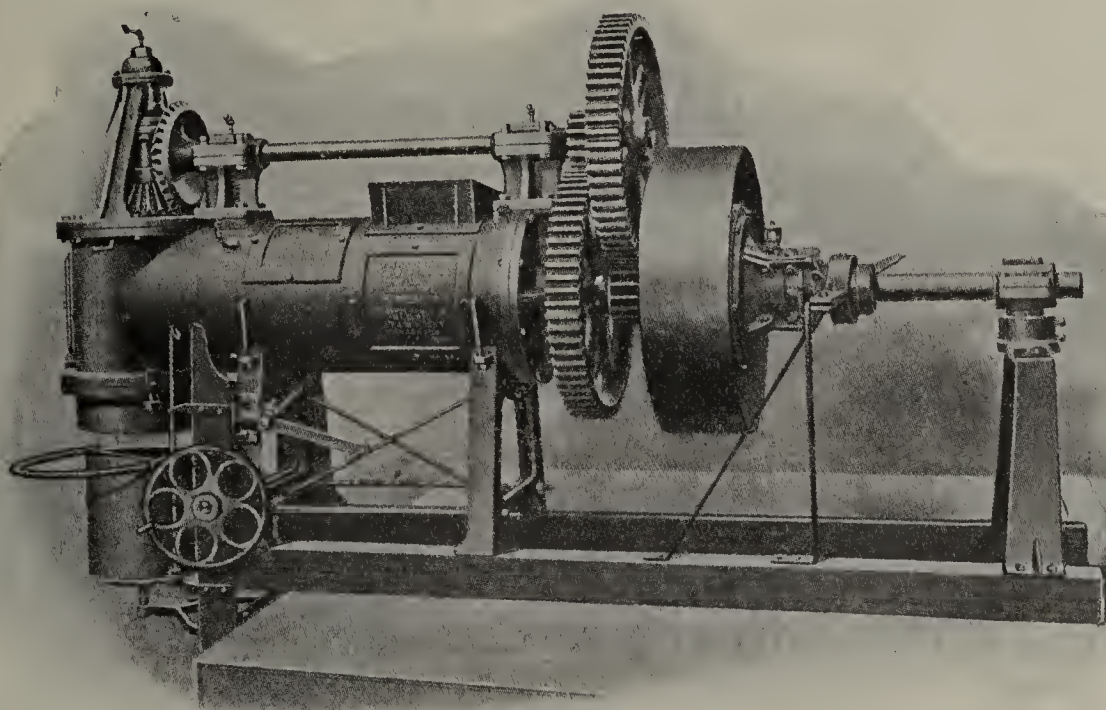
Sold by the C. W. RAYMOND CO.,
Dayton, Ohio.

ANDERSON, IND.



ANDERSON GIANT SOFT-MUD MACHINE

The strongest and heaviest soft-mud machine made—steel gearing



NEW DEPARTURE TILE MILL

This is the original down-delivery tile mill, and the only one that makes tile from three inches to 24 inches diameter—roller bearing and steel gearing.

We Install complete Soft-Mud, Dry Press and Sand-Lime Brick Plants—Manufacturers of Berg Brick Press

Anderson Foundry & Machine Works

Anderson, Indiana

Sold by CHICAGO BRICK MACHINERY CO., 20 W. Jackson Blvd., Chicago

The National Paving Brick Manufacturers' Association

Will send you free, upon request, any or all of the following booklets:

"Directions for Laying Brick Street Pavements."

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"Proper Construction of Brick Street Pavements."

"The Permanent Roadway."

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SHAWMUT VITRIFIED PAVING BRICK WORKS,

Shawmut, Pa.

Alfred Yates, Gen. Mgr.

Vitrified Shale and Fire Clay Paving Bricks and Blocks.

Burned in Yates' Patent Kiln.

Samples and Prices on Application.

Thurber Vitrified Paving Brick

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Made of the finest shale, absolutely free from lime.

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Ft. Worth, Texas.

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The Danville Brick Company,

Manufacturers of the Unsurpassed

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Danville, Ill.

LET US QUOTE YOU PRICES.

PROMENADE TILE

Chocolate Red

Highest Vitrification—Lowest Absorption.

BEST BY TEST.

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OXBLOOD RED FRONT BRICKS
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EGYPTIAN PAVING BLOCK

The Block That Stands the Test.

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"Best Paving Block Made"



Daily Capacity

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Terre Haute Vitrified Brick Co.,

Manufacturers of

High Grade Vitrified PAVERS.

Samples Free.

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Marion Brick Works

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MANUFACTURERS OF ALL SHALE

PAVING BLOCKS and PIONEER BUILDING BRICK.

Our leading brands are CULVER BLOCKS, WABASH STANDARDS, "SPECIALS," for crossings on macadam streets, GUTTER BLOCKS, COLUMBIAN SIDEWALK BRICK and PIONEER BUILDING BRICK.

Our material has for over twenty years successfully stood the heaviest traffic of Indianapolis, Terre Haute, East St. Louis and dozens of other large cities of Indiana and Illinois. We ask investigation and comparison by those seeking the best paving material. Samples furnished on application.

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Clinton Paving Brick Company,

Manufacturers of the Highest Quality of

Paving Brick

Which are offered to the municipalities of the Central States under positive guarantee as to wearing quality. None better.

Prices and samples sent on application.

Correspondence solicited.

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Do You Want Clay?

WE OWN AND OPERATE EXTENSIVE DEPOSITS OF THE VERY BEST GRADES.

Fire Clays, Terra Cotta Clays, Kaolin, and Fire and Moulding Sands.

Have been in the business for TWENTY-FOUR years, and are prepared to meet every reasonable demand. Unsurpassed shipping facilities. Prices and samples free.

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(C. A. Bloomfield, Treas. and Manager)

P O. Box 413.

METUCHEN, N. J.

Bessemer Limestone Company

Youngstown, Ohio.

Manufacturers of

BESSEMER BLOCK.

The Most Uniform Shale Paver
Made.

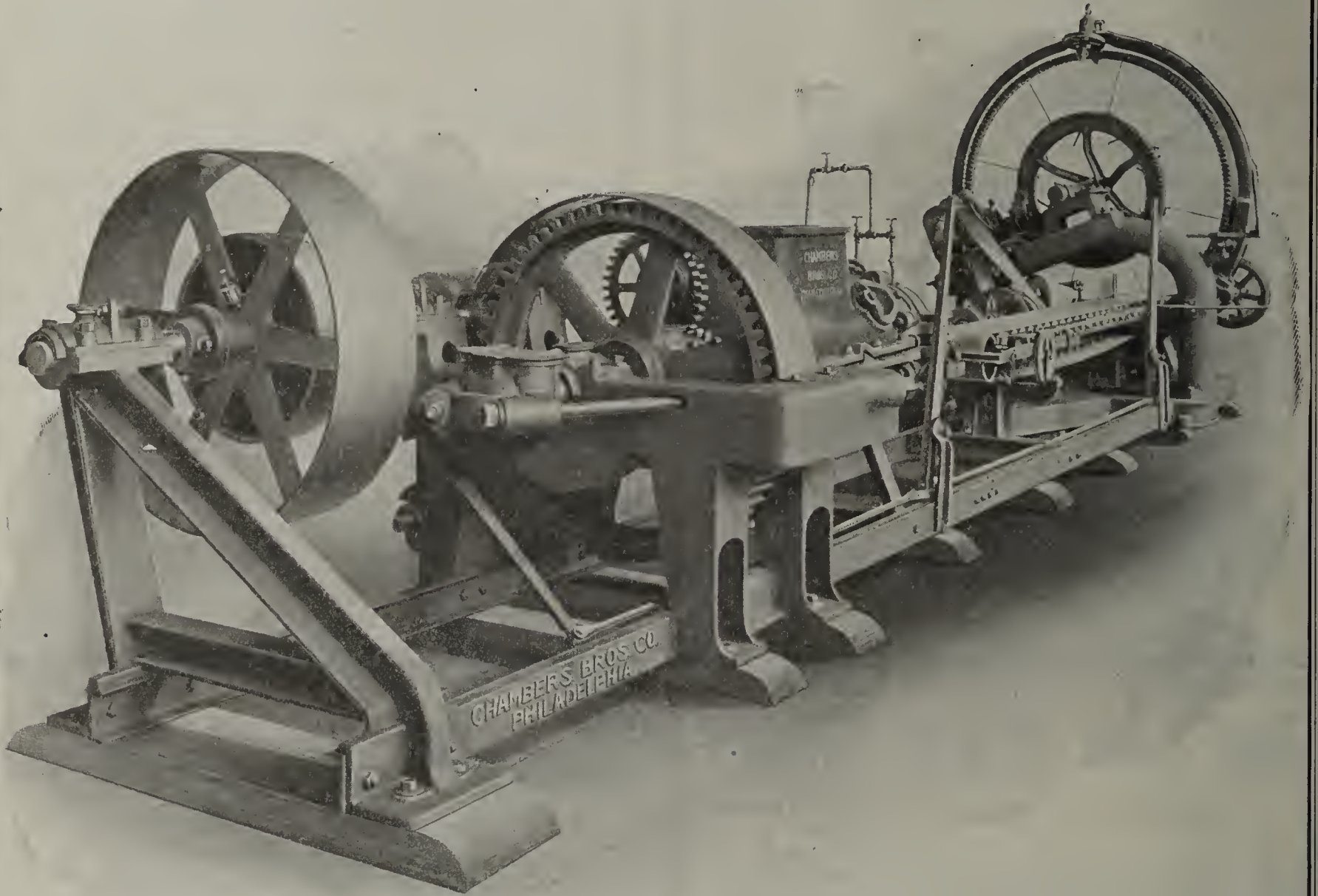
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HAS the largest and best equipped plant in the United States for the manufacture of Paving and Sidewalk Brick. The Galesburg Paving Brick have a reputation second to none, and this Company points with pride to its record for quality of material and its methods of conducting its business.

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The No. 10 Auger Brick Machine with No. 5 Automatic Side Cutter.

Cuts Building Brick, Hollow Brick and various thicknesses and lengths of Furnace Block Material.

Auger Brick Machines of Various Capacities with Rotary End-Cut and Side-Cut Tables.

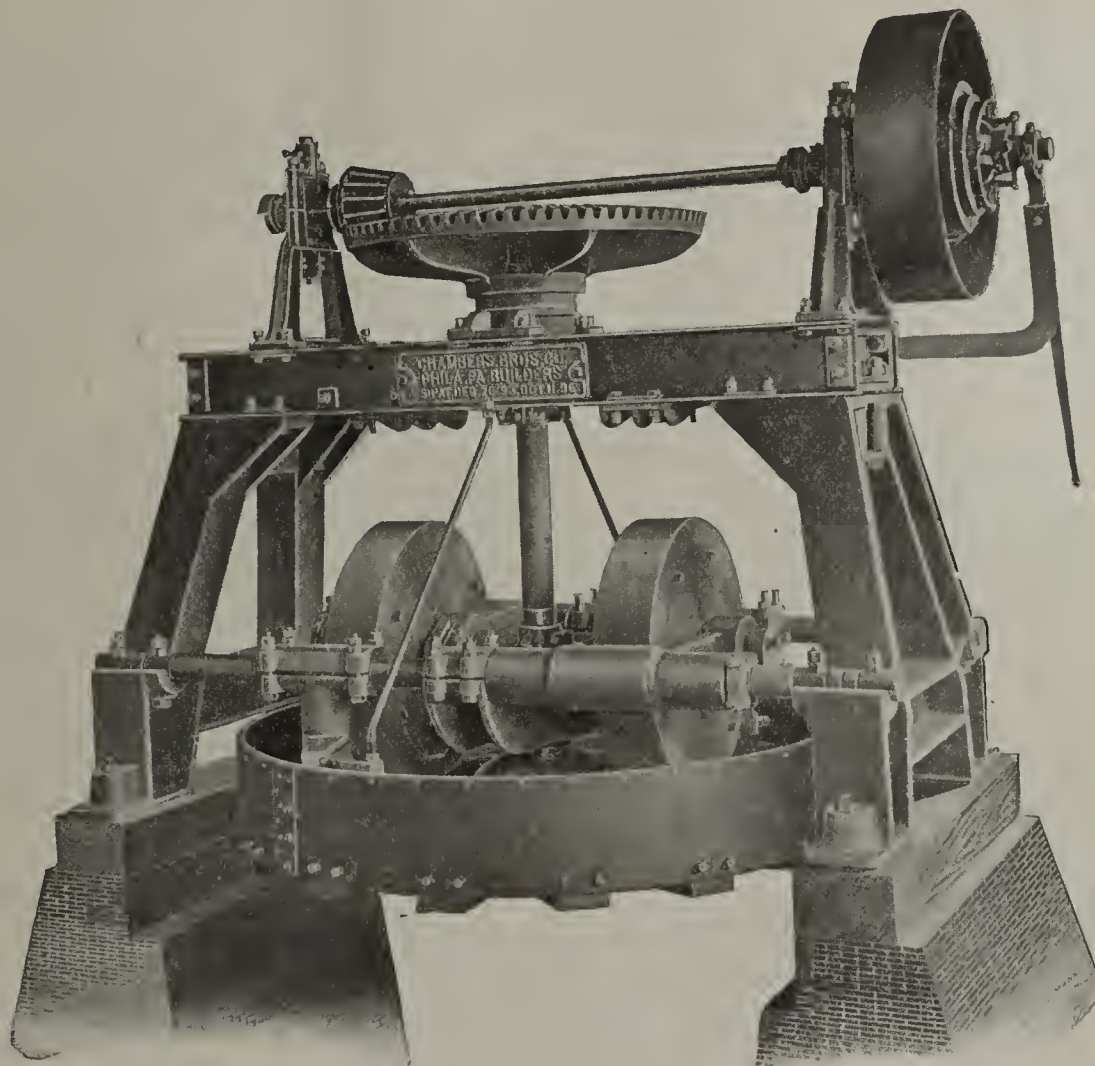
Special Machines for Street Paving Block

Chambers Brothers Company

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This is the Dry Pan that Mr. Sibley Uses.

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SIBLEY-MENGE BRICK AND COAL COMPANY

General Office

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Philadelphia, Pa.

Gentlemen:

Please ship to us by freight to Warrior, Alabama, the following repair parts for our 7- $\frac{1}{2}$ ft. Dry Pan *****; and the following parts for our 9 ft. Dry Pan; *****.

You will please note that these are the first repairs for 9 ft. Pan of this character in six years, and I dare say establishes a record for you.

Yours very truly,

SIBLEY-MENGE BRICK & COAL CO.,

J. W. Sibley
President.

Chambers Brothers Company

Fifty-Second and Media Sts.
PHILADELPHIA, PA.

524 West Jackson Blvd.
CHICAGO, ILL.

January 1912

SUN	MON	TUE	WED	THU
✓	1	2	3	4
7	8	9	10	11
14	15	16	17	18
21	22	23	24	25
28	29	30		

February 1912

ED	THU	FRI	SAT
✓	1	2	3
✓	✓	✓	10

March 1912

SUN	MON	TUE	WED	THU	FRI	SAT
✓	✓	✓	✓	✓	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
✓	18	19	20	21	22	23
✓	26	27	28	29	30	

April 1912

SUN	MON	TUE	WED	THU	FRI	SAT
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7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	✓	✓	✓	✓

O. K.
for Every Clay
and Every Kind
of Weather

The Standard Drier

May 1912

FRI	SAT
✓	1
7	8
13	14
19	20
26	27
30	31

June 1912

FRI	SAT
11	12
18	19
25	26
✓	✓

July 1912

SUN	MON	TUE
✓	1	2
7	8	9
14	15	16
21	22	23
✓	29	30

Clear Through the Year

No *weather* troubles!
No *engine* troubles!
No *pipe* troubles!
No troubles *at all*!

With The Standard Drier you dry your product *satisfactorily* clear through the year—with the same ease and economy in *January* as in *July*.

It works unceasingly—automatically—every month and every week and every day.

It has no engine or complicated machinery to break down—no cheap, poorly-joined pipes to leak and cause trouble.

Ask Standard Drier *users*—they're everywhere. They'll tell you how good an investment it is!

Write today for the catalog and learn the facts about The Standard Drier—the reasons for its overwhelming popularity throughout the brickmaking world.

THE STANDARD DRY KILN CO.

1547 McCarty St. Indianapolis, Ind.

August 1912

THU	FRI	SAT
5	6	7
12	13	14
19	20	21
26	27	28
✓	✓	✓

October 1912

SUN	MON	TUE
✓	✓	1
6	7	8
13	14	15
20	21	22
27	28	29

November 1912

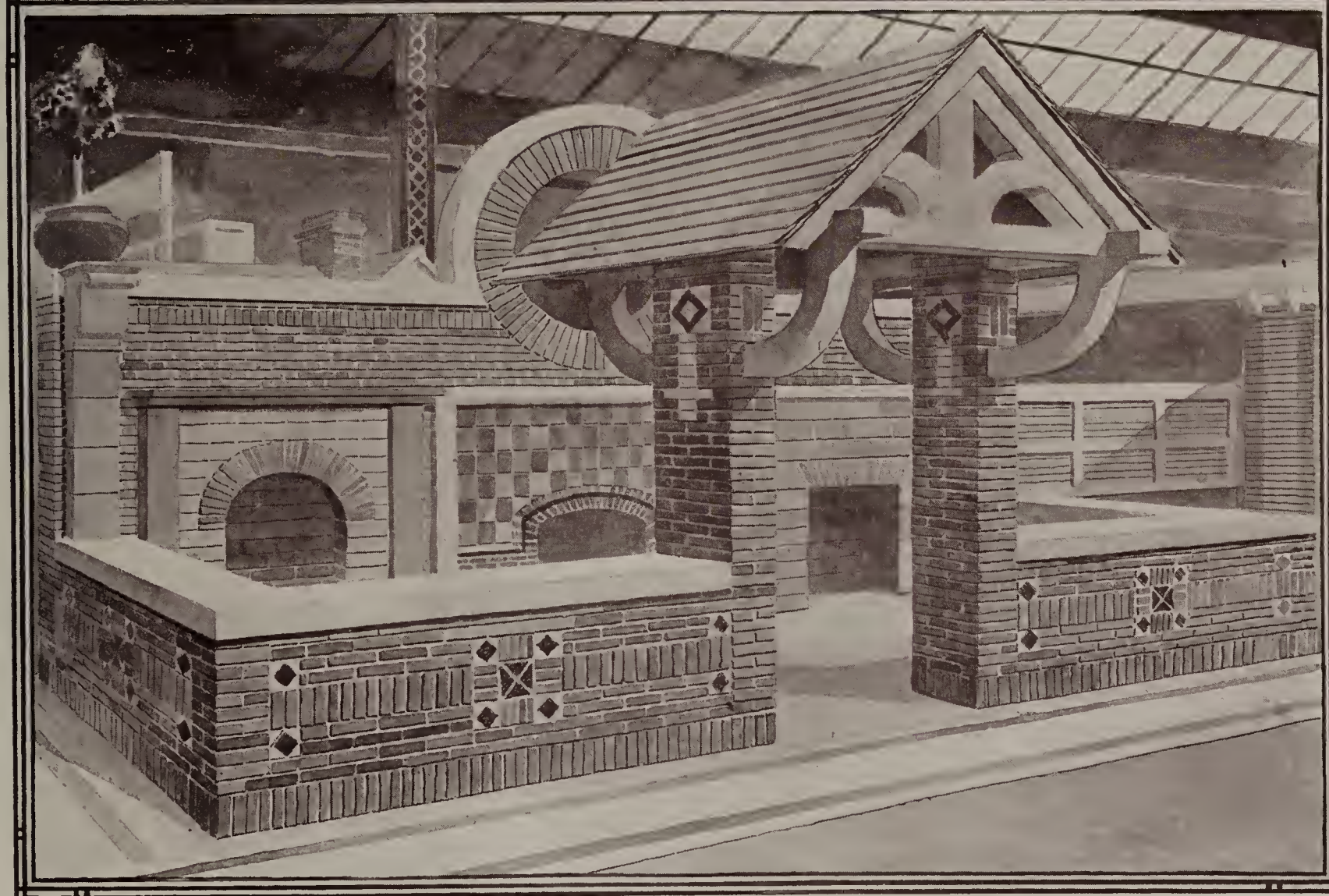
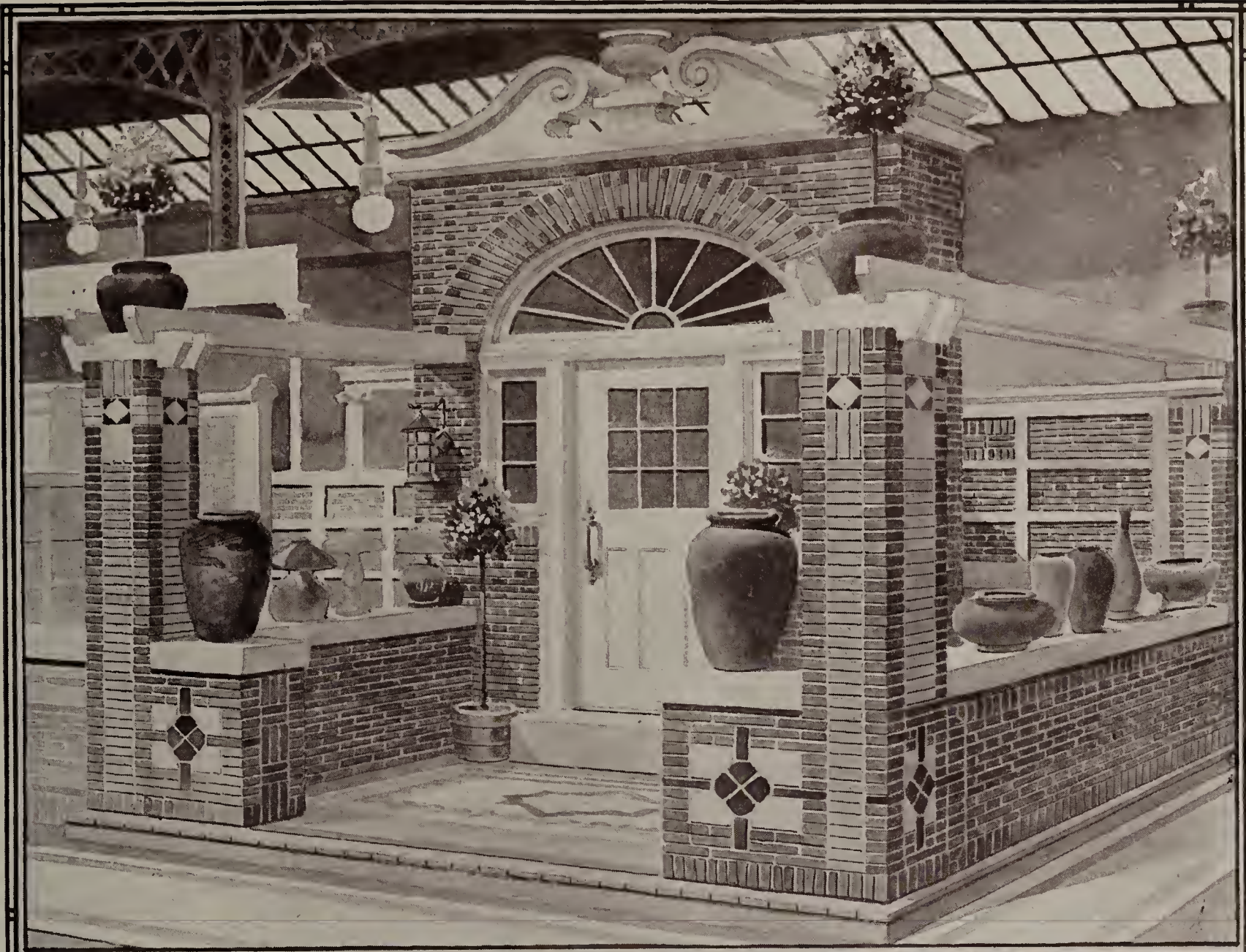
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December 1912

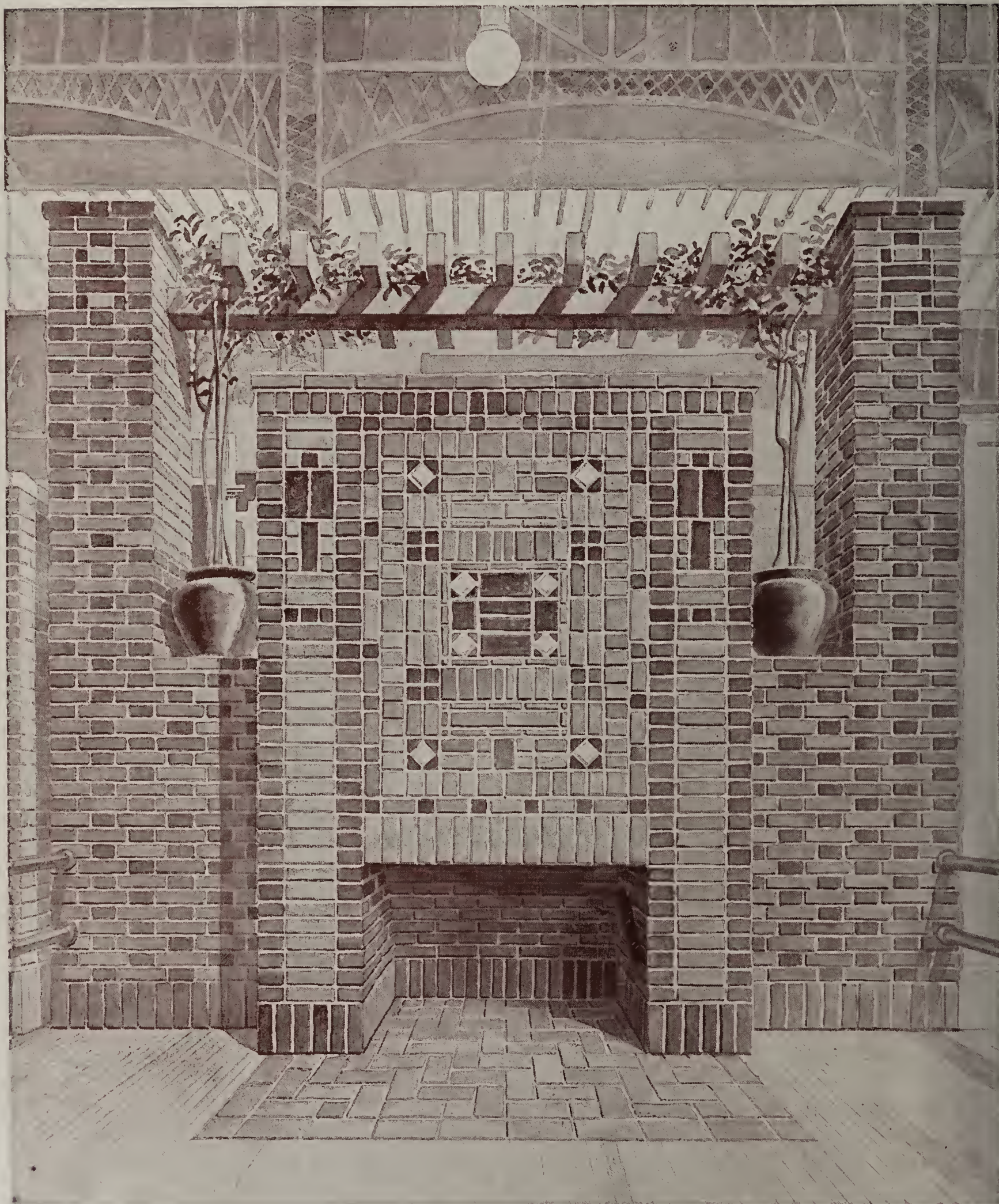
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January 1913

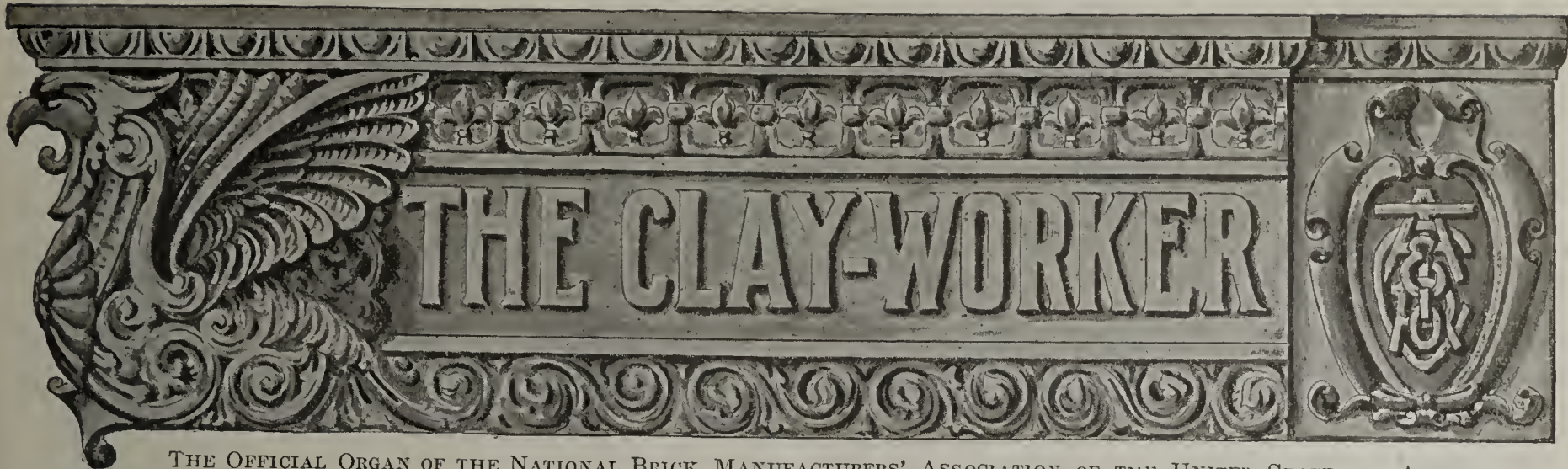
THU	FRI	SAT
22	23	24
29	30	31
✓	✓	✓



Two Very Effective Displays of Brick and Tile for Decorative Purposes,—Courtesy of Dealers Building Material Record.



Suggestions for Display of Ornamental Brick for the Clay Products Show.—Courtesy of Dealers Building Material Record.



THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LVII.

INDIANAPOLIS, IND., JANUARY, 1912.

No. 1.

Written for THE CLAY-WORKER.

A SPLENDID BRICK PLANT

A Model Modern Paving Brick Factory so Constructed That Fire Risk Has Been Eliminated.

NOT EVERY BRICK MANUFACTURER may hope to have a cozy brickyard office with a spacious brick fire place before which, seated in his easy chair, he may sit at ease any winter's day content in the knowledge that regardless of the weather, whether it brings snow or sleet, zero weather, or fierce winter winds, the regular daily quota of brick will be made and the work about the plant go on just as it does at any other season of the year. But there is one brick manufacturer who can and who does do just that, and it is our pleasure to present our readers with a picture of the affable gentleman just as we "snapped" him one recent winter's day.

It is a pleasant picture to contemplate, especially so to those who know the subject of our sketch, Mr. Eben Rodgers, the President of the Alton Brick Company and third vice-president of the N. B. M. A. "Lucky fellow," we hear some of our readers say. Yes, he is all that and more. He is an idealist in a way, but so tempers his ideals with good horse sense and pursues the even tenor of his way with a persistence and an energy which not only deserves but commands success, and "good luck" is but a synonym of success well deserved.

Mr. Rodgers not only enjoys peace of mind when at the plant, but can lay him down to peaceful slumber seven nights in the week without fear of being disturbed by fire alarms, for his brick plant is so constructed that there is no need to carry fire insurance at all. It is an all brick and

steel factory with little or nothing about it to burn except the fuel with which the power plant and kilns are operated.

It is inspiring to see a fine, clean paving brick plant like this running day in and day out right through the year, making 75,000 high grade paving block per day with as much regularity and precision as one is wont to expect in any mill or manufactory in other lines of industry, and too with the same uniformity of product. So we are pleased to take our readers on a little trip of inspection through this splendid brick plant which in some respects is not equaled in the United States. If any of our readers can match it, we want them to do so and to send us photographs and descriptive

data so we can let the clayworkers of the land see the highest type of American plants. Our columns yawn for views and descriptions of factories of this type.

We hope the day is not far distant when such plants will be the rule rather than the exception. They cannot be had though for the wishing. Eb. Rodgers did not get his that way, though from boyhood days, he has wished that he might sometime operate a model brick plant, and he is to be congratulated on having achieved his ambition.

The plant is located in North Alton, a suburb of Alton, Ill. The buildings are of brick and structural iron and the equipment throughout is of the most modern type that can be procured. There are a number of features, the invention of Mr. Rodgers and his associates, which are peculiar to the plant itself, the aim and purpose being to reduce the labor bills where possible, and to insure a uniform and high grade product.

The Clay Bank.

The company owns a tract of land of 165 acres, all underlaid with a bed of blue-grey rock shale about 35 feet thick, which clay is peculiarly adapted for making paving brick.



Eben Rodgers at Ease Before His Cozy Fireplace.

The upper part of this shale consists of about one foot of shale, laminated with thin layers of sand, but above this shale there is a bed of good strong plastic and bonding clay about five to six feet deep. This clay carries the sandy clay into a good vitrification and by using the face of the clay bank from top to bottom, a perfect paving brick clay mixture is obtained and that too, with very little stripping.

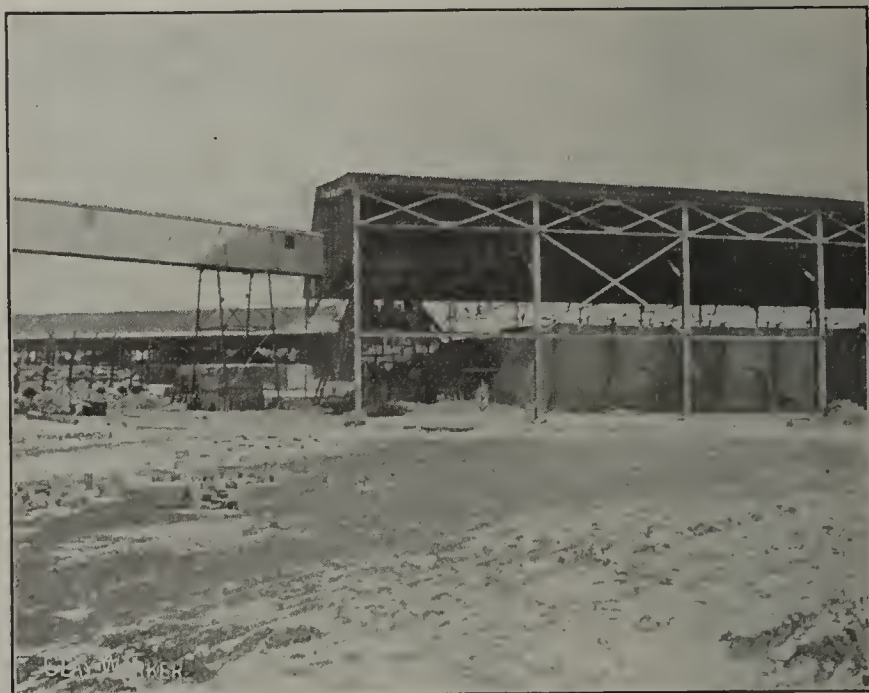
There is employed an electric drill using four inch drills, and holes can be cut to any depth desired. The shots put in are just heavy enough to pop the clay off the solid rock, and shatter the clay sufficiently, so that the steam shovel can readily handle the product. It is usually aimed to shoot off enough clay, so that there is a little left to weather. There is in use a 70-ton Marion steam shovel taking the clay away from a 30-foot face.

The clay is dumped into side dump cars, six of such cars making a trip for a steam power locomotive, which brings the cars to the first relay station. The average daily output of the steam shovel is about clay enough to make 70,000 9½ pound paving blocks. Between this relay station and the switching station there is a small hill on the top of which is erected an electric hoist, which has an ingenious arrangement, whereby the same train of cars can go up hill and down hill without uncoupling or changing rope.



Factory Office of Alton Brick Company.

supplied with the usual delivery and tailing spouts. The clay next is taken to the top of steel storage bins of their own design and of which there are two. These storage bins are 80 feet long, 34 feet wide and 22 feet high and each holds enough clay to make over 1,000,000 9¼ pound block. The sides are constructed of 9-inch I beams embedded three feet in a solid concrete bed and secured besides with bolts in the concrete foundation. These 9-foot I beams are spaced two feet apart and are faced on the interior with ¼-inch steel plate riveted to the framing. The bottom has inclined bevel sides made of concrete with a passageway at the lowest central point in the concrete work, temporarily closed to retain the screened clay and opened whenever it is necessary to take clay out. Over the top of each bin there is placed a very ingenious automatic reversing dumping arrangement to provide means for evenly distributing the clay in the bins. As the clay passes over this bin, the automatic arrangement deposits the clay in a stream into the bin, thus depositing the clay in thin layers as against the old method of dumping a car load in one spot. As this arrangement travels in sympathy with the clay conveyor mechanism, it is impossible to dump the clay in one spot which in turn makes a very uniform clay mixture in the bin. This depositing mechanism is self-reversing when



Partial View of No. 2 Youngren Gas-Fired Kiln.

From the switching station the cars of clay are brought into the factory proper by means of a steam hoist and the clay dumped into inclined storage bins, just forward of the dry pans. This steam hoist is the only steam driven piece of machinery in the factory building and is retained because the exhaust steam therefrom is used to very good advantage.

The Factory.

The factory building is a very substantial brick building and wherever it was possible wood has been eliminated and the building is as nearly fire proof as a factory building could be constructed. The roof support is of the usual T and angle iron type and the trusses are designed strong enough to carry any weight. There is plenty of light in the building in that all overhead shafting, pulleys and belts for same are cut out and free passage offered for all light rays entering the building. Every principal part of the operating machinery is supplied with its own electric motor and belt connected, thus making each machine a self-contained element.

The clay is next passed into four 9-foot Bonnot dry pans, each with a 35 h. p. electric motor. Each dry pan is supplied with an inclined hopper, made of concrete, so that the clay can readily pass by gravity to a carrier or conveyor. The clay is next elevated and passes over screens which are

it arrives at either end of its travel over the storage bins.

From the storage bins the prepared clay is deposited by suitable conveying system, into an automatic adjustable feeder built by the Ohio Ceramic Supply and Construction Company of Columbus, Ohio, and is doing good service. The tank is of good size being seven feet in diameter and six feet high. The entire machinery equipment was supplied by the Bonnot Company, of Canton, Ohio. From the storage bin the clay is fed into a heavy duty 12-foot pug mill, equipped with cut steel gearing. From the pug mill clay passes to the Canton Special brick machine, which is supplied with an auxiliary 5-foot pug mill. This thorough pugging of the clay produces a column of clay free from laminations. The brick cutter is of the reciprocating side-cut type and has the Bonnot Special angle delivery, by which the cut brick can be turned and delivered at any angle desired. This arrangement has a tendency to make a more compact arrangement, which is an important factor, as space under roof costs money. The brick from the delivery belt are put through four Bonnot Represses with an arrangement of automatic waste return which carries all scrap back into the pug mill.

The brick are next put through four Bonnot represses so arranged that the scrap is passed back into the pug mill

by a belt conveyor equipment. The repressed brick are then placed on transfer cars to be taken to the drying tunnels. At the time of the writer's visit he noticed particularly a device used on the cars and invented by Harry Meyers, the superintendent of the plant. The ordinary dryer cars have a top made of channel iron generally spaced to take up builders of 7-pound blocks. When making 9-pound blocks the spacing on the cars does not conform to the size of the 9-pound blocks and in consequence thereof a great many brick have buckled faces. Mr. Meyers employs a $\frac{1}{4}$ steel plate so perforated with slots that the 9-pound blocks will

7-pound pavers and 30 hours to dry 9-pound block. The cooling tracks hold 80 cars, which have been found very advantageous for the 9-pound block. Each tunnel is supplied with its individually electric driven fan for removing the water vapor. The system is found satisfactory and no checked or cracked brick were in evidence.

Continuous Kilns.

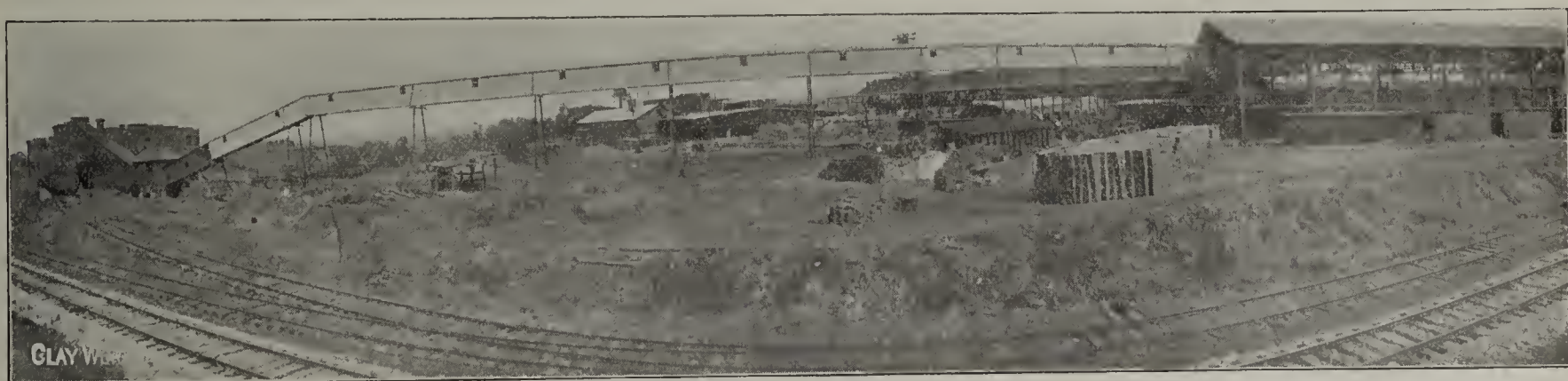
There are two systems employed, one, the older one of the Youngren gas fired compartment kiln, and the later one, based on the experiences that were had in correcting errors of the older type. It may safely be stated that this firm



Panoramic View of Alton Brick Company's Paving Brick Plant.



General View of Kilns, Stock Yard on Foreground.



The Coal Conveyor Extending From Coaling Station to Kiln.

show no damaged faces, and the writer saw 9-pound blocks stacked four high without a blemish on them. It's a good thing, all right. The cars hold about 425 9-pound blocks.

Tunnel Dryers.

On this plant the exhaust steam is used in addition to the ordinary direct heat and the results obtained are satisfactory. There are five tunnels each containing four tracks; each track holds 15 cars and this gives a tunnel capacity of 300 cars. It generally takes 24 hours to dry builders and

was the pioneer in using gas fired continuous compartment kilns in the United States, for burning pavers. It must never be overlooked that paving brick are limited in their qualities by standard specifications, thus making the paving brick branch one of the most difficult of the clay working industries. But on this plant all burning difficulties have been overcome and the product is first class. To go into all details of the burning proposition with gas, would make this story too long, but anyway let it be said that, any one visiting this plant, will readily be converted to the gas burning proposition after seeing results obtained there.

The older Youngren kiln is of the parallel type, having eight chambers on each side with, as originally planned, the water smoking flue, gas flue and stack flue in between these two batteries. Each chamber is 35 feet 6 inches long, 16 feet wide, and 12 feet high. As ordinarily operated the conditions would be as follows: Chamber 3 and 4 setting, chamber 5 empty, chamber 6 drawing and 7 cooling, but opened up, chamber 8, 9, 10 and 11 air passing through for pre-heating, chamber 12, 13 and 14 taking gas for burning and advance heat passing through chambers 15, 16 and 1, the heat from chamber 1 passing into stack. Chamber 2 is water-smoking. To produce the required draft, there is used a 170-inch fan with a $\frac{3}{4}$ housing running at 260 R. P. M., but there is a great deal of trouble experienced with this kiln, in that only a single fan takes care of the heat vapors as well as the watersmoking vapors. In consequence, condensation of the water vapors, in the presence of the sulphur vapors com-



Superintendent Meyers and Rig for Loading Wagons for City Delivery.

ing from the coal, corrosion of the iron housing and fan parts takes place very rapidly and the fan draft proposition in this case is worthy of consideration. The chamber capacity of this kiln is 42,000 $9\frac{1}{4}$ -pound blocks which are burned at 2050 and 2100 degrees F.

Continuous Kiln No. 2.

This kiln is of the single battery type and was designed by the firm to overcome all defects of the older system and at the same time adding other benefiting features. This kiln consists of 14 chambers located side by side and the waste heat from the last chamber by means of an underground flue, is passed into the first chamber. Each chamber is 40 feet long, 14 feet wide and 9 feet high. Each chamber has a capacity of 30,000 9-pound block, or 40,000 7-pound block or 50,000 building brick. The watersmoking flue is separate from the fire draft flue. For watersmoking a fan 120 inches in diameter, 175 R. P. M. is used, taking vapor from two chambers, one at a low heat and one at a higher heat and in this way the heat is kept high enough so that no water vapor can condense and as no sulphur vapor is present no corrosion of the fan takes place. There is a separate duct provided for the fire heat and requires a 110-inch fan and as no watersmoking vapor is ever present, the fan has a long life. In this kiln the gas conduit is placed in the ground, each chamber having its stationary up-take and in-take and in this way the moving of the portable gas in-take of the older system is done away with.

The operation of this kiln is about as follows: Unloading one or two chambers, setting one or two chambers, water-smoking two, gas firing three, preheating three or four and cooling four or five. Each kiln is provided with a battery of two 4 hopper square Youngren gas producers and as they

are of the suction type, the gas making is controlled by the velocity and strength of the draft. In each type of kiln the fire bags are placed 3 feet 6 inches apart and the individual gas valves are thus placed 3 feet 6 inches between centers. In this way the flow of gas can be regulated for each fire bag in turn governing the temperature. Each chamber is provided with the necessary gauge holes, peep holes and clean out holes. All chambers are provided with necessary draft gauges and electric pyrometer in such a way that they may operate in series, in train or individually.

Equipment.

Kiln No. 1 is supplied on both sides with depressed loading tracks so that the kiln bottom is on a level with the car floor. Kiln No. 2 has a similar track only on one side, the other side being taken up with underground flues. The Mathews Gravity Carrier system is used when loading brick from the piles that have been sorted. It is claimed that the gravity system makes a saving when used at this time. The operation of the plant is carried on in groups, each subdivision having its gang boss, who is responsible for his department. Each department has its own telephone with its own switching outfit, so that any one department can call up any other department without connecting through a central switchboard. This system has more than once proven its utility and it is hard to believe that the company could get along without it.

Central Coaling Station.

Is located close to the power house and consists of a deep pit located under the railroad track. This pit has inclined sides and a sliding door at the bottom for regulating the



Railroad Siding Extending Through the Plant.

flow of the fuel. Underneath this door is a drag conveyor working in a short metal trough and carries coal to a central station from which, on endless belts, the coal can be carried either to the power house or the gas producers. At either place the coal is put in storage in overhead iron tanks, each supplied with the necessary and appropriate feeding spouts, those at the kilns being stationary, while those at the boilers are of the swinging type.

Power House.

Is a large massive brick structure with iron truss roof, well arranged and well built. The boiler and fuel department is located in a separate part of the building from the engine department.

There are two 300 H. P. boilers equipped with automatic chain grate stokers, which are fed with swinging spouts, connected to overhead iron storage bins. The boilers are also equipped with "economizers," thus reducing the fuel

bill. The draft is of the "induced" type and the fan and engine equipments required are in duplicate, so as to be prepared at all times for a break down. For day service there is used a large Hamilton Corliss engine connected with a Northern Electric generator, which develops 600 H. P. There are about 41 motors in all on the premises of various sizes, all belts connected to their individual machines, such as:

- 125 H. P. for brick machine.
- 40 H. P. for pug mill.
- 35 H. P. for each dry pan.
- 15 H. P. for represses.
- 10 H. P. for automatic feeder, etc.

For night service there is used a 4 valve Erie "Ball" engine connected to a Northern Electric Company generator. The water supply is an independent one coming from the Mississippi in that it was found that the pond water used

some of which would have discouraged one of less stick-to-ative-ness and ambition. The plant is open to inspection at all times and visiting clayworkers may always count on a kindly cordial reception.

OUTLOOK IN NEW JERSEY.

Brick manufacturers need not feel discouraged over the outlook in New Jersey. It has seldom been better. There are projects for various structural operations which will consume many millions of brick. Railroads are planning extensive changes in terminals and along their rights of way which will require much brick. Structural work of various classes in all the large cities and towns promises to be larger than ever before, and there are many other possibilities which will require more brick than ever before to satisfy their requirements.

In building operations in the larger towns, brick is being



Exhibition of Alton Building Brick and Paving Block at a Local Fair.

for pugging the clay was unsuitable for boiler service.

Mr. Eben Rodgers, the general manager of the Alton Brick Company, is of the younger generation of brickmakers, but is following in the footsteps of his father, who was a successful clayworker and still takes a lively interest in all of his son's undertakings. "Eb" does not believe in brickyard secrets. On the contrary, he holds to the opinion that experience and theory should work in harmony and that clayworkers should profit by one another's experiences. He believes the technical men in the business should be given every possible chance to demonstrate their theories, and said so in his talk before the Illinois Clayworkers' Association convention in January, 1911. He believes in the "give and take" principal, and the writer has never gone to him to discuss any matter connected with the business that he did not obtain what he sought. His success is gratifying, none the less so because he has had many obstacles to overcome,

more generally specified and used. The superintendent of buildings in Newark says he shall approve no more cement construction as long as he holds office. That means that common brick must be used in Newark for basic construction, regardless of what architects and others would like to do.

Important river front improvements are under consideration in a number of localities and there is a project on foot in Jersey City, supplemented by capitalists in Newark, to begin the reclamation of much of the now useless meadows which border the river on the New Jersey side.

Added to these is the all important and steady growing demand for houses built of brick and the combination makes a series of possibilities which it would be hard to equal.

Some serious minded people are wondering now which would be best, to bust the trusts or bust the Sherman anti-trust law.

Written for THE CLAY-WORKER.

MEATY MECHANICAL MENTION.

Protecting the Journals of Clayworking Machinery.

ONE REASON the maintenance and repair bill of the clayworking plant is heavier than other industries using machinery is because of fine dust getting into the machinery parts or bearings and causing rapid wearing. Some of this it is impossible to prevent, but it is comparatively easy to protect the journals of shafting and machines in general. Nearly all of the dust that gets into them gets there by way of the oil holes. Dust is not likely to penetrate from the ends of the journals, because the oil working through the bearing tends to wash it outward. So, if the oil holes and other openings in the top and center of the bearings are protected there is not much need for damage from dust. If it is an open cup box, have a session with your tinner and let him make tin-like covers for them. Better yet, fit all of your journals with closed oiling cups of some kind or other. There are a multitude to select from, both of oil cups proper and compression grease cups. Make your own choice, but make it a point of seeing that there are no open oil cavities to collect dust and carry it into the journals. Then you will save unnecessary wear from this source. Carry this same idea out where practical with all exposed parts of machinery likely to wear, get a protecting cover wherever you can, and you will find that it will last longer.

Keeping Machines and Machinery Clean.

Some people go over machinery periodically to clean it and others strive to keep it clean all the time. One of the best practices the writer has observed is that of making a clean-up every Saturday afternoon just before quitting time. Take the last fifteen minutes and have the men at each machine instructed to stop and clean up thoroughly, and have other men detailed to look over the line shafting and make a general brushing-off session of the last fifteen minutes. It helps keep things in order and makes the place much more inviting on Monday morning. Then, periodically, once every two or three months or whatever time judgment dictates, make the cleaning more thorough. Go into detail and clean off all the accumulated oil and dirt, using water where it is nothing but clay accumulations, and where there is oil and grease, gasoline is perhaps the best cleaning agent. A little gasoline and some waste will accomplish wonders in cleaning off grease and dirt and cleaning off in this way is one of the finest and best aids to keeping machinery in excellent order. In the process of cleaning off, many loose bolts and nuts are discovered and many adjustments are attended to that otherwise might be neglected. So, get the habit, try the Saturday afternoon stunt regularly for a while and then try the thorough going over. It will perhaps save repair bills and certainly will keep the place looking better and will make for better work generally.

The Care of Belts.

To get the best service out of leather belts, which are the most commonly used in a clay plant, they should be kept clean on the inner face, and pliant, without becoming soaked with oil so as to be flabby. There are some belts which stand washing in water and if nothing but clay dust were to get on them this would be a fairly good simple way to clean them. Generally, however, there is some oil in the belt, and more or less other oil and grease gets on them and this mixes with the clay dirt and makes it resist water. About the best cleaning agent for a belt is benzine or gasoline. Usually the belt authorities recommend a mixture of three parts of benzine, naphtha or gasoline and one part of turpentine. In works where this can not be used on account of the fire hazard, and insurance regulations, one can use turpentine alone and get fairly good results.

It facilitates matters in either case to first scrape the

belt if it is very foul, and then one may do a little sponging off with soap and water, after which a small quantity of either gasoline or turpentine or of the two mixed together will make a thorough job of the cleaning. After cleaning, if desired, one may use some belt dressing. If there is much dust around the belt, however, it is well to avoid sticky mixtures that the dust clings to, and rely merely on getting the belt clean.

To get good pulling out of a belt, there is a choice between making it tight itself or using a tightener. Thorough tests by a German authority have demonstrated that a tightener on the slack side of a belt is really the most useful and efficient method of getting the most service. This is said notwithstanding the fact that the tightener or idle pulley has not been in great favor of late years. Its lack of favor, however, is due more to imperfection and carelessness in putting it up than anything else. If you have a good tightener properly adjusted and well fitted it will give you more belt efficiency.

To be kept in proper condition, belts should be gone over about once a week and it makes the work lighter and insures keeping the belt in proper condition.

When a Pump Goes Wrong.

When a pump fails to work or becomes irregular and cuts up didoes, nine times out of ten the place to look for the trouble is at the suction end and before the water passes from the pump on its way out. There is very seldom any trouble at the discharge end of the pump. Occasionally there may be a valve that fails to work, but practically always the trouble is at the other end. There are more failures from leaks in the suction pipe than from any other one cause, but before going to the trouble of examining this, look over the valves in the pump. There may be a little gravel or sliver lodged under one of the valves so that it will not hold the suction of the stroke. Generally, if the suction is good and tight this is where you will find trouble, in the valves at the end of the suction. If the pump works smoothly and simply fails to draw, it may need packing around the piston. But if it draws and kinks and jumps, search thoroughly through its valves for a gravel or sliver or something, or perhaps you will find a broken valve. Anyway, you will generally find the trouble in the valve unless there is leakage in the suction.

Trouble of this kind is a reminder that you should take all manner of pains to keep the receiving end of your suction pipe clear and well protected. Keep it out of foul corners and keep good strainers over the end and then take the trouble to examine them occasionally and clean them off. A little extra trouble of this kind saves lots of worry with the pump.

The Care of Hemp Packing.

Do not keep the hemp packing used for piston rods of pumps, engines or other machinery hanging up exposed to the air and dust. Even though you may have them in a separate supply room, or in the engine room, there is enough fine dirt and grit in the dust of the air around the clay plant to eventually foul exposed hemp packing with a gritty accumulation that will do harm to the rods around which it is packed. Keep it stored in a tight chest or compartment of some kind so that it is absolutely protected from grit and dust in the air, and when you use it saturate it thoroughly with some of the cleanest oil you have, an oil with a good body. It will not only make it pack more evenly, but it will insure good lubrication of the piston rod for quite a while. In fact, it insures better packing generally and better service out of the packing.

The Proper Use of Wrenches.

The proper use of wrenches, and we might go further and say the proper care of machinery, consists in having an assortment of wrenches so that there is one to fit every sized bolt as well as every shaped nut. The practice is too com-

mon of getting one or two big wrenches and using these big wrenches all the time.

There are more bolts stripped and parts of machinery strained from a reckless use of the big wrench than anything else. Indeed, it is better to use a small wrench on a big bolt than a big wrench on a little one, and a thing of this kind should not be tolerated. It is the duty of the men in charge to see that there is a proper equipment of wrenches at hand and then that the men use the wrenches they should for each purpose. It is one of the best safeguards in the world against machinery being abused and bolts and nuts spoiled long before they should be.

Fitting a Pulley Key.

One of the most difficult jobs in connection with fitting machinery is that of getting a proper fit of the key that fastens the pulley on its shaft. This has been so troublesome that it has made easy sailing for the split pulley that is held on the shaft by a grip, especially where the service is comparatively light. In the brick plant, however, where the service is rugged and rough, it is often imperative to have pulleys keyed to the shaft, and it is important to have the key fit snugly from end to end and from side to side. About the best way to insure a fit is to take a piece of soft wood and make a wooden blank, working at it carefully to get it to fit edgewise and to fit taperwise. That is, to fit the full length of the hub. Then make a soft iron key. Use the wood for a pattern, leave it a little full for careful dressing with a file until it fits from end to end and from side to side. It is important, of course, to have the key seat in the pulley and the key seat of the shaft exactly the same width, and if one is worn larger than the other they should be dressed to uniform width. Then avoid beyond everything else the getting of a key tight at the heel. It is better to have it a little tight at the point than at the heel, because it will stay in and hold better. If it is tight at the heel it will work out, and every time a key works out it generally does harm to the key seat as well as causes loss of time. The right thing to do is to get the key to fit thoroughly from end to end and at the same time have it fit snugly from side to side so that there is no lost motion. It takes a lot of time to do this right, but it is the way to save time and trouble with pulleys coming loose.

PRACTICAL "TRADE" SCHOOLS.

The trade school idea pure and simple is an excellent one, one that seems to have done more practical good than any other. It is specific to the point and turns out men ready to go to work at a skilled trade.

The idea of getting more manual training into our public schools is undoubtedly good and it will be gradually developed. This idea, of course, has its limitations. It can only teach the rudiments or the A, B, C's of the trade and this training must be supplemented by additional training in whatever line the young man takes up.

Heretofore, manufacturers themselves have not, as a general rule, looked favorably upon this idea, because they hire young men for their immediate utility and not with a distant view of training them. This is a rather short-sighted policy. A man is entitled to look after his own interests and hire young men for what they are worth, but a broad-gauge view of it may enable many a manufacturer to see that by employing instructors to train the men employed by them may improve the efficiency and get more of the utility they are after right at the time being and at the same time qualify the young men to do better work for both themselves and for those by whom they may be employed in the future. Enough of this kind of effort will do a lot to not only relieve the cry of not enough skilled help, but if it is carried on in the right spirit it will do quite a lot to eliminate some of the antagonism that now exists between the men that pay and the men that work.

Meantime, let us not forget that the trade or vocational school itself has been doing perhaps more good, immediate, practical work than anything else and it should be encouraged and kept going while we are working on and developing these other ideas to help out.

Written for THE CLAY-WORKER.

BUTTON-HOLE TALKS.

A Florida Cocktail.

THE TIME for leaving had come. The days and nights had flown all too swiftly. Our comfort and enjoyment had been such that we had put off the idea of leaving, deferred it, would not consider it, wanted to ignore it. But, like fate, it could not be kept back, and now it confronted us.



W. D. Gates

Seated in our steamer chairs, under the awning, clad in our "up north" business garb, we gazed out over the rippling waters, the distant palm covered shores, the soft cloud-flecked sky, and breathed deeply of the balmy air. We had, reluctantly, doffed our white duck suits in which we had so luxuriated, we had packed our baggage and were luxuriating in every moment we had, before the

tender was at the gangway to take us to the wharf and on our way to the north-bound train.

The admiral had been a prince of an entertainer. Nothing that could contribute to our comfort had been omitted, and yet we had been made to feel perfectly at home and at liberty to do just as we might happen to wish. He was to stay, but I was to go. I am sure he read my regret at leaving, and I think he caught a suppressed sigh. He arose and remarked, "I am going to introduce you to a Florida cocktail, and I'm going to make it right."

I sat aghast. I tried to say buttermilk, but I could not rally quick enough. I well knew the weakness of my dome of thought, and how inevitable it was that anything liquidly spirituous would mix my eyes up with my feet, even though they might be so far apart. My safe schedule was progressively toast, tea, buttermilk, and then the danger zone. Here was my dilemma, boldly confronting me. If I refused, I hurt my good host. If I drank the draught, I lost my head, and I well knew that I needed what little there was on my trip north, as well as to have some left when I got there.

Mine host procured a whole grape fruit and squeezed out the entire juice, then the juice of a whole orange. He dissolved some sugar in a little water—using the latter sparingly. Then he added four big drinks of whiskey, and, catching my wild eye and winking craftily, added another four more. Then he stirred cracked ice into the bucketful he then had and drained off into two immense goblets. I tried to remark that it was going to be a chilly bath, but had to give it up, so great was my excitement. The wheels were going round and round in my head and buzzing. He motioned out at the glasses, took his and I had to take mine. I fumbled at the glass and fought for time. I tried to divert the admiral to fishing reminiscences, the weather, politics, anything to gain a little time. I thought of my distance from home, the long railway journey, the looking out for baggage, sleepers and diners. Then, as the admiral fidgeted and clinked his glass, I recognized the approach of the climax and hurriedly came to the incidents close at hand and concentrated on getting safe to my train. If I could but do that before it acted, possibly the porter might care for me and save me.

I looked over toward the landing wharf and tried to get that well on my mind, as well as the general direction from there to the station. I said frequently to myself—so it would be impressed on my brain and followed automatically—you must get into the tender—and you must get out of the tender—but not till it gets to the dock. You must walk as naturally as possible up the path to the station, and talk also as naturally as possible. You must—but the climax came. The admiral insisted—said "Here we go." We went! I swallowed the Florida cocktail and the second morning I awoke in Chicago.

GATES.

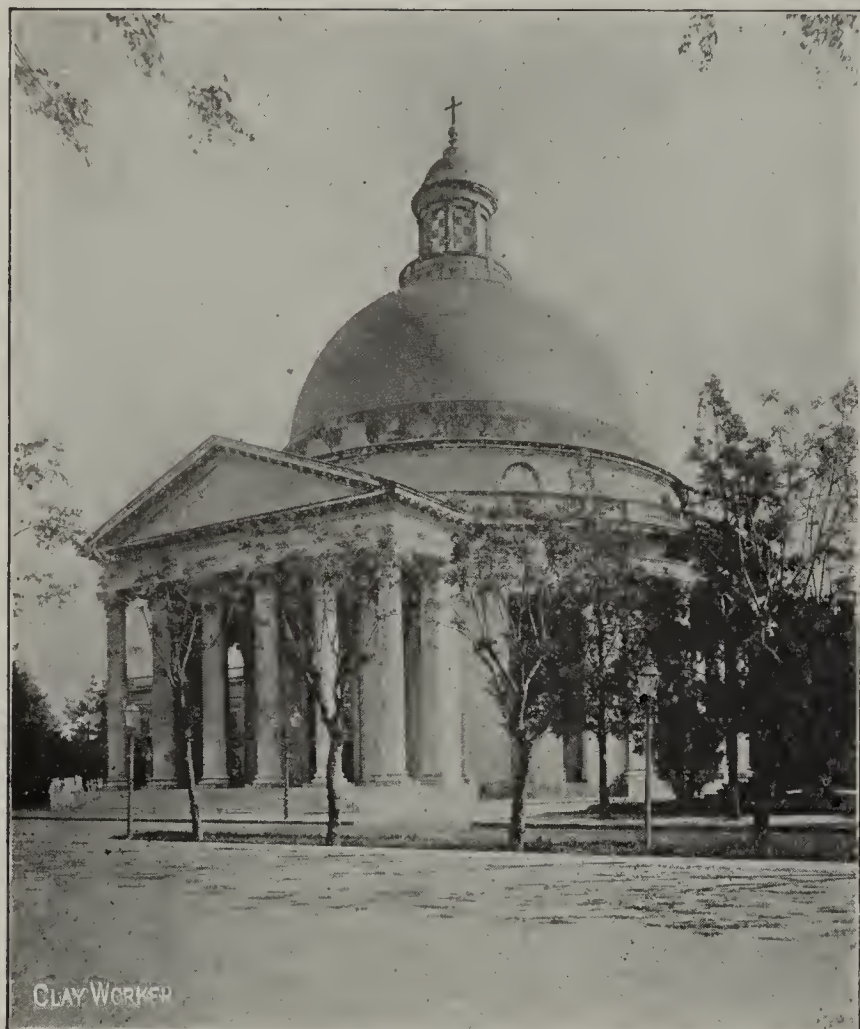
Written for THE CLAY-WORKER.

THE CLAY INDUSTRY IN ARGENTINA.

THROUGHOUT THE PROGRESS of the world, clay and civilization have gone hand in hand. They have been constant companions wherever civilization predominated and human life sought the common comforts. As time went on and mankind advanced and cultivated more

building material. If, however, American bricks were made under as many difficulties as in some countries, the use of clay as a building material might not be any further advanced here than there.

A case in point is Argentina. This country has rapidly emerged from the adobe period into a state which compares quite favorably with many countries where modern machinery is more generally employed. True, there are many



Church in Belgrano, Argentina, Roofed With Blue Tile.



A Fruit Huckster in Front of Very Old Brick Dwelling.



Peddlers in Buenos Aires, Near an Ancient Brick Building.



A Typical Street Scene in Buenos Aires.

pretentious quarters, clay was not forsaken but merely moulded into a more modern form. So that today, there is to be seen many relics of former generations, which stand as monuments to the one building material that has withstood the ravages of time.

The United States leads all other nations in the construction of brickmaking machinery, and it is but natural that this country should lead the world in the use of brick as a

adobe buildings still in use, but the evidence of advancement in brickmaking and architectural progress are to be seen in the handsome structures of the principal cities of the country. They are in striking contrast to the adobe structures which have done service for so many years.

But what is equally to the credit of the people who live there, is the tenacity with which they have clung to clay as a building material and managed, even in a crude way, to so

POINTS OF INTEREST IN THE ARGENTINE REPUBLIC.



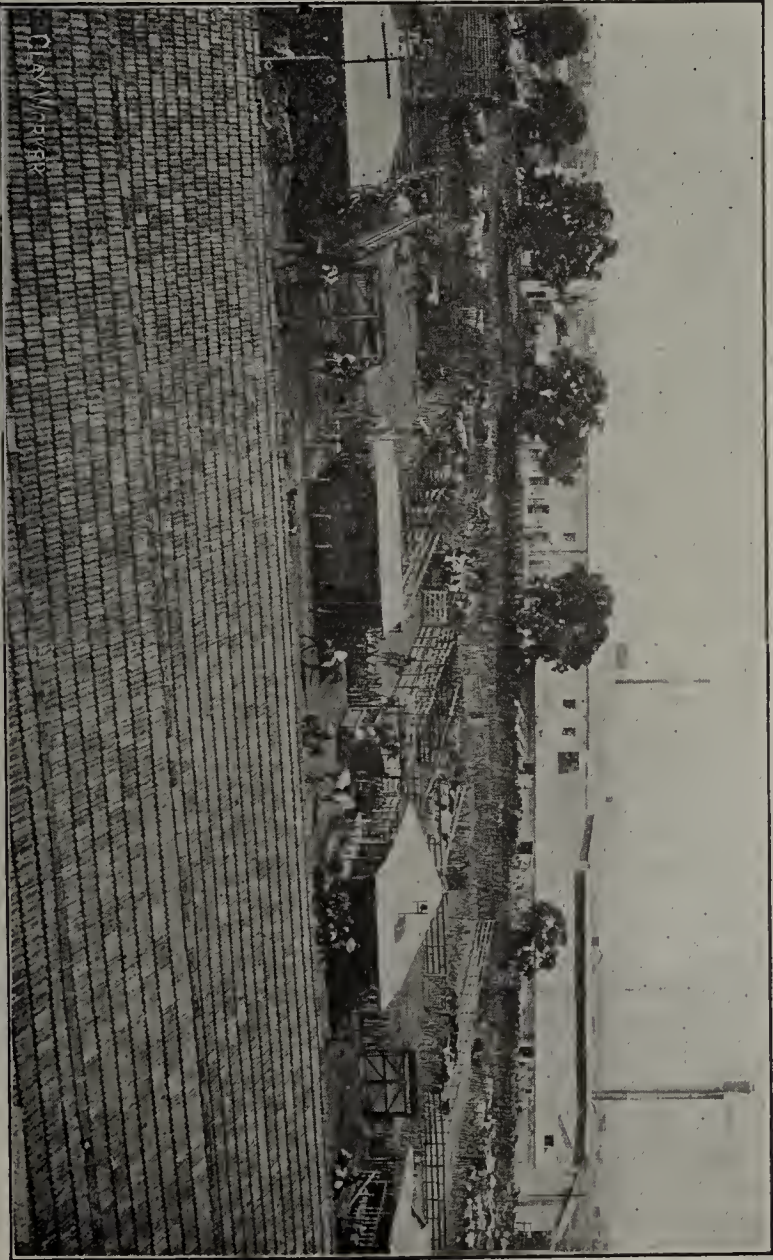
President Roca School in Buenos Aires, Roofed With Clay Tile.



Brick Paved Street in Buenos Aires, Municipal Abattoir to the Right.



The Principal Theater at Colon, Roofed With Clay Tiles.



Cattle Yards Near a Large Abattoir in Buenos Aires. Tile Roofed Shed in Foreground.

fashion it into bricks that the buildings not only have architectural beauty, but endurance as well. This will be all the more appreciated when some of the methods of manufacture have been pointed out. By way of illustration, take one of the large brickmaking plants just outside the city of Buenos Aires. This plant employs old horses for puddling. This, to an American manufacturer, might appear as a "new use for old horses," but the practice is not uncommon in Argentina.

In the absence of the proper machinery for performing this work, horses have been utilized to do it after a fashion. The picture shows how a hollow square is constructed of bricks stacked to form four walls. Into this enclosure the raw clay is dumped and quantities of water turned in. Then the horses are brought in and a boy stationed on top of the wall keeps them moving through the clay and water, by means of a long whip. By this simple but crude method the clay is puddled.

The horses used in this operation are not thoroughbreds. A term quite common in the United States which could be

staff, a manager's house, office buildings, sheds for storage and for brood animals, a coach house, smithy and carpenter shop, buildings for dairy purposes and structures for other things, depending upon the character of the ranch and how it is conducted.

On ranches where the landlord is an absentee, and there are a good many of these, there must necessarily be some one to take his place and issue orders. This is done by the "majordomo," formerly, in most cases, a native of Argentina, but nowadays more often an Englishman. But in this as in all else, the English have found competition among the Germans, many of whom are also managers of ranches and farms. The majordomo gives his orders to a captain. The captain is the overseer of a gang of men. Finally, there is the gaucho, or Argentina cowboy, who does the everyday work of the ranch.

Brick, Tile and Pottery Industries of Argentina.

According to the last industrial census of the Argentine Republic, taken during the year 1908, there were, at that time, 1,281 brick factories established in the country, 609 of



Method of Tempering Clay in an Argentina Brickyard.

applied with equal accuracy in Argentina would be "skates." They are purchased from farmers, from teamsters and other sources where they have reached the limit of their usefulness. But if they are capable of navigating the mud and water they answer all purposes for brickmaking. The going price paid for such animals is about ten dollars, gold, per head.

The cities of the country, however, are not the only evidence of progress along building lines. The farmers throughout the country are also indulging in better structures in which clay assumes a prominent part. It is not a great while since a ranch house of the comfortable sort was an exception. Land was worth little and any building of pretension cost a considerable sum. For the most part the houses were built large but plain.

The agricultural and live stock business has been making rapid strides of recent years, and this is reflected in the number and class of buildings on the ranches and farms. Gradually the houses are being improved on. The modern ranch is quite a settlement in itself. There is the home of the owner and his family, a commodious dwelling for the

which were located in the Province of Buenos Aires, 72 in the Federal District of Buenos Aires, 202 in the Province of Santa Fe, and the balance in the various other provinces and territories.

These factories employed 11,150 hands and had a capital invested of \$6,194,519, Argentine paper, and an annual output of \$17,726,262, Argentine paper (\$1.00 Argentine paper equal to \$0.4246 American currency).

Only a few of these factories are, however, equipped with modern machinery, some of the larger and up-to-date factories being:

R. Ayerza y Cia, Calle Puentequito 412, Buenos Aires.

Fabrica a vapor de ladrillos "San Isidro," 25 de Mayo, 259, Buenos Aires.

Franklin, Herrera y Cia, Calle Union, esp. Larrazabal, Buenos Aires.

"La Ceramica Argentina," Calle Victoria 679, Buenos Aires.

"La Platense," Sociedad Anonima, Calle Victoria 679, Buenos Aires.

These make bricks and tiles of all kind, for which there is a considerable demand in the city of Buenos Aires, owing to the extraordinary activity in the building trade. In the in-

terior of the republic there is comparatively little demand for bricks and tiles, most of the houses being built with sun-dried brick or adobe.

The native factories are able to supply the demand for bricks, but considerable quantities of fire bricks and tiles of various kinds are annually imported, viz.:

Imports of Fire Bricks (Ladrillos Refractarios) During 1908.

		VALUED AT ARG. GOLD.
From Great Britain	4,499,000	\$ 89,980
From Belgium	411,000	8,220
From France	224,000	4,480
From Germany	109,000	2,180
From United States	17,000	340
From Sweden	10,000	200
From Austria-Hungary	1,000	20
Total.....	5,271,000	\$105,420

Imports of Flooring Tiles (Baldosas Comunes) During 1908.

		VALUED AT ARG. GOLD.
From France	17,725,000	\$267,739
From Great Britain	1,057,000	41,332
From Belgium	204,000	4,430
From Italy	90,000	2,086
From Germany	22,000	590
From United States	3,000	60
Total.....	19,101,000	\$316,237

doza, two in the Province of Entre Rios and the balance in the Provinces of Tucuman, Corrientes, Jujuy, Salta, etc.

They have a capital of \$149,800, Argentine paper, and an annual output of \$423,680, Argentine paper (\$1.00 Argentine paper equal to \$0.4246 American currency), and employ 252 hands, according to the industrial census taken during the year 1908.

These forty-two factories use annually \$120,432, Argentine paper, worth of raw materials, of which \$7,342 was imported and \$113,090 domestic.

Considerable quantities of pottery of various kinds are annually imported into the Argentine Republic, but these are not differentiated in the official statistics, being included under various general headings.

BRICK AND THE BUILDING MATERIAL DEALER.

Dealers in building material, both those making a main factor of lumber and those who feature strongly cement and plaster, are giving more attention to the carrying of brick and other clay products right now than ever before.

It makes it look like the latter half of the present winter will be an excellent time to develop connections with dealers, part of it by personal calls and part of it by attending the various conventions, which will be held during the winter months. The retail lumbermen begin holding conventions along about midwinter and there is a series of these conventions lasting until their busy time in the spring. Then, there are the meetings of what is termed masonry supply



Largest Wool Market in the World, Built Entirely of Brick, at Buenos Aires.

Imports of Mosaic Tiles (Baldosas Enlozadas) During 1908.

	KILOS.	VALUED AT ARG. GOLD.
From Spain	2,873,949	\$145,803
From Great Britain	1,075,245	57,072
From Belgium	1,063,453	54,461
From France	999,694	50,162
From Germany	261,875	13,244
From Holland	231,438	11,579
From Paraguay	60,000	3,000
From United States	5,156	340
From Uruguay	1,700	100
Total.....	6,572,510	\$333,761

Imports of Roofing Tiles (Tejas) During 1908.

	KILOS.	VALUED AT ARG. GOLD.
From Belgium	851,000	\$ 25,530
From France	96,000	2,880
From Great Britain	3,000	90
Total.....	950,000	\$ 28,500

(\$1.00 Argentine gold equal to \$0.965 American currency.)

Pottery.

There are forty-two pottery factories in the Argentine Republic, eighteen of which are located in the Federal District of Buenos Aires, five in the Province of Buenos Aires, three in the Province of Santa Fe, three in the Province of Men-

and hard material men and all of these are good things for the brick man to attend. Each attending those in their own State and those having offerings for a wide distribution may attend any number that they feel interested in.

There are some unusual features about the situation at present that makes it particularly interesting for the brick man. For one thing, the dealer in lumber realizes that he must carry some hard building material even though to do so may necessitate his reducing the variety of his lumber stock some. He is learning that the right thing in variety doesn't consist in seeing how many varieties of each kind of lumber he can carry, but how many different varieties of building material he may include and how few varieties of each kind he can get along with. He must cover more territory and include more different materials in his offering.

The other thing that makes the opportunity favorable for brick and other clay products is that the heyday of the cement block machine has passed. Of course, there are lots of them yet and lots of blocks being made, but the average dealer is not as deeply interested in these things as he used to be. He will, of course, carry cement, lime and plaster, but instead of stocking up with blocks and novelties in cement products he, as a rule, feels more inclined to simply carry the cement and sell it and let the other fellow do the experimenting with it. This gives him more time and room to devote attention to clay products, and if there is anything in signs reading right it should be an excellent time for the manufacturers of brick and clay products generally to materially extend their connections with dealers in building material.

TILE DRAINAGE IN ONTARIO, CANADA

By C. G. Elliott, Chief of Drainage Investigation,
U. S. Department of Agriculture.

TILE DRAINING in Ontario may now be regarded as one of the established methods of improving farm lands, for, notwithstanding the non-recurrence of particularly wet seasons during the last five years, the output of drain tile in the Province increased from 15,000,000 feet in 1905 to 35,000,000 feet in 1910. Some instructive observations may be made in connection with the development of this industry during the last decade. The following table, taken from the report of the Ontario Agricultural College for 1910, shows the number of tile manufactured in the Province from 1900 to 1910, inclusive:

—Drain Tile Manufactured in Ontario, 1900-1910.—

Year.	No. Feet.
1900.....	19,544,000
1901.....	21,592,000
1902.....	17,510,000
1903.....	18,200,000
1904.....	16,000,000
1905.....	15,000,000
1906.....	17,700,000
1907.....	15,578,000
1908.....	24,800,000
1909.....	27,418,000
1910.....	35,150,000
Total.....	228,492,000

The figures show that during the eleven years noted, 228,492,000 feet of tile were manufactured and used, worth approximately two and one-half million dollars. It may be noted that many manufacturers claim that they have not been able to supply more than half the demands made upon them.

It is the history of tile-drainage that the demand for and sales of tile fluctuate with the wetness of the seasons; a few dry seasons being followed by a large falling off in the use of tile and interest in drainage generally, and a series of wet seasons witnessing a corresponding increase in drainage operations. This does not appear to have been the case in Ontario, particularly during the last five years. The relation of the number of tile used in each year to the rainfall in the Province for April, May and June for the same years, is shown in the accompanying figure. The rain curve represents the average of all the stations for the three months named for each of the years from 1900 to 1910.

It will be observed that since 1904 the rainfall has on the whole decreased, but the use of tile has increased, this increase being steady and great during the last three years. There are five years in which the curves agree and five in which they are diametrically opposed, but in their general trend they disagree, so we must conclude that the influence of rainfall on tile output in this province is of minor importance compared with other forces operating.

One of the agencies which has promoted the extension of tile-drainage is the substantial manner in which the government has manifested its interest. The Department of Physics of the Ontario College is given an appropriation for making farm drainage surveys when applied to in the manner prescribed by the department, and for instruction in the details of drainage operations. When a farmer applies for a drainage survey, he is required to furnish a list of twenty neighbors who might be interested in drainage. To each one of these a postcard is sent announcing that at a certain date a drainage demonstration will be held at his neighbor's farm, and a bulletin upon the benefits of

drainage is sent him. The date and place of meeting are also announced by printed bills which are posted in the neighborhood, and by notices in the local papers.

The survey is then made, followed at the appointed time by the demonstration, which consists of a general talk on drainage by the surveyor or demonstrator, and a special

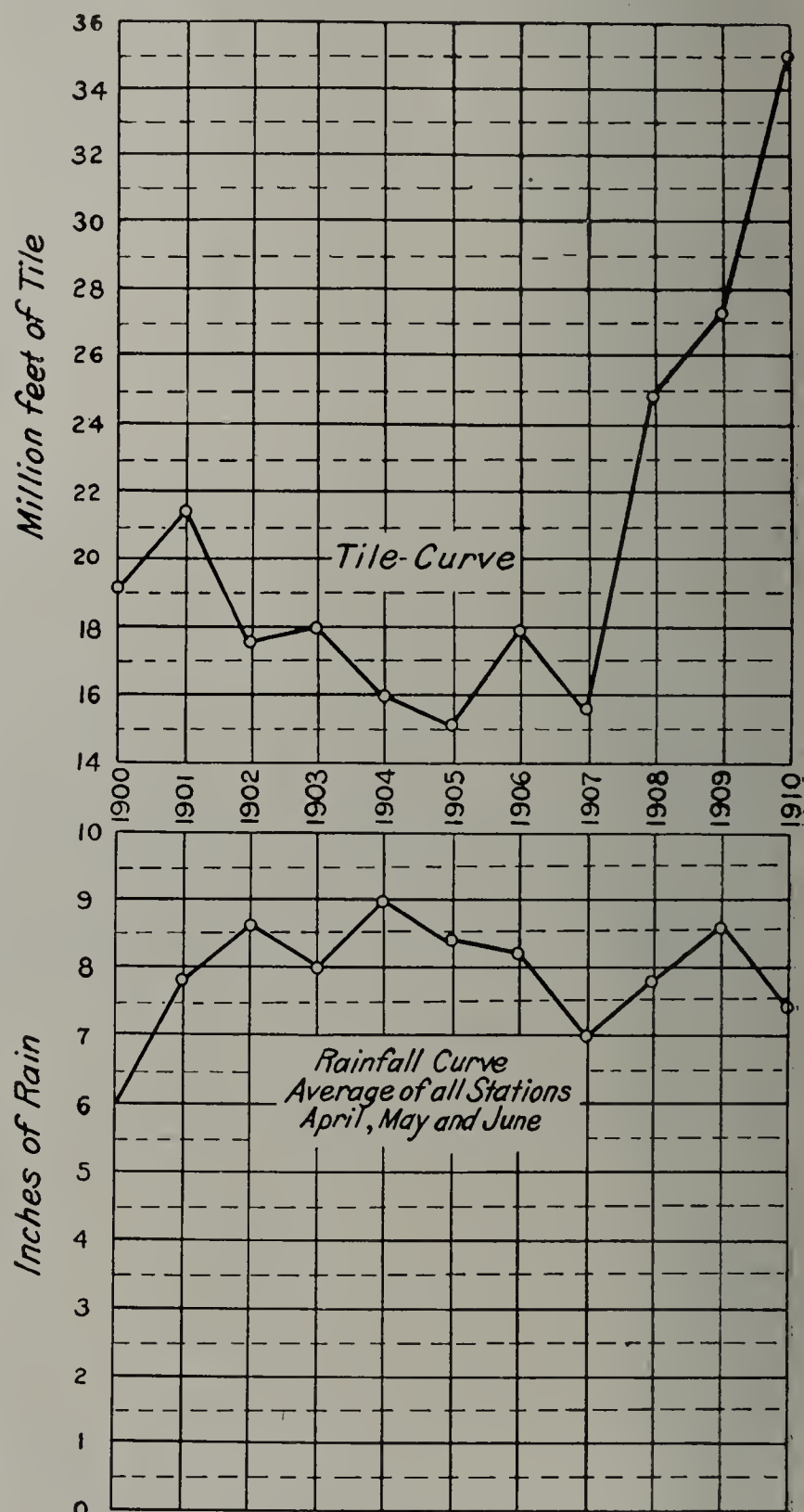


FIG. 1—CURVES SHOWING FLUCTUATIONS OF
RAINFALL FOR APRIL, MAY & JUNE
AND OF TILE MANUFACTURED IN
ONTARIO, CANADA
1900 TO 1910

discussion of the problems which have been met in the particular field in which they have gathered. Fifteen or twenty farmers usually attend these meetings and manifest their interest by asking questions relating to practical difficulties which concern them.

The demonstrators who make the surveys and explain the

plans are students of the college, carefully trained before they are sent out, and their services are furnished free of charge, the farmers paying only traveling expenses and subsistence. Fourteen demonstrators are at work the present season, and more applications have been filed than can be complied with. During 1910, applications were received from thirty-seven counties, and drainage surveys were made for 14,000 acres of farm land. The educational value of this work can scarcely be estimated. The teaching of correct drainage methods by both practice and precept has undoubtedly placed the improvement upon a substantial basis,

also, of course, encouraged farmers to adopt the improvement. The soil is a dark fertile clay loam with a subsoil of joint clay which responds readily to the drains. Most of the farms are occupied by their owners and are well improved. Open field ditches and large roadside and other ditches have heretofore been used to good advantage, so that now tile-drains may, in most cases, be discharged into outlets which have already been constructed. The lands in Essex county, like those in northern Ohio, are quite level, many of the drains being laid on a grade of one inch to 100 feet. Parties from the States are purchasing improved

farms as well as lands of a more wild character, and are tile-draining them in a systematic manner for the purpose of selling them as improved properties.

The advent of the power ditching machine has made it possible for farmers to get their drains constructed with dispatch and accuracy. Most of the machines are operated by gasoline engines. They complete the ditch to grade at one passage, the tile being laid directly behind the finishing shoe, which leaves the trench in perfect condition for receiving the tile. Grading cross-bars are set by the drainage engineer in advance, by which the operator guides the machine, which has a slow traction movement, thus permitting a straight and accurately graded ditch to be made. Two men operate the machine and one to lay the tile, which are placed with a hook as fast as the ditch is finished, constitute the crew.

With the active interest now taken in drainage and the means at hand for digging the ditches, the tile manufacturing plants, as might be expected, are in a flourishing condition. Hill Brothers, of Essex, have a plant well located for shipping, and fitted with devices for economical operation. They have four twenty-six-foot round down-draft kilns, two large dry houses and a No. 2 mill, furnished by the American Clay Machinery Company, with a Bensing automatic tile-cutting table. Natural gas from the Tilburry field, thirty miles distant, is used for burning the tile and for making steam. Surface clay is used direct from the bank, the only requirement being that it be well tempered before it goes into the tile mill. The top six feet of earth is used and, during the dry season, water is drawn to the bank and the clay wet in place before it is loaded into the small cars which convey it to the pug-mill. The tile burn a bright red color. Hill Brothers, who have been located at

this point for eight years, state that they have never been able to fill all the orders that have come to them. They make an excellent brick and have constructed all their buildings of this material, thereby giving the plant a neat and substantial appearance.

A drive of five or six miles into the country over good roads that have at least one deep ditch of ample capacity at the side, gives one an idea of the possibilities of the farms. In some places may be seen large piles of tile which have been hauled while the roads were dry to await the time when the trenches can be dug. The drains are now being placed



A Tile Ditching Machine in Operation.



A Portion of the Completed Ditch, With Tile in Place.

and incidentally established the business of 215 tile factories now operating in the province.

But the government has gone further than this. Any farmer may obtain a loan for draining from the Provincial government to the amount of \$1,000 on twenty years' time, payment to be made annually in sums of \$7.36 for each \$100 borrowed, which is about equivalent to paying four per cent interest on the unpaid balance each year and \$500 of the principal. This privilege greatly encourages the extension of underdrainage throughout the Province and farmers are availing themselves of its provisions.

The very gratifying results derived from draining have

in the meadows and grain fields, and will be extended through the corn fields as soon as the crop has been gathered. The plan of draining adopted by those who have purchased farms to improve and sell, is parallel lines of four-inch tile placed upon a perfect grade of about three feet deep and eight rods apart. The subsoil, though rather dense, is jointed in structure and it is thought that lines at this distance will give thorough drainage for field crops.

At Kingsville, about thirty miles further south, and not far from the lake, a like interest and activity in draining are found. Mr. Henry T. Miner's tile plant, about three miles from Kingsville, has one large kiln, ample open-air dry sheds, a newly equipped steam dry shed, near which a new thirty-foot round kiln is under construction. We find here one of the old Penfield brick machines and a Tiffany tile mill still doing good service. The surface clay taken direct from the bank makes a fine red tile which will pass critical inspection.

Perhaps no tile plant in the Province presents a more attractive appearance than Mr. Miner's. Immediately adjoining it is his unpretentious but neatly kept home and grounds, which give the entire plant an air of rural refinement and business thrift. One especially attractive and novel feature is the presence of numerous wild fowls on



Hill Brothers, of Essex, Have a Plant Well Located for Shipping.

a large artificial pond, enclosed with a wire fence for their protection. These wild ducks and geese leave each fall but return in the spring from season to season, bringing their young with them. Mr. Miner is an enthusiastic hunter and makes annual trips to the north of the Province, where game abounds in great numbers. The well-mounted specimens of deer and moose heads which ornament the rooms of his house testify to his knowledge of the arts of the huntsman. While the writer was on the grounds, he was offered an order for 100,000 tile, but accepted only 50,000, owing to the limited capacity of his plant.

The plant of B. Broadwell & Sons, located about five miles from Kingsville, emphasizes the growing demand for tile in that region. No more enthusiastic manufacturer than Mr. Broadwell can be found. His plant shows a development from small beginnings and a growth according to the demand for tile. Only one kiln is in operation and this is fired with wood, thirty cords being required to burn one thirty-foot kiln of tile. Tile are dried in open-air sheds, the machine being located at one end and the kilns at the other. A serious break of the machine at this factory reminded the writer of some of the contingencies of the business. The losses and delays due to the breakage of machinery, the deterioration of kilns, losses by bad burning or drying, and a variety of unforeseen accidents are common

to the best managed plants, and detract from the profits and satisfaction of the business. Notwithstanding all these difficulties, the tile are made and find their way to the farms where, in due time, they change the wet and untractable spots into productive fields, and entire farms into delightful country places equipped with all the conveniences of modern rural life.

Reference has been made to the impetus given to farm drainage by the Agricultural College located at Guelph. Prof. W. H. Day, who has direction of this feature of the work, has gathered together many useful facts regarding the benefits and profits derived from draining farm lands and given them to the public in Bulletin 174. In concluding that valuable publication, he makes the following summation with



Henry T. Miner's Tile Plant, About Three Miles From Kingsville.



The Plant of B. Broadwell & Son, Which Emphasizes the Growing Demand for Tile in That Region.

reference to cleared farm lands which may be profitably drained:

"The total number of acres drained during the years 1905-1909 is 193,436, the product of which, at \$20 increase per acre, would be worth \$3,858,720 more each year than before being drained. All these estimates are based on reports from farmers and tile manufacturers.

"To gain a comprehensive view of what underdrainage may mean, we must consider the Province as a whole, and estimate what proportion of it needs drainage. As a result of careful inquiry and statements of our drainage advisors, based on examination of many sections of the Province, I have made the calculation that at least one-third of the cleared land of the Province, or 4,710,000 acres, is in urgent need of underdrainage. If that were all drained and each

acre produced \$20 more than it does now, the increase in crop would be worth \$94,200,000 annually. The value of all field crops in Ontario in 1908, according to the latest report of the Bureau of Industries, was \$164,077,000. Thus drainage of all the cleared land needing it might increase Ontario's field crop about 57.4 per cent. At the present rate it would take one hundred years to complete the drainage."

It is safe to predict that the appropriation for the extension of the survey and demonstration work will be substantially increased for the next year. For the years 1908 and 1909 the amount was \$1,000, and for 1910, \$4,000, and there is no good reason why the next appropriation should not be \$10,000. Certain it is that no better service could be rendered the agricultural interests by the government than to extend the work of the Agricultural College throughout the Province, particularly along the line of farm drainage, which has been so well begun and followed by such salutary results.

A PRESIDENTIAL INDORSEMENT OF DRAINAGE.

In one of his western speeches this fall President Taft, in speaking of conservation and utilization, took occasion to express his optimism as to the future ability of the United States to produce all the food stuff needed. He went into the matter at some length, explaining that it meant more intensive farming and a more thorough utilization of the growing power of the ground and, among other things on this point, said:

"Now, the ground water is the most essential constituent of the soil, because solution, circulation, and organic assimilation are dependent on water. All the organisms and tissues are made up of this solvent water, and it constitutes a large percentage of the bodies and food of men and animals. The question of the amount or ratio of ground water in the soil is a vital one. If it is excessive it makes a sodden mass, sticky when wet, but baked when dry, so that there is no possible absorption further into it, and it sends on the water that falls on it to erode easy slopes.

"The erosion begins on the farm and should be remedied there. Deep cultivation tends to absorb the product of each rainfall and to reduce the run-off. Deep cultivation brings up fresh earth salts to the shorter rootlets, but carries down the humus and mulch to thicken the soil and feed the deepest roots. In flat lying fields and tenacious soils tile drainage is the best method of relieving the farm from the danger of too great run-off.

"Deep drainage permits both soil and subsoil to crumble and disintegrate and through mechanical and chemical changes to become friable and capable of taking on and holding the right amount of moisture for plant growth, while the water which runs out through the drain is clear without carrying the soil with it, and therefore without erosion."

You will observe there are two points here, one is the benefits of farm drainage to the growing crop itself and the other is preserving the soil and farm by the prevention of erosion.

Many a farm has been ruined by surface ditching and by the lack of drainage, through the hillsides starting to wash and all the soil being eventually carried down to the low ground, out through branches into creeks, and down creeks into rivers. It is the carrying away of soil from the upper lands which makes the richness of the river bottom lands that are annually inundated. It is good for the river bottom farmer, but it is hard for the ones in the upper lands. Fortunately, there is a remedy at hand in tile drainage. They can underdrain the land so that there will not be so much surface erosion, and while doing it that benefits the land by making it more porous and so that it will absorb moisture deeper into the ground during the spring, where it will carry it through the crop growing season to supply the roots of the vegetation through the dry months better than it will be practical to supply them from the natural ground, because the ground without this underdrainage packs in the course

of time until it will not take up water and hold it for the summer needs.

Indeed, here is a suggestion, that tile drainage and deep plowing may prove a safeguard against drouth. That is the next best thing to irrigation itself.

FULLERS EARTH IN TEXAS.

IN A PRELIMINARY statement of the extent and quality of fuller's earth in Texas, Dr. William B. Phillips, director of the bureau of economic geology and technology in the University of Texas, presents some interesting and valuable facts. He points out that the expansion of the petroleum and cottonseed oil industries in Texas and the demand for high grade fuller's earth for use in refining these oils, as well as the market that is open for the product outside the state, has given a new impetus to the development of these deposits. He says:

"Fuller's earth, of excellent quality, has been found in several counties, Ellis, Burleson, Shelby, Smith, Fayette and Washington. The best known deposits are in Burleson county, near Somerville; in Washington county, near Burton, and in Fayette county, near O'Quinn and Muldoon. So far as known, at present, the largest deposits are in Fayette county, and more is being done there for their development than elsewhere in the state.

"Some recent tests of fuller's earth, from Fayette county, have shown remarkable results. In a private communication to this bureau it is stated on excellent authority that the sample was fully equal to the Quincy, Florida, earth in decolorizing certain lubricating oils. Very good results have also been received with cotton-seed oil.

"We have no hesitation in saying that if systematic and exhaustive researches could be made on our fuller's earths for refining mineral, vegetable and animal oils, fats and greases, there would be opened up new and profitable industries.

"Some of these earths are adapted for certain purposes and others for other purposes. For instance, the English earth seems to be better suited for refining vegetable oils and animal fats, while the American earths find their chief use in refining mineral oils.

"Chemical analyses are important, of course, but they are by no means as important as actual refining tests, conducted by experienced men.

"The first discovery of considerable deposits of fuller's earth in the United States seems to have been made at Quincy, Florida, in 1893, and since that time Florida has been the chief producing state.

"According to the statistics of the United States Geological Survey, the production of fuller's earth in this country from 1895 to the close of 1910 was 360,392 tons, valued at \$2,662,808, or an average of \$7.39 a ton during this period, of sixteen years. The largest production was in 1909, 33,486 tons, but the highest average price was in 1908, \$9.37 a ton, while the lowest average price was in 1904, \$5.72 a ton.

"From 1898 to the close of 1910, thirteen years, the imports of fuller's earth were 36,362 tons of raw earth, valued at \$252,811, an average of \$7.02 a ton, and 177,131 tons of 'manufactured' earth (prepared), valued at \$1,281,777, or an average of \$7.23 a ton. The total imports were, thus, 213,493 tons, valued at \$1,534,488. During this same period of thirteen years, 1898-1910, the domestic production was 326,507 tons, valued at \$2,449,776. The trade in this country would, therefore, seem to require about 41,000 tons a year, of which about 16,000 tons, or nearly forty per cent, is of foreign production. During the last few years, however, the domestic production has ranged from 29,000 to 33,000 tons a year. During 1910 the total production of fuller's earth in this country was 32,822 tons, valued at \$293,709, or \$8.95 a ton. This production was distributed as follows:

"Arkansas, 2,563; California and Colorado, 568; Florida, 18,832; Georgia, Massachusetts and South Carolina, 9,995; Texas, 864.

"The value of the Texas product was \$8,582.

"Texas is at the foot of the list, but the average value was \$9.93, as against \$9.04 in Florida. Arkansas showed the highest value per ton, \$11.37."

ROOFING TILES.

THE HISTORY OF ROOFING TILE MANUFACTURE.

IN THIS COUNTRY, strange as it may seem, roofing tiles are considered by many as being something new in roofing material. While it is true, owing to the vastness of the United States and the scarceness of roofing tile plants, there are yet large virgin fields to the clay roofing tile. There is nothing new in the use of clay as a roofing material; authentic records, such as the tiles found in the ruins of the temple of Hera, built at least a thousand years before Christ, prove this.

If the pages of history could be turned back, it would most likely be found that in the beginning, man, to protect himself from the elements, lived in caves. As he moved

about from place to place in his search for food, caves would not at all times be found available. This would naturally lead to an artificial shelter of barks, skins or, possibly, flat stones. To make these more proof against the wind and rains it would be quite natural to fill in the openings with plastic clay. Clay thus used would dry and form a more or less permanent covering. Owing to the ease with which the clay could be formed or shapened, the natural sequence would be for our early forefathers to mold clay slabs or tiles as needed for their temporary structures. Thus one can imagine that clay, at a very early date, entered into man's life as a roofing material.

It is quite improbable that the locality will ever be found where roofing tiles had their beginning, however, from the



A Modern Brick Residence, A Splendid Example of Tile Roofing.

extent that clay has been used in China, one could easily believe that the ancient Celestians gave rise to the industry now so rapidly and strongly gaining a foothold.

There is scarcely a province or country in the old world that does not possess scores of old landmarks that were covered centuries ago with clay tiles. One of the accompanying illustrations shows a quaint old building at Coburg, Germany, which is of this type. No material other than burned clay would have withstood the ravages of time so perfectly. It is thus in all parts of the old world, many examples are to be easily found that speak for themselves, as to the durability and superiority of well burned clay as a roofing material.

Undoubtedly the first tiles used in this country were burned in European kilns. Examples of the Dutch pan tiles have been found in Delaware and other Atlantic coast states, while old Spanish tiles are to be found not far inland at various points throughout the southern and western states. The importation of tiles was undoubtedly limited, and, while the early settlers, many of whom had been reared in countries where tile roofs predominated, undertook the making of tiles, the work did not survive long nor reach any great magnitude, owing to the great abundance of timber on every hand, from which the making of shake (hand-made shingles) not only furnished a cheap roof covering, but assisted in clearing the lands, a very essential point.

The development of the manufacture of tiles in this country was more or less spasmodic until about two decades ago. Prior to that time tiles were made at various points in Pennsylvania by the Dutch settlers and, in the west, by the Spanish. Many old tile-covered missions are to be found in California at present which represent the honest and painstaking labor of their builders.

Probably among the earliest tiles to be made in this country in more recent times, were those made at Germantown, Ohio, about 1812. These tiles were mere slabs of clay about three inches wide by twelve long and one inch in thickness; at the upper end and on the underside was placed a lug to provide a means to fasten or rather hang the tiles to the roof purlins.

While these tiles were crudely made and burned much after the manner of hand-made soft mud brick, they were as perfect and serviceable a few years ago when the old building was razed, as they were when layed, nearly a century before.

Some twenty years later than the making of the tiles at Germantown, there was a re-development of the industry along more pretentious lines. A religious sect from the Fatherland settled in Tuscarawas county, Ohio, and there built up a quaint village, with large gabled barns for their herds of cattle, mills, a brewery, workshops and other buildings, all of which were covered with tiles made by their owners. These tiles differed from those made at Germantown in that they were wider, longer and not quite so thick, their dimensions being about six inches wide, fifteen inches long and three-quarters of an inch thick. These tiles were also provided with a lug for fastening them to the roof.

While the Zoarites made hundreds of squares of tiles they were not used outside of the Zoar community. It would, therefore, hardly be fair to claim that they were the founders of the industry along commercial lines in this country.

It was not until the early seventies that a real commercial aspect was given to the business. From 1871 to 1876 the manufacture of roofing tiles was entered upon at Zanesville, Ohio, and at Baltimore, Md., and, a few years later, at Akron, Ohio. There were undoubtedly other points where early attempts were made, but only in a single instance, that of Akron, did they expand into a large business. At Akron the work developed into a modern sized plant that for a score or more years was the largest roofing tile plant in the United States.

Within the past twelve years the industry has grown from

a single plant to thirteen active ones at the present time. In addition to the regular roofing tile plants, there are several brick and other clay products plants that make some roofing tiles, as a side line, though only to a very limited degree.

The question no doubt at once arises in the mind of the average reader, "Why are there not more plants devoted to the manufacture of roofing tiles?" In a measure, the answer to this is easy, as stated earlier. This country has been blessed with magnificent forests from which to make cheap shingles; further, there are in many sections large quarries of slate which have furnished a good cheap roof, though of low artistic value. These two materials, shingle and slate,



An Old Brick Building at Coburg, Germany, With Tile Roof.

have, in the past, materially retarded the use of tiles. Not so at present, nor in the future will they hold the foreground. Wooden shingles have gone forever, and, though slate will no doubt always find a field of usefulness, they are gradually, though surely, being supplanted by roofing tiles on all classes of structures, from the cosy bungalow to the palatial residence.

Still another factor has, in a measure, delayed the development of the tile industry, and that has been the lack of men both technically and practically trained along this particular line. Numerous failures can be traced directly to undertakings that have been made by those unfamiliar with the subject. Such failures, and a certain degree of secrecy maintained by the owners of the successful plants,

had a strong influence upon otherwise investors. The above conditions prevailed until about ten or twelve years ago, when a number of plants with improved machinery and better trained men were started at various points. The majority of these plants have gradually developed into modern plants.

The demand for tiles has developed so rapidly within the past two or three years, that, even in the face of the fact that most of the present plants have increased their capacities, there is still a wide field unsupplied.

Owing to the great distances that roofing tiles have to be shipped, under existing conditions, places them out of the reach of many that could and would otherwise use them. The solution to this problem is very evident—more plants. At the same time these plants should be founded upon proper materials and designed for the most economical production.

The primary object of these articles on roofing tiles is not only to further the keen interest now taken in the industry but to promote the use of tiles, as well as affording some enlightenment to those who may be considering their manufacture. It would seem advisable at this time to enumerate in their respective order the topics that will be treated in these papers:

1. The Patterns of Roofing Tiles and Their Qualities.
 - (a) Styles or Varieties.
 - (b) The Designing of Roofing Tiles.
 - (c) Patented vs. Unpatented Tiles.
 - (d) Porous vs. Vitrified Tiles.
2. Selection of Clays for Roofing Tile Manufacture.
 - (a) General Discussion.
 - (b) Clays vs. Shales.
3. Preparation of Roofing Tile Clays.
 - (a) Burning.
 - (b) Grinding and Screening.
 - (c) Puging and Tempering.
 - (d) Ageing of Clays.
4. The Forming of the Tiles.
 - (a) By Hand Methods.
 - (b) By Flowing through Dies.
 - (c) By Pressing (power).
 - (d) Dies, Plaster vs. Metal.
5. Drying of Roofing Tiles.
 - (a) Pallets.
 - (b) Cars.
 - (c) Dryers.
6. Setting of Roofing Tiles.
 - (a) Blocks or Sagger vs. Non-support System.
7. Burning Roofing Tiles.
 - (a) Style of Kilns.
 - (b) Fuels.
 - (c) Mechanical vs. Natural Drafts.
8. Yarding and Shipping.
9. Methods of Laying Tiles.
10. The Manufacture of Special Shapes.
11. Slips and Glazes.
12. Forecast.

(To be continued.)

COST OF COAL FOR BURNING ROOFING TILES.

Roofing tiles which are glazed with a blue glaze and burnt to cone 10, consume about 8 marks worth of coal (\$2.00) per 1,000 tiles. The tiles are burnt in a down-draft kiln. It is, of course, cheaper to burn tiles in continuous kilns, and glazed roofing tiles have been burnt either red or blue at cone 11 very successfully in such kilns. However, in continuous kilns the tiles have to be set more protected than in the down-draft kiln, on account of the ashes and cinders. If the tiles are set in connection with brick, the brick can be used for protection partition, and in that way the cost of burning will only be slightly higher than burning the regular brick.—Tonind. Z. No. 36, 1911.

SOME IDEALS IN POTTERY MANUFACTURE.

By Charles F. Binns.

MAN always does better work if he has an ideal. Ideals are the foundation of the philosophy of life, for work is monotonous indeed without them. But how can ideals have any place in such a strenuous and prosaic matter as manufacture? The factory is run with money and for money. Idealists are dreamers and as such have no standing in the commercial world—at least this is what most business men would say.

On the other hand it can be shown that more money has been made out of ideals than out of anything else. What is reputation but an ideal? What is advertising but the expression of an ideal? Trade and manufacture are successful in the precise degree that the producer can appeal to the desires and needs of the consumer and this means either that the purchaser has already some notion of what he wants or that he can be persuaded. All of which is a philosophy.

There is, however, another aspect of the ideal and one which is closely connected with profit and loss. The ideal article is that which perfectly fulfills its purpose. This is not always possible of attainment, but the nearer one can approach to it, the more successful will his work be.

In thinking over the stages of pottery manufacture it becomes evident that there are certain most desirable things—call them ideals—which have not yet been realized. For example, there is the ideal sagger. Every potter has his notion of what a perfect sagger might be. He does not succeed in making it but he comes as near to it as he can. He knows that his sagger might be just a little bit better than they are, in other words he has a vision of the ideal sagger. Suppose such a man could start from the beginning, with no old time notions or equipment, with workmen who would do exactly as they were told and who possessed the necessary skill and, of course, with enough money to carry out his plans, how would he proceed to organize an ideal method of sagger making, a method, that is, which would result in the production of the ideal sagger?

Perhaps if we set forth our own notions it may give rise to some discussion. One of the most disheartening things in connection with the technical department of a trade journal is the difficulty of eliciting response and discussion. It is true that we receive letters more or less frequently but they are nearly always from "outside" workers. Then, too, we meet practical men who tell us, with evident enthusiasm, that they read every word we write. This is, naturally, most gratifying but in so far as the paper is concerned we remember the story of the young wife who, when her husband found her in tears, sobbed, "Yes, John, I know you love me, but why don't you tell me so?"

But this is a digression. Let us reason together about the ideal sagger. First there is the grog. Most men select their grog with care but we do not think it is a good plan to include the sides of glazed sagger, nor should pins, stilts and wads be allowed. Select the clean, unglazed, broken sagger and crush them. Biscuit sagger are best because they have received more fire and it is a mistake to use a short fired grog. It is well to have two screens. The size of the mesh is a debatable matter but in our opinion six to the inch is the best for removing the large pieces and sixteen or twenty for separating the fines. That is, the grog between six and sixteen should be used and that only. The method of crushing is important. There should be as much as possible of the larger sizes of the grog and in order to accomplish this the machine must crush and not grind. If rolls are used they should be set far enough apart to allow the largest size to pass. The act of breaking will make enough of the smaller sizes anyway and there will not be so much dust. If a dry-

pan is used the mullers should be hung so as to clear the bottom by about three-eighths of an inch. The pan should be fed sparingly, for if a thick bed of grog is allowed to form there will be too much fine stuff.

In selecting the clays one cannot be too careful. It is best to use three or four. One may be a good quality of refractory clay with a softening point of about cone 26. The others may be rather fusible, softening at cone 12 or 15. This will enable the mixer to adjust the density of the sagger to a nicety. This must be a matter of compromise. A very soft sagger will not be apt to crack on heating and cooling but it is easily crushed and is a bad conductor of heat. A vitrified sagger is strong and a good conductor, but is apt to dunt if heated

gether. If the dry method is used the mixer will either weigh the clays and grog or he will have a definite measure for each. The mixture is then thoroughly blended while dry which may be done in an open pug mill such as is used in brick making. In this case the water may be added in the pug mill, because, there being no pressure, the mass is perfectly blended in passing through the mill. It is then fed to the pressure pug mill and there tempered for use. We confess to dissatisfaction with the soak-pit method, at least with the amount of pugging which is usually given. No attempt is made to disintegrate or break up the lumps of clay and the result can never be a uniform mix.

Of course this additional manipulation means a consider-



Teco Pottery Made by The American Terra Cotta and Ceramic Co., Chicago, Ill.—Courtesy of Pottery and Glass.

or cooled too fast. By properly apportioning the refractory clay and those which are more fusible a mix can be secured which becomes nicely dense and hard in the heat of the kiln but which is open enough in structure to escape dunting.

Now as to the mix. The right proportion is equal parts of clay and grog by measure or about three of clay to two of grog by weight. In the ideal sagger mix, the clays will be dried and each reduced to a fine powder separately. Or they may be blunged and lawned all together like body slip if preferred. The latter is the more perfect way and may be considered easier by some, the difficulty lies in the thickening of the slip into clay. If a filter press can be set apart for this, well and good. The clay and grog can then be pugged to-

able increase in cost but in looking towards ideals cost is not necessarily considered. That is, the ideal is the most perfect result possible. With this in mind it is for the worker to consider how nearly he can approach it with the means at his disposal. In addition to this it should be borne in mind that the more perfect the sagger the less the loss in the kiln. If a sagger be doubled in cost and lasts twice as long there is no extra expense, the labor force can be reduced by half and probably no superintendent will be deterred from making better saggings by the fear that the supply of grog will run short.—Pottery and Glass.

There is seldom a good thing parades through the world without Old Greed piking along behind.

BRICK AND POTTERY MAKING IN THE PHILIPPINES.

Primitive Methods Still in Vogue—Our Little Brown Brothers' Wants Are Few—Nature Supplies Most of Them—Simple Pottery Their Chief Earthly Possession.

SINCE the day when Admiral Dewey gave the world an object lesson in American marksmanship at Manila nearly fifteen years ago, much has been written about the Philippine Islands, so I may not tell the readers of THE CLAY-WORKER a great deal that they do not know about this far-away possession of the United States, but what little I do tell will be from personal observation, information gained in a year's residence in and near Manila. That I tarried there so long is an indication that life is quite bearable there, for I was on a pleasure trip. Originally I meant to stop but a short time, but became interested in school work and remained until the call of family affections brought me back to Hoosierdom.

Though a tropical country, several of the islands—there are more than two thousand of them all told—afford a very comfortable living. The coolest months of the year are December, January and February, when the thermometer ranges from 60 to 80 in the shade, rather a remarkable



Filipino Kiln Made of Nipa and Bamboo.

contrast to the zero weather which now prevails throughout the northern states. The other nine months of the year, "100 degrees in the shade" is not a mere form of speech. On the contrary, the temperature is usually higher than that. Nevertheless by seeking quiet and rest during the midday hours when the heat is most oppressive, one may engage in most any ordinary work with little discomfort, especially if protected from the direct rays of the sun. The evenings are usually quite pleasant, generally a cool breeze prevails, especially after sunset, and makes a stroll through the well shaded thoroughfares enjoyable.

Manila, the chief city, now has some 250,000 people, many of whom are Americans, government officials and soldiers predominating, of course, but with them a goodly number of globe trotters who, like myself, not infrequently prolong their stay because of the inviting surroundings. Were it not so far away from the United States, these islands would become popular pleasure resorts, but as it takes from four to six weeks to make the boat trip from San Francisco to Manila, pleasure trips there will not become a pastime. The government now runs transports once a month each way, so that, as a rule, one can figure on getting mail within five or six weeks after it is posted. Those who have time, means and the inclina-

tion for such a lengthy journey will find it an attractive one, especially if they are in quest of rest and health.

I was asked to tell the readers of THE CLAY-WORKER something of brick and pottery work in the Philippines. The story will have one merit, it will be brief. Manila is an ancient city compared with those in America, and there remains in and about it some interesting relics of olden time of much interest to sightseers. Among the most enduring of which is a great stone and brick wall, which was built around the old city hundreds of years ago, and yet stands a monument to the skill of the Spanish builders of those days. The wall is some twenty feet wide, thirty feet high, and extends from



A Filipino Woman Brickmaker.

near the old water front, or beach, up and about the ancient part of the city. Evidently, it was intended as a measure of protection from invading forces, or marauders, and was built at various times commencing with the reign of Philip the Second, for whom the islands were named.

There is an abundance of raw material, clay of a good quality being found on all the principal islands. There are two kinds of clay on the island of Luzon, to which my attention was called, one a reddish brown clay of which most of the brick are made, the other a black clay which is used for making pottery for household use, such as cooking pots, water jars, etc. This pottery is indispensable to the natives. Oftentimes it is the only possession of the native besides the mat on which he sleeps, and a very scant wardrobe which, among some of the tribes, is much abbreviated indeed. They cook their food in these pots, eat it out of them and, if any of it is left, they preserve it in them.

These pots are their pantry and icebox combined, and it is really remarkable how cool water will keep in them, considering the tropical heat. The Filipino is very dependent on this kind of pottery. About the nearest thing the natives have to a stove is a peculiar shaped dish, into which they put a little charcoal for fuel. Needless to say, this native pottery is very cheap, the best of it costing but a few pennies ordinarily. For these reasons the pottery industry is permanent in character, but may not be sufficiently remunerative to justify an exodus of American potters. Few of them can afford to leave their happy homes to engage in the pottery business in the Philippines. From my observations, the business is carried on strictly from an utilitarian viewpoint. Only plain, crude ware is made. At any rate, I saw nothing that was meant to be at all artistic.

I am sorry to say that the brick industry is scarcely more inviting, for it seems to have been on the decline of recent years. In the old Spanish days, most of the good buildings were built of brick or stone, but in the last few



A Pioneer Filipino Brickmaker and His Family.

years, since the Americans have been in charge and have directed most of the building, they have introduced concrete into general use. This may not continue, for much of the concrete work has proven defective and unsatisfactory, and not a little of it must be done over or repaired.

In the little town of San Pedro Macati (on the electric line between Manila and Fort McKinley) a few miles from Manila, there were originally twelve brick manufacturing concerns, all but two of which have gone out of business during the past two or three years. The same is true of all the brickmaking places near Manila; there is so little demand for brick that most of the brickmakers abandoned this work. Most of the brick that were made were made by hand, though a little machinery of a crude sort was used by some of the brick manufacturers. They have been making brick in this section for several hundred years, but the plant I visited, "La Olympia," started about twenty years ago, and ran until two or three years ago. It was the largest of the

plants at San Pedro Macati. It was one of the so-called machine plants, and had a daily capacity of say 10,000 brick. As the climate is practically the same the year around, bricks were made right through the year. Where brick were made by hand, the daily stunt was 1,000 brick for one man.

One thing that struck me as being peculiar was that the brickmakers did not own the land from which they took their clay. The people here are extremely poor as a rule, and no one owns but a few acres of land at most. I was given to understand that the brickmakers were given the clay for the asking, for the reason, it was stated, that the land was more valuable after the top layer was removed because the principal crop grown is zacate, a green forage, which needs to be planted deep in the ground. So when a farmer wishes to plant zacate, he permits the brickmaker to take off the top soil and clay to a depth of two or three feet, and then plants his zacate. I was told, though, that the clay extends down many feet in depth of practically the same quality, so, as I have said, there is no limit to the amount of raw material.

After digging the clay, it is hauled in wagons to the plants by carabos, the pack animal of the Philippines. This faithful but ugly creature is the salvation of the Filipino. The clay is first put into a square pit and several of the enormous carabos are put in the pit and tramp it until it is



Primitive State of Some of the Tribes of the Philippines.

thoroughly mixed or tempered. Clay enough for 6,000 brick is usually tramped in four hours' time. It is then taken out by hand and molded into brick, after which the brick are placed on the ground about a quarter of an inch apart and left to dry. Some sort of covering is provided to protect the raw brick from the sun while drying. In the dry season, this process is accomplished in about a week, but in the wet season, it sometimes takes a month or two. The plant referred to, the La Olympia, was operated by steam power, the machinery being imported from England. The brick I saw were $9\frac{1}{4}$ inches long, $4\frac{1}{8}$ inches wide and $2\frac{1}{2}$ inches thick. The brick are hauled in small wagons from machine to kiln where they are set about one-quarter of an inch apart. The kiln I saw was divided into twelve compartments, each compartment large enough to contain six or seven thousand brick. The fuel used is Australian charcoal, which costs about \$6.50 a ton, and is better and cheaper than other charcoal there. In many cases wood is used, which costs \$2.00 per cord, but I was told that it requires one cord to burn a thousand brick. It takes five days to watersmoke the brick and another eight days to finish the burn. Later on it is anticipated coal will be used as a fuel. It is claimed that they have immense deposits of a good grade of coal on the islands which are only just being opened up.

It is hard to discuss the labor situation here with one

who is used to American labor, the conditions are so different. It is hard to compare Oriental slowness and easy going ways with our modern habit of rush and strife. As Filipinos go, there seems to be no special trouble in getting and keeping labor, a strike is rarely heard of and they work steadily as a rule. They are hired in two ways, by the day and by the piece; that is, per thousand brick made. Where the latter rule prevails, they are paid by the thousand brick in the kiln, part of the wage being paid when they are put in the kiln, and the rest when they are taken out. The usual rate is \$2.00 per thousand. When day work is the rule, the average pay is fifty cents a day. This is twice what they were paid under Spanish rule, when the wage was twenty-five cents per day. In explaining the apparent difference in the scale of wages between day work and piece work, it is stated that in day work they work from 7:00 a. m. to 5:00 p. m., but when they are paid by the thousand, workmen often start in at 4:00 a. m. and work until 6:00 or 7:00 p. m., and work hard all the time.

The best brick sell for \$11.00 a thousand, ordinary brick bring \$7.50. The brick plants are located on the Pasig river, and the brick are carried down to Manila in bancas, little native boats, at very low cost, about one-fourth the cost of hauling in wagons. There is one drain tile plant in this vicinity but it was not in operation at the time I was there, and may fare the same fate as the brick plants. Much of the information I obtained was from a native brickmaker seventy years old, who said he had been a brickmaker all his life. At best, brick-making in the Philippine Islands is like everything else there—it is primitive and far behind the age, as the reader may judge from the accompanying views which were taken especially for THE CLAY-WORKER.

CLARA McM. LEWIS.

BURNING PEAT IN CONTINUOUS KILNS.

No changes are necessary in a continuous kiln for burning peat in place of coal. The only difference is in the setting methods. The peat is larger than the coal, and therefore the feeding holes should be left bigger. As the amount of ashes is also greater, the bottom flues of the setting should be higher than in the case of coal firing. The peat should be as dry as possible for firing, as otherwise trouble will be caused in the watersmoking of the brick ahead in the kiln. When peat is well air dried, it contains still from five to eight per cent of water. According to several tests made in firing peat, it was found that the water contained averaged about 5.4 per cent. The chamber of the kilns has a capacity from 9,000 to 5,000 brick, and from 4,000 to 5,000 small drain tiles and 11,000 hollow brick. A chamber set with brick entirely will take 4,475 pounds of peat to burn while when set with drain tile it will take 2,140 pounds of peat. This will average for the cubic feet available burning space in the kiln about three pounds of peat for burning.

—Deut. Topf. & Z. Z. No. 90, 1911.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.

The

YEAR THAT has just closed has not been a good one for the clay interests in this section of the country. There has been a steady over-production since early in the spring, and it has continued right up to the present time, so much common brick being in the market this entire pe-



A Typical Native Store in the Philippine Islands.



The Presence of Dishes indicates it is a "Fiesta Day" for the Filipino Tribes.

riod that same was sold without profit, some being sold at less than cost, so the makers lost actual money on this market in the common brick line, while the local jobbers also suffered from reduced profits, and still there was an immense amount of brick used here—not as much as the previous year, but still a grand total that would be very large if it was figured. The profit on this grand total of deliveries for the year ought to be a handsome sum, but keen competition caused it to be eradicated.

There is little in the building line going on at the present time, most of the jobs having been well under cover before the cold weather came. The big union depot job is pushing right along with the concrete work, in spite of the severe freezing, and the announcement is made that ten million dollars will be spent on this terminal proposition during this year, in addition to the seventeen million already spent here. This means a demand for a very large number of building mechanics, and many are to be imported from other points

time and a very few will start up again just as soon as they can.

Nineteen hundred and eleven lacked something over \$500,000 of showing as great value in building permits as the previous year, the exact total being \$13,310,871, but then the permit for the building of the new union station was included in this year, and that excluded would have made the showing a very poor one, showing that general building operations have been quiet. At the same time the local post-office has been taking its annual census of new houses, and the figures they are displaying are quite a surprise, as they indicate a very large growth in the number of new residences especially, and a considerable growth in the matter of apartment houses, the number of houses completed and occupied within the past ninety days running up close to 2,000, and this is a big showing when we consider that the number of new structures for which permits have been issued during the entire year was only about 5,000.

Three sewer pipe contracts were let recently by the board of public works, and each called for vitrified sewer pipe in preference to concrete, although concrete bids were submitted. In case of two of the contracts the lowest bidder specified clay pipe and in the other instance the lowest bidder offered to supply either material, and as there were a good many protests from taxpayers against the use of concrete, the board felt that the clay pipe had the preference.

The investigation that has been in progress in this city before the council, as to the merits of concrete and clay pipe, has caused a great deal of private discussion, and while concrete may have many friends, there seems to be a feeling among the people that the clay pipe is the most reliable. Many are willing to admit that as good a pipe can be made of cement as of clay, but they point out the fact that it is possible to make a much poorer one and still have it pass inspection at the time it is made. They feel that the holding-up quality of the concrete depends too much upon the honesty not only of the contractor but also the men in his employ, and that a little bit of carelessness or a little bit of cheapening the mixture will make an expensive job worthless.

A report that just arrived from Davis, Oklahoma, and was published in the daily papers, helps to intensify the feeling against the concrete work, as it states that the deaf and dumb school at Sulphur, which was recently condemned by state officials, is tumbling down, the buildings not being able to hold up their own

weight, concrete floors have fallen and the walls are crumbling away. It is said that the contractor had been paid \$65,000 and that only \$35,000 of it had gone into labor and material.

The mayor has appointed a committee of eight to revise the building code of this city. They are: Benjamin Lub-schez, architect; George L. Brown, builder; John F. Dealy, insurance expert; Charles L. Flaugh, real estate; and the following members of the city council, Aldermen Frank Shinnick and Flournoy Quest, C. A. Burton and W. C. Culbertson.

K. A. W.



An American Hat on a Little Brown Brother as He Rides His Faithful Carabo.



The Beautifully Picturesque Pasig River and Boat on which Brick are Transported.

for this job. It is estimated that five thousand men will be on their payroll by the middle of next summer. While it will be a good while yet before they begin to use brick, it is said that a good many common brick will enter into the structure before it is completed, and they have already been contracted for.

According to reports from the Kansas field most of the plants are closed down and will remain closed until early spring, probably about March 1. Some will open before that

Written for THE CLAY-WORKER.

HOW MUCH HEAT TO DRY A THOUSAND BRICK?

BY RICHARD B. HOEHNE, BUCYRUS, OHIO.



IN THESE DAYS economizing is an important problem. The factors materially employed in the performance of the drying process are air and heat. The air is merely an assistant to the heat; the latter accomplishes the evaporation of the water and contributes the escape of saturated air. Coal, generally used for the production of heat, is getting more and more expensive and there is no hope that the coal dealers in the near future will discontinue whispering of increases in the price. Hence we must reduce the consumption of coal to meet the increase in the price.

Of secondary importance is the economizing in air consumption, because Mother Nature furnishes free of charge sufficient quantities, sometimes even too much, in the brick-maker's opinion, who says, "The air cracked my ware." He is wrong at that, of course, because the heat contained in the air was responsible for the damages. Air in its original state never can cause any cracks.

It may interest you to figure out the utmost amount of heat required to dry your ware. Comparing your actual needs with the figures obtained will show where economizing could be exercised by idealizing the conditions. With this in view I will make up a calculation, setting forth what amount of heat I consider reasonable to be expended for the drying of one thousand brick.

The quantity of heat units necessary for the drying process is governed by:

1. The length of time occupied by the process,
2. The amount of water contained in the ware,
3. The density, or weight, respectively, of the products,
4. The method of operation applied, and
5. The construction and conditions of the dryer.

My demonstration shall be based upon the following particulars: Period of drying, 24 hours; one pound of water in each brick; weight of the dry brick, 5½ pounds, and the dryer shall be a double-track tunnel dryer of 120 feet long and each tunnel 10 feet wide.

As a general rule, it may be stated, the higher a degree of heat is attainable without damaging the ware the more economical a dryer will operate, for the air at higher temperatures is capable of absorbing a considerably larger percentage of moisture than at low temperatures. Taking a fair average, I will assume 212° F. (=100° C.) at the hot end and 85° F. (=30° C.) at the starting. This will make the average temperature in the dryer

$$\frac{100 + 30}{2} = 65^{\circ} \text{ C. or } 149^{\circ} \text{ F.}$$

Incident to the process of drying are many losses of heat, which must be considered in order to obtain true figures. The heat destined to accomplish the drying has to serve various inferior purposes contributing to the complete system. These are:

1. The heating of the product itself,
2. The evaporation of the moisture,
3. The heating of the air,
4. The absorption and radiation of heat by the dryer.

Suppose the ware when entering the dryer has a temperature of 50° F. (= 10° C.), one thousand brick weighing $5.5 \times 1,000 = 5,500$ lbs. (= 2,500 kg.) will absorb

$$(100 - 10) \times 0.22 \times 2,500 = 49,500 \text{ calories.}$$

The evaporation of one kilogram of water (=2.2 lbs.)

necessitates 640 calories of heat. Thousand brick contain 1,000 lbs. of water; thus

$$\frac{1,000 \times 640}{2.2} = 290,910 \text{ calories.}$$

The quantity of heat provided for in the preceding item is appointed to transform the water into steam. The removal of the latter is the work to be done by air, which for this purpose must be heated to the corresponding temperature. I have already mentioned the average heat in the dryer to be 149° F. (65° C.). At this temperature air can absorb a maximum of 0.165 kilograms of water per one cubic meter. In the practice of brick drying it is advisable, however, to assume the saturation at $\frac{2}{3}$ the theoretical amount. To increase the temperature of 1 cubic meter of air 1° C. will require 0.3 calories of heat. Consequently the amount of heat to be expended in heating the air will be

$$\frac{1,000 \times (100 - 10) \times 0.3 \times 3}{2.2 \times 0.165 \times 2} = 111,570 \text{ calories.}$$

Dryers of the kind I took into consideration are most commonly operated continually. I will therefore neglect the heat retained in the partition walls, because it is utilized for the entire period the dryer is operated continuously. A loss of heat by radiation occurs through the doors on each end. I will assume for each thousand of brick an area of 130 square feet (= 12 square meters) of floor and ceiling, which will radiate 1.2 calories hourly per 1 square meter and per 1° C. Through the doors a loss of 4 calories hourly per thousand will be justified, amounting to 451,980 calories.

Under this item there is another loss. The dryer cars naturally will absorb some of the heat. Taking the weight of steel cars per thousand brick at 400 lbs. and the specific heat of steel at 0.114 calories, then the total losses of heat in the dryer will be

$$\begin{aligned} & 24 \times 12 \times 1.2 \times 65, \\ & + 24 \times 4 \times 65, \\ & + 400 \times (100 - 10) \times 0.114 \\ & \hline & 2.2 \end{aligned} = 30,570 \text{ calories.}$$

Total, 482,550 calories.

The calorific power of coal shall be 7,000 calories (= 12,600 B. t. u.); then we have to burn the following amount of coal in order to produce the heat needed for drying a thousand brick:

$$\frac{482,550}{7,000} = 69 \text{ kg. or } 69 \times 2.2 = 152 \text{ lbs. of coal.}$$

Some may say, "We do better," but they are probably mistaken. You understand, the concluding figure of my calculation indicates the heat to be expended for a complete drying, while in most cases the dryers do not accomplish their work to a completion, this being a reduction in the cost of drying, but an increase in the fuel consumption at the kiln, as the latter has to dry the ware first before the process of burning can begin. Other circumstances influencing the cost of drying materially are the quantity of water contained in and the degree of density of the brick. Both vary essentially and therefore deserve special attention in regard to the cost of drying.

Doubtless there are others whose drying far exceeds the maximum stipulated above. Therefore the question of economizing comes into consideration. To that effect a better control should be established on dryers in order that the supply of air and heat can be regulated to meet requirements. Naturally, too much air passing through the dryer lowers the temperature and thousands of heat units go to waste. On the other hand, insufficient renewal of air may allow the

heat to rise to indefinite heights, causing damages to the ware.

Provision should always be made on any artificial dryer to warrant a perfect control. Most necessarily thermometers should be placed in the dryer. Equally important is the application of suitable draft gauges, which report the quantities of air consumed by the dryer. Once in a while I would advise to determine by means of a hygrometer the degree of saturation of the escaping air. Thereby you can tell which changes would economize your method of drying.

The sources acquired to procure the heat needed in dryers are varying extensively. The system that strikes me most favorably is the combined utilization of exhaust steam from the engine and the waste heat from the kilns. Arrangements of this kind have been laid out most successfully and work more economically than any other system of artificial drying. In the design of new plants said combined system should always be provided, for it represents in connection with an up-to-date continuous kiln the most modern and the cheapest equipment for clayworking plants.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

THE year just closed has marked a great improvement in regard to the demand for clay building materials.

In the Pacific Northwest, where lumber is cheap and building is therefore done mostly with lumber, there has been an enormous increase in fireproof buildings, which speaks well for the clay industries, as they had their share of the fireproof building business in furnishing material. A good sample of the need for more fireproof buildings was recently shown at Winlock, Washington. At Winlock are some of the largest sawmills in western Washington, and it is quite a lumber center. Fire recently wiped out the greater part of the town, and in the movement for rebuilding, it is more than likely that brick will be used, instead of frame, for the new buildings.

Plans for the holding of a meeting of the clayworkers of the Pacific Northwest are fast maturing. Secretary Ridge, of the Washington association, was in Portland a few days and assisted in the organization of a clayworkers' association in that city. Mr. C. H. Rodgers was chosen president, and James Anderson secretary. The prime object of this new association is the holding of a meeting of the clayworkers in the northwest at Portland in March next.

According to the totals for the building permits issued, Seattle is far behind last year in the amount of money expended in new buildings. The total amount of permits in Portland was about as great as in 1910, but there were issued more permits for larger buildings in 1911 than in 1910. Vancouver, B. C., shows a large increase, and Portland and Vancouver both show a very healthy condition as far as building operations are concerned. The board of public works in Seattle has abolished the fee system for building permits, and hereafter no charges will be made for taking out permits. The amount collected in 1911 was \$10,479, which was turned into the city treasury.

The new industrial insurance law has been in effect three months in the state and so far no accidents have occurred in the clay department. That the law will have to be adjusted in some instances is plainly shown by the demand for insurance in small cases, which would otherwise never have been claimed in the ordinary course of business.

The plans of the Rogue River Pottery Company, of Medford, Ore., which will operate the brick yard at Tolo, are fast maturing, and the new company expects to make drain tile and vitrified brick if the clay proves suitable.

The Hub City Brick Company, of Centralia, Wash., has been incorporated by the Turner brothers and Albert Saers, and will take over the interest of S. L. Alexander in his

brick yard, which was recently destroyed by fire in Centralia. The new company will rebuild the plant at once and will add some new machinery later in the season.

The Baker Fire Clay Company, of Baker, Oregon, has been making some experiments with their clay and have produced some excellent fire brick. They were recently tested by the Northwestern Smelting and Refining Company, at Nampa, Idaho. Mr. Charles H. Gage, the superintendent of the smelter, has reported to W. A. Gossett, the president of the company that the sample brick has stood the test in first class shape, and that he believes that their fire clay material is as good as any manufactured in the United States.

The Sutherlin Brick and Tile Manufacturing Company, of Sutherlin, Oregon, has been incorporated with R. A. Armstrong as secretary. This company will manufacture brick and drain tile, for which there is a large demand in their section of the country. They are going to install J. D. Fate machinery and hope to be in operation early this spring.

A new brick yard has been planned for Fernie, B. C. Some clayworkers from Cleveland, Ohio, are behind this project. The clay is now being tested, and Mr. W. B. Hanlon states the project will certainly go through if the tests show up all right.

The clay around Falls City, Oregon, has been tested often by clayworkers and pronounced to be all right, and will soon be utilized if the plans of B. F. Comer are carried out. Mr. Comer has the hearty endorsement of the citizens of Falls City, who have raised a cash subscription towards the starting of the new brick yard.

SIWASH.

January 2, 1912.

THE FRUITS OF PUBLICITY.

It Pays to Advertise Brick—A Case in Point.

IN A RECENT bulletin J. Parker B. Fiske, Secretary-Treasurer of the Building Brick Association of America, gives the following quotation from a letter written by L. E. Smith, an attorney of Durango, Colo., written to the Durango Pressed Brick Company, which readers of THE CLAY-WORKER may well ponder seriously. It illustrates the importance of persistently preaching the merits of brick as a structural material.

"I have just completed the erection of a six-room brick bungalow cottage, modern in every particular, and I am pleased to state that the brick furnished by your company has given entire satisfaction in every particular.

"When I began planning a house, about a year ago, I had my mind pretty well made up to build a cement cottage, but I also secured estimates on frame building and had no idea, at that time, of building a brick building. In some way I mentioned the subject to your Mr. Freeman one day on the street, and, as we were arguing the efficiency and cost of building materials from an economic standpoint, he consented to furnish me with some data issued by the Building Brick Association, and among the pamphlets furnished was a treatise on the comparative costs of cement, frame and brick in the erection of residences.

"After carefully perusing the matter given me, I began to investigate the subject and, I am pleased to say, it resulted in my deciding to erect a brick cottage. In fact, I submitted my plans in the alternative for frame and brick, and the contract for building the brick house was \$100 higher than the frame, and it was very clear to me that I could save that \$100 in the painting of the house one time, and in the course of a few years I could easily save it in the matter of insurance, and I have no hesitancy whatever in saying that, as a business proposition, and for this section of the country especially, the brick house is a great deal cheaper in the long run than the frame house, and I can see no good reason why any person intending to build, even though it would be a one-room house, should not use brick."

Written for THE CLAY-WORKER.

DISAPPEARANCE OF OLD NEW YORK BRICK MARTS.

WHEN the Greater New York Brick Company was organized, among other things it did was to cause a discontinuance of the picturesque brick markets and piers around New York. For years canal boat loads and barge loads had come down the Hudson and tied up at these piers in different parts of the city, where the owners awaited customers. In no other city in the world were there brick markets such as New York has had ever since the Hudson district was developed. To be sure, these markets frequently worked a hardship for the owners and the producers in that so many loads were offered that the buyers made the holders believe the market was overstocked and thereby induced them to accept lower prices. Often cuts in quotations from day to day were caused almost solely by this fact.

When the organization was effected last spring, one of the promises made by the new officers was that prices would be maintained at a uniform range and it was intimated that this range should never fall below the profit point. So far the management has succeeded in doing what it then promised. What will come in the future can only be conjectured.

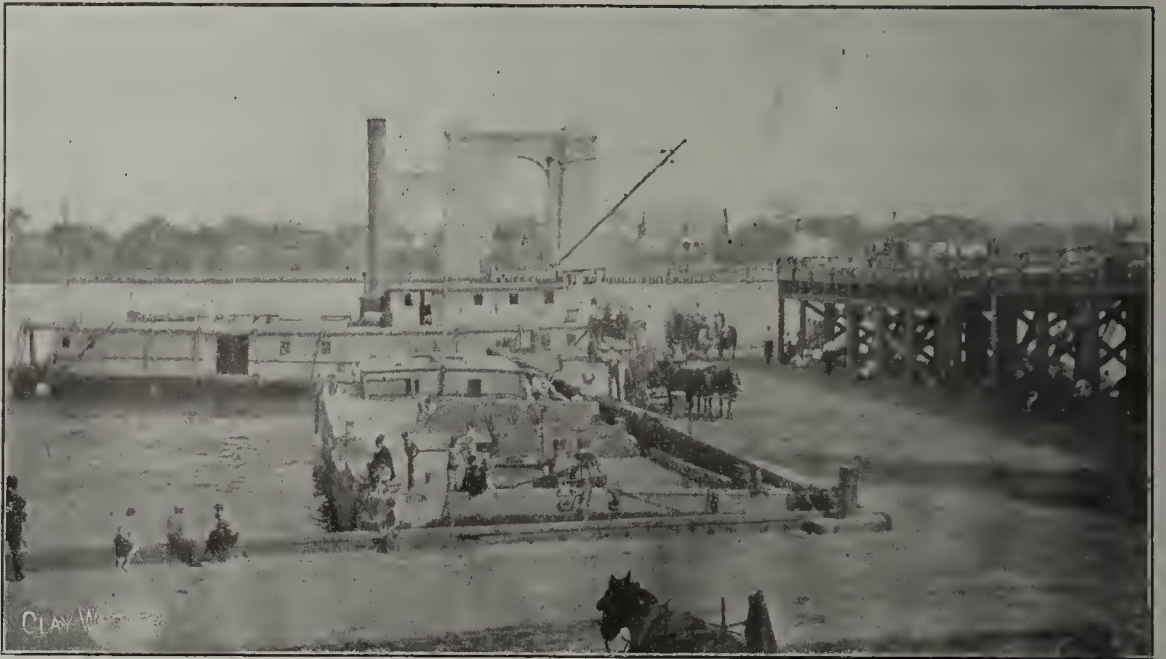
Meanwhile there are those in the business who lament the loss of the old brick markets. Probably this is largely due to the fact that they can no longer buy common brick at their own prices, as they have done heretofore. Looking at the matter from a sentimental standpoint, one of the unusual features of New York commercial life has disappeared. There are no longer fleets of canal boats and barges tied to the different piers awaiting a purchaser. The selling agent makes his bargain with the buyer and the brick are delivered as wanted.

The pier for the lower part of the city used to be just above Wall street. Here as many as one hundred canal boats have been tied at one time, each one loaded with brick. Often twenty-five barges, each carrying a load of practically 500,000, have laid at this pier at the same time. All this has entirely disappeared. The accompanying illustration shows this pier as it looked just before the change was made. The photograph was made from the end looking toward the city and shows the huge buildings piled in the background, with the loads in carts being taken away for use. Even the pier has disappeared and in its place is a structure built by the city which will be let to whoever wants it at a high rental.

All the way from Fifty-ninth street and the East river to Sixty-sixth street, brick barges and canal boats were formerly tied. The illustration shows the pier just beyond Sixty-sixth street as it looked during the construction of Blackwell's Island bridge. This was reputed to be the largest brick market in the world, and there is no telling how many thousands have been tied up here at one time. Now it is gone and in its place piers for miscellaneous shipping have been constructed. The brick market and the brick buyer may be benefited by this change, but those who de-

pended upon the old market for their livelihood lament the introduction of modern improvements.

Another important market was just above One Hundred and Thirtieth street. Fifteen barges have been counted tied up to this pier at one time, each containing at least a half-million common brick. A few are seen there still for purposes of delivery, but the market feature has gone along with that of the others. Two illustrations are given, one looking straight up the river, showing the tangle of shipping, most of which at the time the view was made were brick boats. The other shows a view alongside the pier looking out across the Hudson river and gives a clear im-



Old Brick Market at 66th Street and East River.



The 130th Street and North River Brick Market.

pression of the appearance of the barges as they were being unloaded for distribution through the city.

There were other lesser markets than these scattered at different points on both sides of Manhattan Island, but all are gone along with the principal ones.

Those who have seen the brick business on the Hudson grow from comparatively small beginnings to its present enormous proportions have now accepted the change made by the consolidation in an altogether friendly spirit. Indeed, some of them feel aggrieved that the means by which they obtained their livelihood has been forever destroyed. They say it will be well for manufacturers to consolidate in such a way as to control the market, but they point buyers and

customers to the present range of high prices and declare without this control it would be possible to purchase supplies at considerable less than now. Of course, this argument is wholly from the buyers' standpoint. What happens to the manufacturer under such conditions never troubles those who buy or those who sell on commission. They look at and consider the buying end alone, forgetting that the loss of profits ultimately results in failure, or a quality of production which falls short of satisfying requirements.

The picturesque old markets are gone. But in their place has come a selling method which guarantees to customers the best quality of product at stable prices. The figures are higher than the lowest point used to be. They are lower than the highest point. Perhaps the stable

Written for THE CLAY-WORKER.

BRICK NEWS FROM THE SOUTHLAND.

THE very cold weather prevalent in the states of Tennessee, Kentucky, north Alabama, Arkansas and north Mississippi, as well as in the southwest, retards brick work of all kinds, and the holiday interruption has hurt the planning of work. Nevertheless, the architects and contractors, both at Nashville and Memphis, have their minds on many large undertakings that will form in 1912. Just at present snow is on the ground, the rivers are rising, and people are studying the big political clouds without taking a line of cleavage. Some express the view that this will be one presidential year when business will be very good.

E. R. Betterton, Sr., of Chattanooga, is to erect a ten-room brick residence that will cost about \$15,000. Architects Barnwell and James planned the same.

The E. T. Lewis Company, of Nashville, availed itself of the good weather for the last few days before the present snow and did much on the \$279,000 sewer contract it has in hand. Six crews of men are engaged.

Contracts for the Athletic Home, at Memphis, Third and Court streets, have been let to the Jefferson Construction Company, and it is understood that work will commence at once. The plans are in the hands of Architect L. M. Weathers. The building will be one of the handsomest things in the south.

Architects Jones and Furbinger, of Memphis, have made plans for a large dye plant to be occupied at Memphis by Kraus & Co. The building will be located on Madison avenue just east of Orleans street. The main building will front eighty feet on Madison avenue and will have a depth of 120 feet and will be three stories high. The front will be of white glazed brick and plate glass.

Alsop & Smith, at Memphis, are the architects of the new Reese building, opposite the Memphis union depot. The Reese building is of red pressed brick with stone trimmings and fronts fifty feet on Calhoun avenue and runs back one hundred feet.

The W. B. Taylor Brick Company, at Jackson, Miss., is running with a capacity these days of 35,000 brick per day and employs about thirty men in North Jackson. The firm contemplates buying other lands for the purpose of acquiring additional clay. In a little brick war lately, the firm had to get down to six dollars a

thousand to protect itself, but did not particularly like the experience.

At a meeting of the Paducah manufacturers and jobbers at Paducah, Ky., a few days ago, the Paducah Manufacturers and Jobbers' Association was organized. An exposition will probably be given this winter. Officers elected by the association were Gus Smith, of the Hill & Karnes Brick Co., secretary and treasurer; C. A. Murray, of the Paducah Brick and Tile Company.

A decrease of \$420,000, as compared with 1910, is shown in the result of building operations in Memphis in 1911. The record shows a practical decrease for every month in the year. The estimated cost of the buildings for which permits



Market Pier in Lower Manhattan on East River.



Old Brick Pier at 130th Street and North River, Looking Across to New Jersey.

average thus maintained, guaranteeing an even product of the best quality, will, in the brick required in the development of New York's great construction enterprises, really cost less than they have in the past. Those who depended upon the market for their livelihood may regret that this change has been made. The maker who is certain of a profit on his labor and the buyer who is equally certain of obtaining a uniform high quality of brick, will have no regrets that the old uncertain plan of buying and selling has disappeared along with many other old-fashioned and altogether inadequate business methods.

It looks like the park architecture of the future will have to include landing spots and starting slopes for the aeroplane.

were issued last year was \$5,859,146. In 1910 the estimated cost was \$6,219,498.

At Nashville, building permits also fell off slightly for this past year, being \$1,209,977 as against \$1,623,598 for the year before.

At the recent election in the Nashville Builders Exchange, E. T. Lewis was elected first vice-president. A. W. Hutchison, brick contractor, is one of the directors.

B. L. Winchell, president of the Frisco Railroad, was in Memphis a few days ago and indicated that work would go forward in the near future on the passenger depot to be built by that road and the Illinois Central system.

DIXIE.

THE "AMERICAN" SHOVEL.

MODERN demands in the clay industry call for modern means and equipment. As the product starts in the pit it seems timely to start the decreasing of manufacturing costs in the pit. The modern steam shovel is one of the most important factors in this problem. Its adoption reduces very noticeably the cost of digging clay or other material.

The "American" steam shovel, illustrated herewith,

regular tracks for overland travel or in the pit, as the machine readily handles the track sections in traveling either short or long distances.

Suppose your pit is flooded! Ties can be spiked to these track sections, which give a solid foundation for traveling over soft, spongy or uneven surfaces that would otherwise require expensive planking.

The scope of performance is very broad as to maximum digging depth, height of dump above rail, maximum digging radius, and other vital digging features. All these functions are strictly under the will of the operator as conditions require.

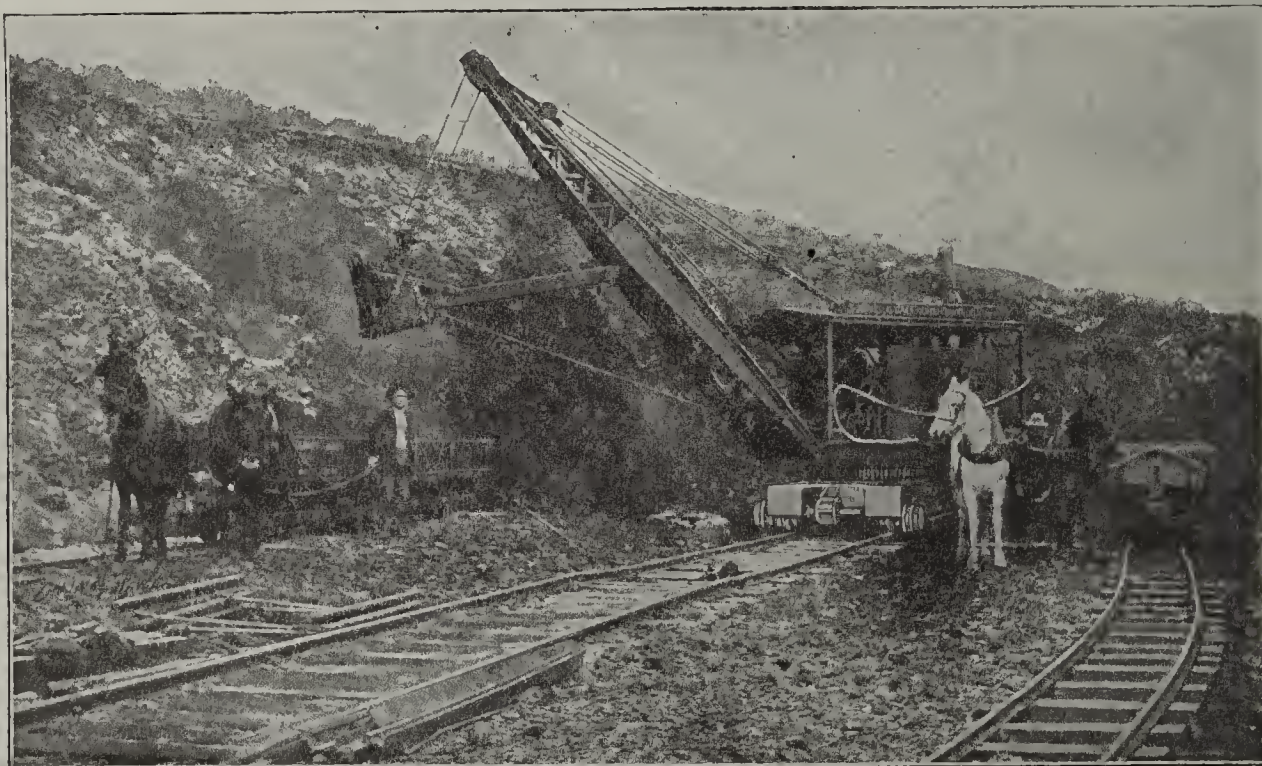
It easily and quickly makes its own face from perfectly level ground to the required depth.

Light stripping or digging to the extreme maximum digging depth are done with equal readiness and facility.

Wonderful results are accomplished in digging in water, as compared with other methods.

The plunger at boom point forces the material through when it is of such consistency that it will not fall out of its own weight. This obviates the necessity of using a dipper of "chokemouth" type and guarantees getting a dipper FULL every pass. Less power is also required for digging.

The machine has sufficient weight which with arrange-



American Hoist & Derrick Company's Full Circle Steam Shovel.

and manufactured by the American Hoist & Derrick Co., of St. Paul, Minn., is one of the most popular shovels on the market. In calling its distinct advantages to the trade, the manufacturers dwell upon the following:

It is strictly "full-circle" in performance, without the use of side braces or outriggers of any kind.

It picks up or discharges its load at any point within a 60-foot circle.

The "American" is absolutely one-man operated, the operator standing well to the front of the machine, with levers nicely banked, from which position he has an unobstructed view of the dipper and the entire digging operation. In light work the operator can easily do his own firing.

A striking feature is that all functions of the machine are performed by a double cylinder, non-reversing engine. This is made possible by the use of the "American" friction, in daily use on over 10,000 engines. This friction can be absolutely relied upon to either stick or slip when desired, is long lived and is very easily kept up.

The special, telescopic, portable track sections are unique in design and novel in practice. It is not necessary to lay

ment for skillful manipulation, makes a very permanent, dependable installation. It will not back away from the work in the hardest kind of digging, and digs at any angle to the track.

It propels itself up onto a flat car under its own power, in which situation it can be readily moved from one operation to another at train speed.

It has been the constant aim of the builders to develop a steam shovel that can be used in a great many serviceable and economic ways. It handles a single or double line grab bucket, can be used as a locomotive crane, and does light switching when the engine is elsewhere. Auxiliary wheels of standard gauge are provided for use without any alteration in locomotive work.

In introducing this shovel to the clayworking industry the manufacturers profit by a fund of information and knowledge based on years of experience in steam shovel design and practice. They will be very glad to receive inquiries from interested parties.

The center of population has moved about a little, but it still has a hankering for the old Hoosier state.

BRICK NEWS FROM THE TWIN CITIES AND THE NORTHWEST.



THE YEAR 1911 IS PAST and gone, and it is considerable of a satisfaction to the manufacturers of common brick that it is gone, for their season has been a dull one and the trade generally has not been able to figure up much profit in the operations for the year. Some of the larger yards which produce hard burned goods may not have had quite the same experience, but the average yard has not had a successful year. Nearly all of the yards in interior points shut down a number of weeks earlier than common, and with the season's production far below the average. Sales were uncertain and prices have been low. In the Twin Cities there have been sharp conflicts in competition, and some low prices have been named, while in Duluth, during the summer, prices were made which were very close to cost of production.

A new season is at hand and it promises to be a better one. The volume of new building for the season is materially better than it was a year ago, and there are many more tentative projects that may be taken up than was the case a year ago. The prospects are regarded as much better than a year ago. Dealers believe that the low priced brick which unsettled the market, have been sold, and there will be a chance for a better market to rule during the winter and spring months. Stocks are fairly good in size, but a run of business such as has been experienced in other years would speedily reduce it to a small quantity. The new year holds out considerable promise in the way of business.

The Minnesota State Association of Builders' Exchanges is soon to distribute to its members a report of the recent conference on the use of safety appliances and the prevention of industrial accidents. The meeting attracted much attention from manufacturers in every line and users of machinery. This report will contain many suggestions on the best manner of avoiding accidents in industrial plants.

The annual meeting of the Minnesota State Association of Builders' Exchanges held in St. Paul, December 13, brought out considerable discussion on the subject of trade schools, and of preserving for the young men the right to learn the trade of their choice. As it now stands, many trades practically exclude boys from becoming apprentices. Some allow a minor number, such as one to a shop, regardless of how large the shop may be. Under such a rule, if there should be a monopoly of the business in a single plant, it would mean that the entire community could have but one single apprentice learning the trade, although there might be as large a number of workmen employed as would be included in several shops in another city. It is suggested that there should be a law aimed at prohibiting any interference with the right of a boy to learn a trade if he desires. This is of great interest to brick manufacturers, whose business has been seriously handicapped by the scarcity of bricklayers. And this scarcity has been promoted by the limitation of apprentices. In the election of officers, Frank J. Nixon, of Duluth, was named for second vice-president. Mr. Nixon is of the firm of Paine & Nixon Co., which does a large business in brick and other materials. A number of the officers were drawn from the general contractors, including George J. Grant, of St. Paul, first vice-president; John Lauritzen, Fergus Falls; Eben Leighton, of Minneapolis, and A. P. Cameron, of St. Paul, members of the executive committee.

The Northern Builders' Supply Company, of Minneapolis, has just been incorporated to handle general lines of building materials. The company has a capital stock of \$25,000 and has for incorporators T. L. Hartnett, J. R. Simpson and F. A. Hitchcock, all of Minneapolis.

Negotiations are now pending with Chicago and Twin

Cities capitalists for the purchase of the plant and business of the Luverne Brick and Tile Company, of Luverne, Minn. it being a reorganization that is proposed in order to provide additional capital for increasing the product. The present interests would continue to be represented.

The work of the Minnesota State Fire Prevention Association in its state and similar organizations in adjoining states, is producing good results in the way of keeping down causes of fires. But the real method of prevention is neglected in much of their work, the simple and natural way of constructing structures of materials which can not burn—that is, of brick construction and tile partitions and flooring. If the members of the association, who are generally insurance men, would urge this sort of construction they would make more progress to the end sought than will ever be done along the present lines of pure precaution. They urge to avoid allowing litter to accumulate, and rubbish, for they offer inviting fires to get under way. They urge stricter adherence to the requirements of insurance policies. But they do not go the length of urging the tried and tested construction which will practically meet the situation.

The industrial classes which have been established in the night schools of the Minneapolis public schools, number in excess of 500, and are all that the present facilities can accommodate. Next year there will be a better arrangement made and more can be handled.

The farm of G. S. Eichmiller, a banker of Hector, Minn., near that town, has had twenty-one car loads of drain tile laid on it this fall, completing the entire tiling of the tract, which consists of 280 acres. All told, there is about ten miles of tiling laid on the tract. When Mr. Eichmiller bought the tract, a number of years ago, it did not hold out much promise as an agricultural proposition, being flat, and much of it swampy and wet. But he proceeded to drain the low pieces and tiled portions of the tract each season. The land proved very productive and resulted in a valuable farm. The cost of tiling has been about \$20 an acre, and the value of the land has been increased far more than the cost of tiling.

The Jackson Brick and Tile Company, of Jackson, Minn., has completed the construction of a steam dry shed, and has placed an order for eighty triple-deck drying cars. The capacity of the plant will be increased from 15,000 to 50,000 a day. A storage shed is to be erected, to keep clays protected from the weather.

G. Gilbertson, of Pelican Rapids, Minn., is negotiating with the people of Valley City, N. D., with a view to establishing a brick plant there. He proposes a plant to produce about 70,000 a day. Tests of the character and extent of the clay available at Valley City are to be made.

A striking indication of the way that cement is losing out, is shown in the fact that there will be no northwestern convention and show this winter. Twice before, the northwestern association had to transfer the show to Chicago, as a matter of form, but this time they did not preserve the form, and the meeting has been allowed to go by default. The fact is that the interest has been waning for some time. It has not been possible this year to get enough manufacturers interested to justify holding a show.

T. WIN.

A NEW ELIXIR OF LIFE.

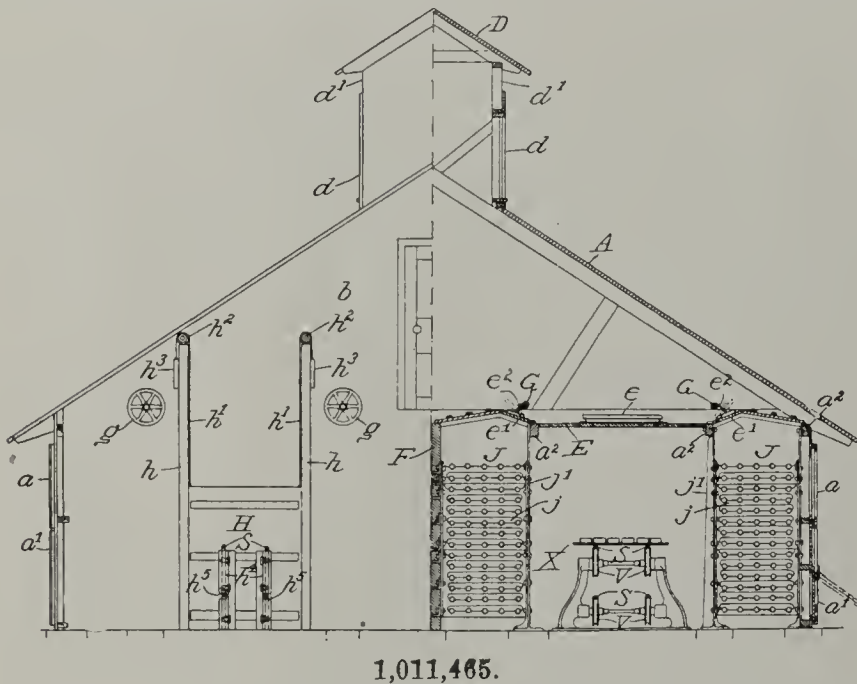
In recent newspaper reports announcement was made that a Cleveland chemist had discovered the elixir of life or the secret of perpetual youth. It seems to us that we have heard of this before. That some man named Ponce de Leon in the early days made a trip across the Atlantic ocean seeking the fountain of youth in the everglades of Florida. From that time to this we have been occasionally learning something new on the subject, but the real article is a dream that evidently the world is not yet prepared to realize on.

RECENT PATENTS.

Material for this department is compiled expressly for The Clay-Worker by Watson & Boyden, Patent and Trade-Mark Lawyers and Solicitors, 918 F Street, Washington, D. C. and to them all inquiries in regard to patents, trade-marks, copyrights, etc., and litigation affecting the same should be addressed. A complete printed copy of the specification and drawing of any United States patent in print will be sent, postpaid, to any address for 10 cts.

Brick-Drying Plant: William Richard Martin, of Lancaster County, Pa. 1,011,465. Patented December 12, 1911—This invention relates to brick-drying plants, or apparatus, comprising a drying-house or building having suitable drying-rooms or chambers provided with doors or dampers for controlling the drafts and admission of outside air, and containing paralleled steam-pipe drying racks (consisting of superimposed layers or shelves of pipes or tubes connected with a source of steam supply), and with endless cable-conveyors running in or through aisles or passage-ways between the said steam-pipe racks for transporting the bricks into and from the drier, the green bricks to be dried being supported upon steel or metallic pallets which are deposited upon the cables and delivered thereby to workmen inside the drying-rooms, who remove such loaded pallets and place them upon the pipe-shelves.

The main objects of my invention are: First, to provide



1,011,465.

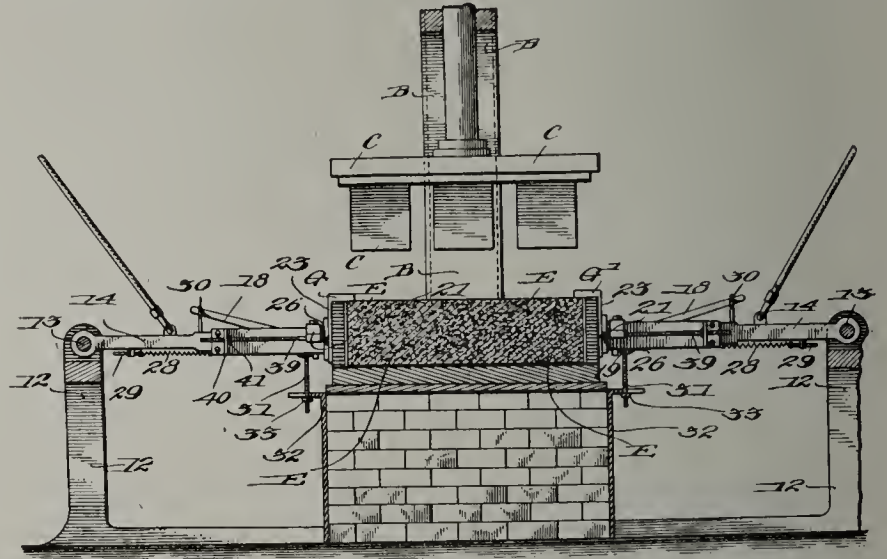
a highly efficient and practicable apparatus for drying the bricks by steam heat, assisted as may be desirable by the weather or by drafts for drawing off or expelling moisture and vapor with means for adequate regulation of these drying agencies as the atmospheric or climatic conditions or the varying state of the bricks may demand; second, to allow for holding the vapor arising from the bricks until the proper period, and then quickly disposing of such vapor, in order to promote rapid drying and to carry out the process in the most beneficial manner in each particular case; third, to afford improved facilities and conditions for carrying on the work; fourth, to dispense with the need of off-bearing boys or barrow men for carrying the loaded pallets of bricks to and from the drying-racks; and fifth, to improve the general construction and increase the efficiency of operation of brick-driers of the steam-pipe class.

For a full understanding of the invention, those interested are referred to the complete patent, which is quite lengthy.

Clay-Press: William D. Frerichs, of Tottenville, N. Y., Assignor to the Atlantic Terra Cotta Company, a Corporation of New York. 1,012,835. Patented December 26, 1911—In the molding of clay products, especially those formed of terra cotta, it is desirable that the mold parts be assembled and adjusted with accuracy and then maintained unyieldingly in position during the working of the apparatus in order

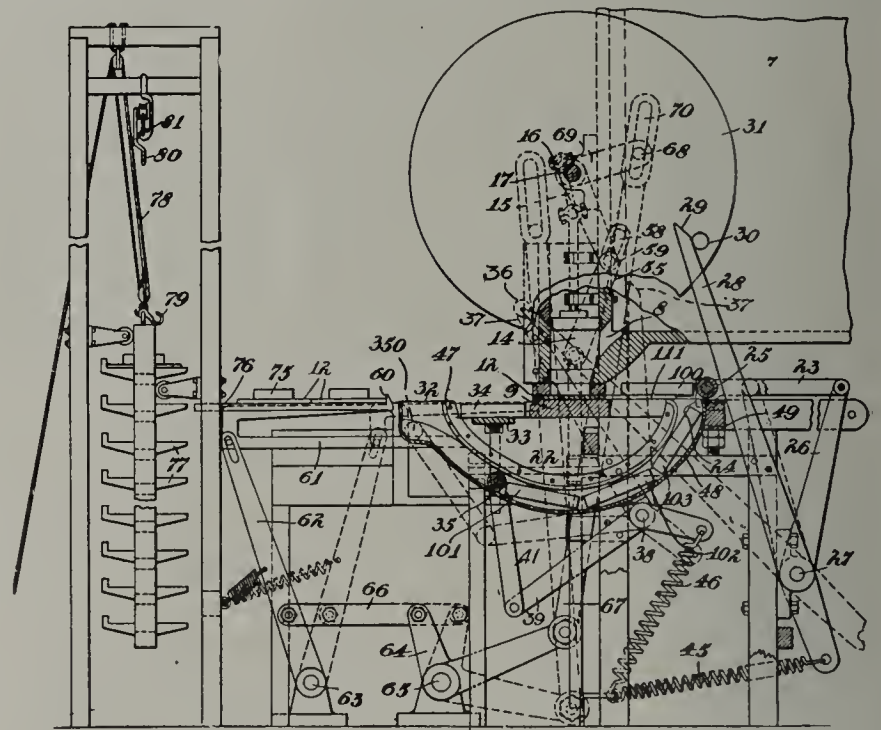
that the objects molded may possess uniformity of structure, and the formation of irregularities on the surface caused by the yielding of the mold walls may be avoided. To accomplish this, I have devised a mold or press which may be assembled and adjusted to manufacture objects of various sizes with the uniformity and accuracy required. For a full understanding of the invention, those interested are referred to the complete patent, which is quite lengthy.

Brickmaking Machinery: David Strickland, of New York, N. Y., Assignor to the American Clay Machinery Company, of Bucyrus, Ohio, a corporation of Ohio. 1,012,290. Patented December 19, 1911—This invention relates to brickmaking machinery, and has for its object to provide an improved con-



1,012,835.

struction whereby brick molds may be passed in sequential timing relative to the movement of the molding press through a sander and onto pallets upon the table and the molds and



1,012,290.

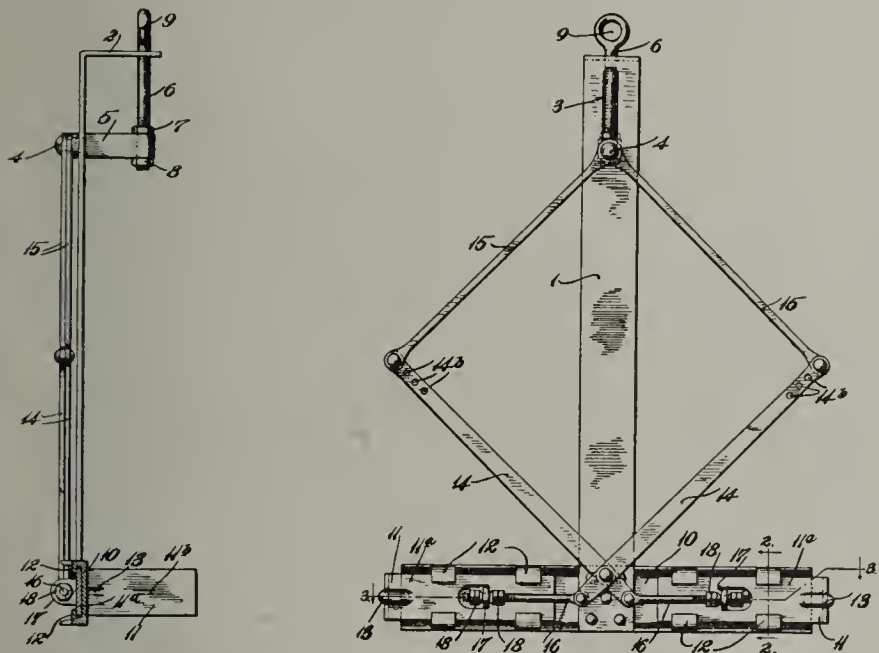
pallets passed below and from under the molding press and the pallets passed onto and off of a conveyor.

In brickmaking the molds must be passed into and out of the sand while damp so that the sand will adhere to the mold surfaces. The molds must pass quickly through the sand, otherwise the mass of dry sand in the sander will absorb the moisture from the mold surface and from the layer of sand which such moisture has caused to adhere to the mold and all the sand will then fall off of the mold upon its coming out of the sander.

To operate this machine, after the mold has passed from the press it is only necessary that the mold be lifted from

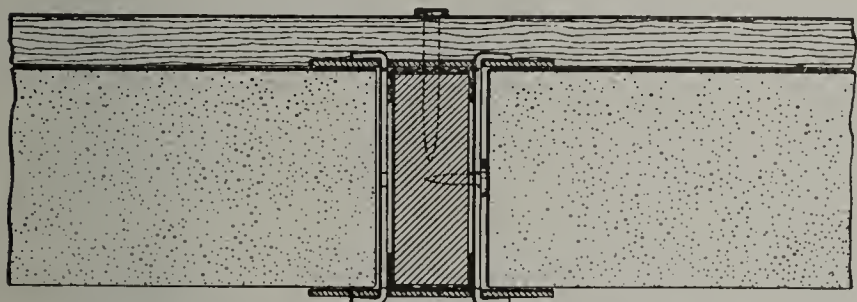
the pallet, leaving the fresh molded brick thereon and dropped into the sander through which it is carried and up onto the table and upon a pallet and then advanced again under the molding press.

Device for Handling Bricks: Athelstan O. Jones, of St. Louis, Mo. 1,010,501. Patented December 5, 1911—This invention relates to a brick lifting machine and comprises apparatus whereby a stack of bricks may be shifted bodily to a car, wagon or yard, or vice versa, without damage or loss of time. The object of this invention is to eliminate the chance of cracking or otherwise damaging the bricks by re-



1,010,501.

peated handling. The apparatus consists of a vertical upright member, a substantially horizontal supporting beam rigidly secured to the lower portion of said upright member, clamping elements slidably mounted upon said horizontal



1,012,961.

supporting beam so as to operate automatically in connection with a pair of toggle levers by the hoisting mechanism.

Brick-Holdfast: Michael Abarno, of New York, N. Y., Assignor of one-half to Emile Dupuy, of New York, N. Y. 1,012,961. Patented December 26, 1911—This invention relates to a brick-holdfast and has for its object a simple and inexpensive structure which can readily be inserted at suitable intervals between juxtaposed building elements and forms a means for securing the bricks or other building members in alignment and also a soft foundation, into which nails or other fastening devices may be driven, to support grounds,

planking or furring in position on the wall, and will have a sufficiently roughened exterior to permit the adhesion of plaster thereto.

HINTS ON BLASTING SHALES.

The breaking off of large masses of rock or shale to be afterwards crushed and made into bricks, greatly reduces the cost of quarrying as compared with direct picking by hand, and though the use of steam navvies is said to be still more economical, as all the quarrying and loading is done mechanically, such appliances are chiefly available in the larger works, where the material is of such a nature that it can be won in large quantities, whereas blasting may be used in quite small works, and on material which must be worked carefully and circumspectly in order that it may not become mixed with undesirable strata.

Any explosives are available for this purpose, gunpowder being much used at one time, but largely replaced later by dynamite, which is much more powerful, but has been succeeded during the last few years by special preparations known as "safety explosives." Roburite, Ammonite, and similar materials are of this class.

Pure nitroglycerin (the active principle of most modern explosives), nitro-cellulose in a free state, and uncompressed as well as all frozen explosives, should be strictly avoided on account of the great dangers accompanying their use.

The explosives must be stored under special conditions, away from all buildings, as laid down in a special Act of Parliament, the particulars being obtainable from most large stationers.

The boring tool should be worked in such a manner as to bore a tube about $4\frac{1}{2}$ yards deep at an angle of 75 degrees to the horizontal, this boring being about two yards from the upper face of the rock, and not more than $3\frac{1}{4}$ yards from the open face at the bottom of the boring. If other angles are used, the shot will be less effective, power being wasted by the explosives not being sufficiently far back, or the material not being sufficiently loosened by the explosion.

Borings into the face of the material should be avoided, unless it is found after having obtained expert advice that no other mode of working can be used for certain portions of the deposit. With such materials as are used for clay, however, there is seldom any necessity to "undershoot."

The explosive must be carefully lowered into the bore, pressed down slightly, and packed if necessary. If to be fired electrically (which is the best and safest method), the necessary wires should be attached before the cartridge is placed in the bore.

To prevent the possibility of an accident to the workmen handling the cartridges, the ends of the wires which are to be attached to the igniting machine should be so arranged that they can be instantly put on or taken off. In no case should they remain permanently fixed to the machine, but should be attached when all is ready for ignition, and taken off immediately the explosion is over.

When a shot has been fired, no other should be put into the same boring for at least half-an-hour, even when the explosion has been complete.

Some men fail, not in the application of the explosive, but in boring in the wrong places, or at a wrong angle.—(Brick and Pottery Trades Journal.)

Nearly everybody agrees that we need some kind of an amendment to our financial system that will safeguard panics. Even the financiers, however, seem unable to agree on what constitutes the best plan or method of banking and bank reserves and protection. And when financiers fail to agree what is the general public to think, ask, or do? Also, is it earnest conviction that leads to disagreement among our great financiers, or is it personal interest?

***“Mr. Clayworker—This is
YOUR SHOW”***



WHO THE CLAY SHOW WILL INTEREST.

THIS CLAY SHOW proposition at Chicago is a big thing both for the clayworking industry and for the progress of the country. Much of its bigness in effect will depend on how thoroughly it is boosted, how much interest is aroused and the amount of attendance secured. We might preface this by saying it depends some on the exhibits and how much is actually shown. This part, however, is already taken care of. There is no question on this score. The exhibitors will do their part. The only thing needed is to arouse enthusiasm and get as many as possible of the people who should be interested to attend.

.Everybody should be interested, but that is not specific enough to suit some people, and every clayworker should constitute himself a committee of one as a rooter and whipper-in in his community and make a study of who it will interest individually and in what particular way. That is, who outside of the clayworkers themselves.

Municipal engineers of all kinds should be particularly interested; boards of works of cities, park commissioners, sewer commissioners and, in fact, everyone in authority and interested in municipal improvements. Then comes architects, building contractors, bricklayers, good roads enthusiasts, prospective home-builders and investors in business buildings. In fact, everybody in any way interested in the welfare and up-building of an individual home or a community should find a visit to Chicago and a week spent at the clay show well worth while.

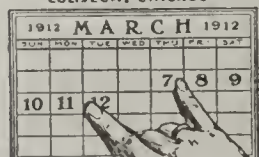
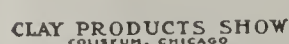
You will naturally, after getting interested in the subject, make a feature of talking about it to engineers, architects and to the city fathers, but you may overlook another

important factor, and that is the building contractors and the trades people themselves, the bricklayers. There is nothing like arousing an interest here and there is nothing that will do more with the same amount of expenditure to arouse interest than for parties to make a visit to the clay show. Indeed, in many localities it would pay the brick manufacturers themselves to pay the expense of sending some of the building contractors in the community to the clay show, simply for the influence it would have in turning their favor toward brick construction. Contractors have been flooded with advertising literature of other building materials of all kinds—good, bad and indifferent—and there is nothing that will have a more impressive effect on the average contractor than to go and make a thorough study of this great clay products exposition. It will not only put new ideas into his head, but should put them there so firmly that they will stay and that in the future he will be a rooter for brick and thus help the cause along, not only by removing his own opposition but by influencing prospective builders.

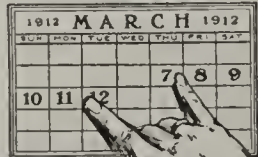
This is indeed one of the important fields for mission work where every brick manufacturer can do some good. He can talk clay show and urge attendance, and if he can manage to get up a good party from his community, made up of all manner of people interested, he will not only do good for the clayworking industry but he will benefit himself personally and in a local business way.

Round Up Your City Fathers.

First make it a point to round up your city fathers, everybody from the mayor on down through every branch of the public boards that are interested in municipal improvement.



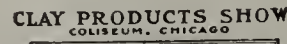
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BE SUPE TO ATTEND
GET OTHERS TO GO**



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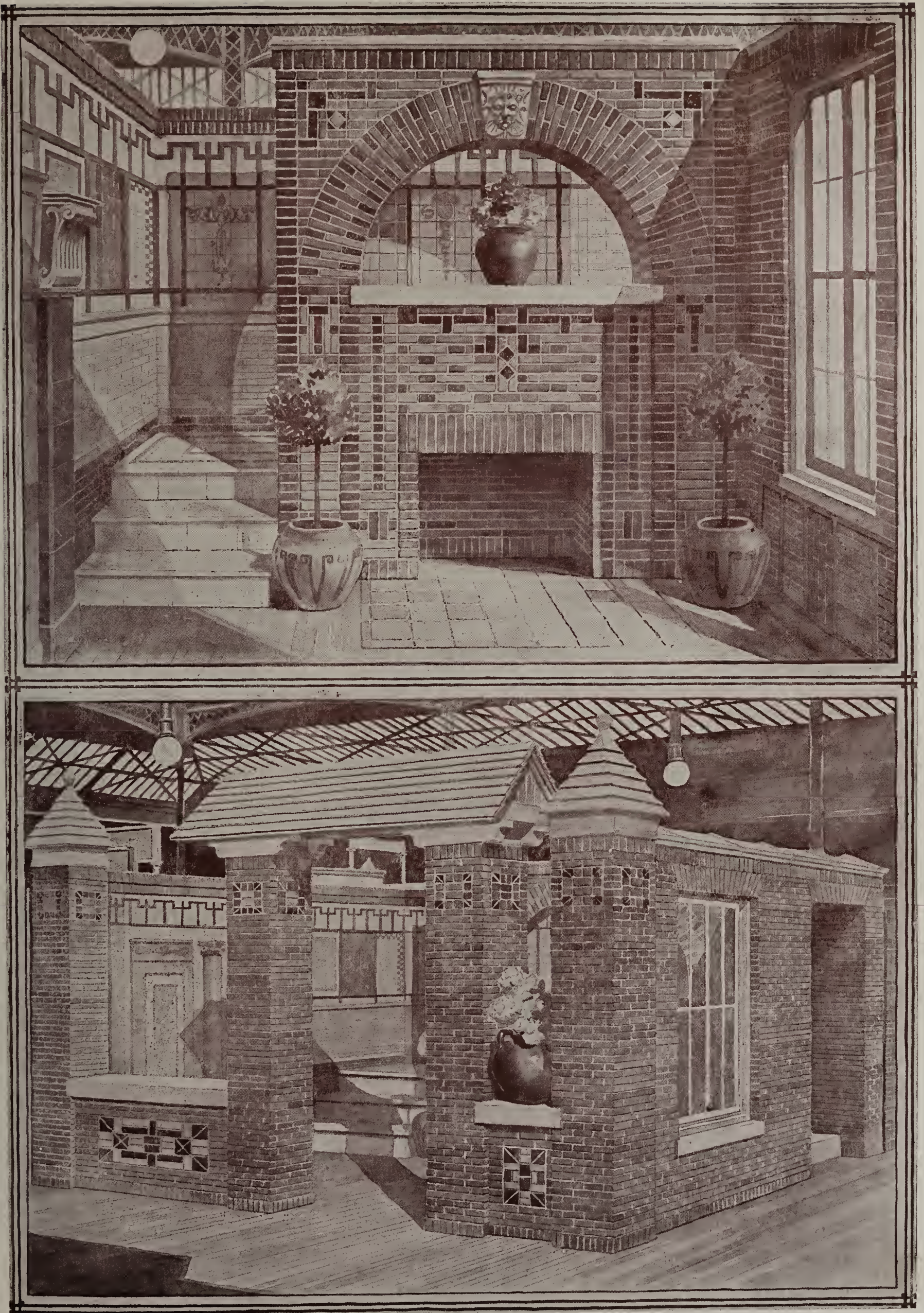
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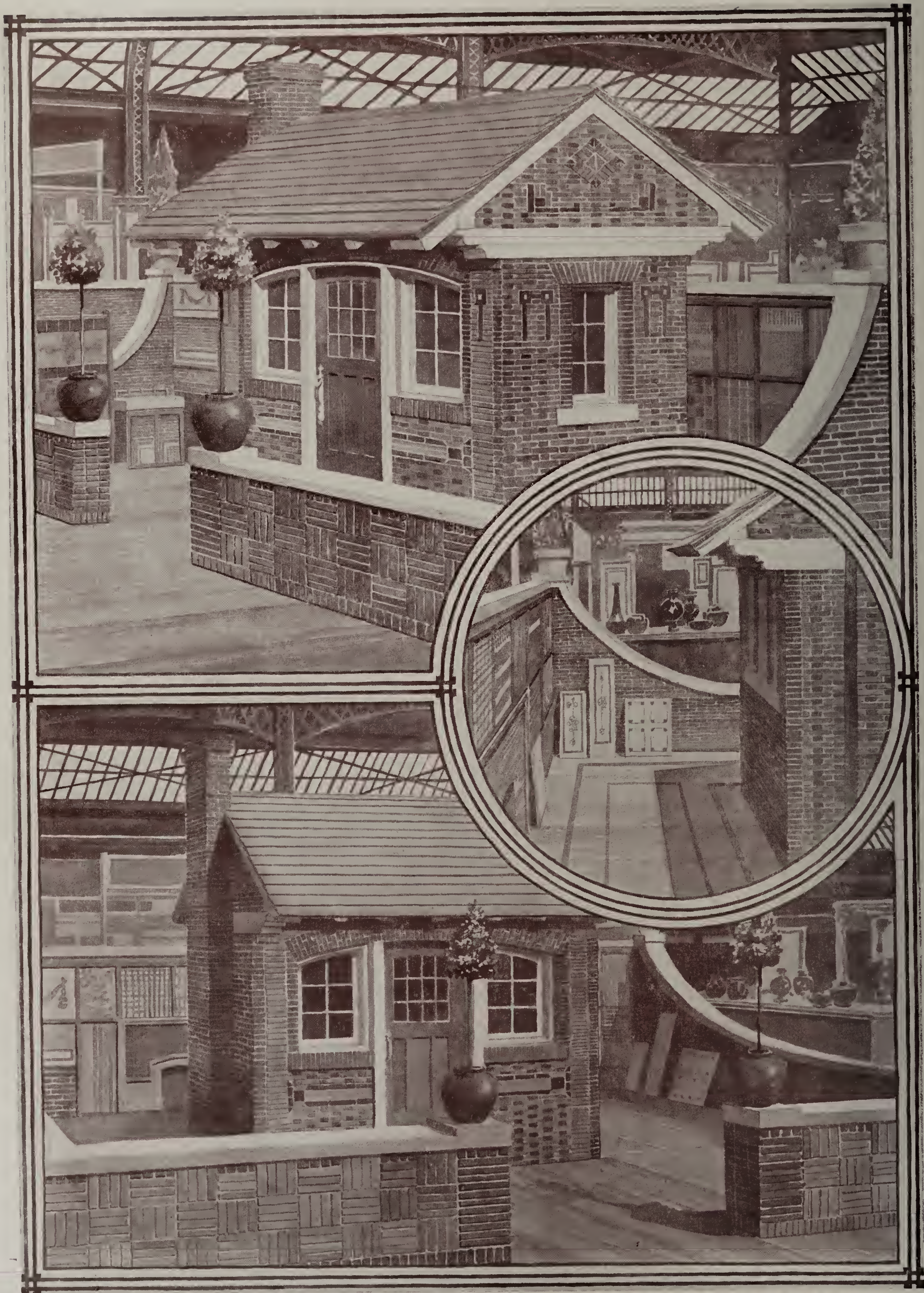
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Two Beautiful Designs for Proposed Exhibits at the Clay Products Show.—Courtesy Dealers Building Material Record.



A Miniature Brick Bungalow and Other Suggestions for Interior and Exterior Decoration in Brick and Tile.
—Courtesy Dealers Building Material Record.

Then include with these the architects and engineers, whether they are directly connected with city work or not. They are interested in modern building progress, and while they may need persuading to get them to go, they will certainly appreciate the trip after they have taken it. Then work down through the list of building contractors and make a personal note of the prospective builders you know personally or hear of from time to time, get after them and see how big a crowd you can gather up.

Tell It Again.

And no matter if you have gone over this subject more or less and had it discussed some in your local paper, tell it again. There is an influence comes from repetition that is worth while, and you should keep telling it and going over the matter. Get your local editors interested. And, by the way, make it a point to insist that they be in the vanguard

among the active ones going. See that they get some interesting pictures and data and write about the convention beforehand to interest the others. After you get them there they will certainly find other things to write about that will be of interest and value to the community, to the clayworking industry, and to you personally. Keep after everyone you can think of in any way interested. Make up lists, get out circular matter and letters and keep after them systematically, just as you would develop business, for this is a business proposition and business in which every clayworker is interested. Don't get the impression, either, that you are simply doing it as a public spirited proposition and will get no returns from it yourself. It is worth doing, even for this alone, but the doing of this will put you in closer touch with the very people in your community that you should be interested in and, therefore, will be of direct benefit to you and your own business and in pushing your own product in your home town.

SOME PERTINENT FACTS ABOUT THE GREAT CLAY PRODUCTS EXPOSITION.

THE DEVELOPMENTS of the Clay Products Exposition to be put on at the Coliseum, Chicago, March 7th to 12th next, indicate that the show will be a great success, and will fulfill its object, which is to benefit the clay products trade.

The manufacturers of clay products, no matter of what kind, can not over-estimate the importance of this exposition, nor can he too vigorously back up the efforts of the exposition company. There is no desire or effort on the part of the management of the exposition to benefit any particular persons or branch of the industry. Every branch will be shown in as complete a form as the manufacturers in their branch make it possible.

The exposition has been financed by half a dozen men who are enthusiastic in the effort to benefit the clay trade, but who can not directly benefit from the success of this exposition. Every clayworker, therefore, should appreciate that the exposition is given for his own personal benefit, and should heartily support it to the very limit of his ability.

There are very few clayworkers in the United States who can not handle a greater volume of business, and there are none at all whose business would not suffer if there were to be reversal in the feeling towards clay products which would result in a decrease in the demand for his products.

It seems only reasonable, therefore, that all should unite in making this exposition all that the management desires in the way of proving to the public the extent of the clay industry and the great superiority of clay products in the various fields. The manufacturers of clay products are a unit on the point of superiority of burned clay products as a building material, and yet the clay products manufacturers themselves do not buy their own product to any great extent, and therefore must convince the buying public, and their own conviction amounts to little. The exposition management desires to prove to those people interested in building material that there is nothing which will in any way approach burned clay for structural purposes.

It is also equally apparent to the manufacturers of sewer pipe and sanitary ware that there is nothing equal to this in their field. This is indisputable, but the buying public must again be convinced. Here again, the exposition company desires to take a long step forward in proving to the public the superiority of burned clay.

In the matter of table ware, the people of the United States have the erroneous idea that only imported ware is of good quality. Nothing is farther from the truth, but so long as the people who buy table ware have this idea, their patronage will continue to go abroad. If by the showing made

in the clay products exposition it can be demonstrated to the people that the American-made ware is superior, the manufacturers of that ware certainly should join heartily with the exposition management in doing everything possible to promote a better feeling towards American-made goods, which are manufactured by American labor, paid with American coin.

There are many articles made of clay of which the public is not aware, but which they are awaiting to buy when shown of their superiority. The great extent of the clay products industry can readily be shown at this exposition, but it requires more than a desire on the part of the exposition management to get up such a show.

It is absolutely necessary that the manufacturers of clay products in every branch enter heartily into the spirit of this exposition, in order that each branch may be shown completely. The exposition company can not be expected to go into the market and buy clay products to show at the Coliseum, when the benefit of the exhibit must naturally come to the manufacturer of the product. If the manufacturer will show one-half the enthusiasm and loyalty of the management of the exposition there will be such a strong showing of clay products in the various branches that the exposition in detail will be the talk of the country from coast to coast.

The manufacturers of clay products will be interested in some of the features which will make the clay products exposition a pronounced success. A contest is being put on for the benefit of the architects throughout the country. Prizes amounting to \$1,000 are being offered for the best plans and moderate cost clay products bungalow. There is a great demand for bungalow plans throughout the country, and these bungalows may as well be built of clay products as of more flimsy material. The people who desire to build, naturally take what is offered them and are hardly expected to go into the market and search for plans for a clay products bungalow. The contest, therefore, will fill a long-felt want and can not do otherwise than benefit the manufacturers of clay products.

Anything which will tend toward cutting down the fire loss of the United States is certainly a public benefit. Also anything that will increase the market for burned clay products ought to get the hearty support of the manufacturers of these products. The bungalow contest is being well received by architects throughout the country.

All of the plans submitted will be on display at the exposition in a special architectural department. The prizes will be awarded at the exposition.

Architects of the country are not only interested in their

own plans, but will no doubt attend the exposition to examine carefully the plans of the competing architects in order to study points of architecture and features which might be counted as superior. Then, again, the architects being a wide-awake body of aggressive men, are interested in clay products and their possibilities in building.

This is the only opportunity ever given them to examine carefully and study the complete line of clay products which can be used in building construction. It is a school for architects, contractors and builders, and reports received from all parts of the country indicate that they are going to take advantage of this opportunity and will attend the clay products exposition in large numbers. In order to give them every facility for this study the management of the exposition will send every architect in the United States a special invitation to attend, with a season complimentary ticket which will admit them at all times during the exposition to the Coliseum. This is a feature which the clay products manufacturers should not overlook. If the architects are sufficiently interested to come to Chicago and study this exposition, the manufacturers of clay products should leave no stone unturned which will assist them in their study or make them firmly convinced of the superiority of burned clay products.

It is not a time when the manufacturer of clay products should temporize, he should not hesitate, he should not offer excuses, but he should come into the show whole-hearted, vigorous and energetic to further the plans of the management. Anything but the most excellent showing of clay products at this exposition will be a most serious mistake and most unfortunate inappreciation of a golden opportunity. If the building trade is disappointed in the showing at the exposition we will not only lose an opportunity to win them to the clay products, but we will rather force them to some other building material because they will get an erroneous idea of the advantages of clay, and will be disgusted with the lack of enterprise shown by the clay products manufacturers.

The bungalow contest has also another advantage for the manufacturers of clay products which should not be lost sight of. The general public is interested in this contest because it will make it possible for them to build of indestructible burned clay products at a cost but slightly greater than inflammable, flimsy material. They will therefore be and other primitive implements, located the man in an old in attendance at the exposition to look over these bungalow plans, and while they are making a selection of plans for a home they will also have an opportunity of selecting those burned clay products which appeal to them most strongly. With the public and the architects and builders all in attendance at the exposition, and all willing to be convinced and become purchasers, the manufacturers of this product should certainly be on hand to take advantage of the opportunity. In order to make the bungalow contest more interesting, the common brick manufacturers of Chicago have unanimously voted to select a suitable lot in Chicago and build the prize bungalow, the house and lot to be given away at the exposition to some visitor at the show. With the opportunity of securing the \$5,000 indestructible home, the attendance at the exposition will be greatly stimulated, and the common brick people of Chicago also contemplate building a low-cost modern bungalow in the exposition and to have it fully equipped and furnished.

The municipal clay products display is a feature, the importance of which should not be overlooked. In a special department of the exposition, which will cover thirty-two spaces, the manufacturers of clay products used by municipalities will put in a municipal clay products display. This includes paving brick, sewer pipe, conduits and sanitary ware, the object being to show the superiority of these articles for municipal purposes. It is planned to show a full sized street

constructed on the most approved plans. There will be properly laid sewer, water, gas and conduit lines. There will be apparatus for testing materials and prizes will be awarded to those materials showing the highest test. This department will also include a sanitary congress which should result in great good along the lines of better sanitation.

Special invitations will be sent to the mayors of all cities and towns in the United States, to all boards of health and road improvement commissioners. These invitations will include those men who are building country highways, and each will be given a special season pass which will admit him to the exposition during the entire week. It is apparent from this generous distribution of admission tickets that the management of the exposition is bent on getting as visitors to this show people whom it is desired to convince of the superiority of burned clay products.

Surely the manufacturers themselves should step forward and meet the management more than half way in this object.

Another feature of the exposition, which offers great possibilities in the protection of the use of burned clay products, is the fireproofing department. The enormous loss of life and property by needless fires has each year appalled the American people, but they have accepted it as a necessary evil, not knowing or fully appreciating that by the use of burned clay products they could wipe out the most of this loss. This exposition affords the manufacturers of fireproofing an opportunity to show the public, and particularly that branch which is most interested, that by the use of burned clay the annual fire loss can be reduced to a minimum. It is up to the manufacturers of fireproofing to put into the exposition such displays as will assist in this campaign of education. An indifferent showing in this department would again become foolhardy. The manufacturers of fireproofing should get together and unite in a concerted action to put in such displays as will win the approval and the patronage of the public engineers, contractors, builders, building commissioners, insurance societies and others.

Those interested will all be in attendance at the exposition and the opportunity to show them something worth while was never equaled in this country, and possibly never will be again. The management of the exposition will, in this case, again send out invitations and complimentary tickets to all those people whom it is desired to reach. There are many other features of the exposition which space makes it impossible to dwell upon fully.

There is a possibility in the pottery display which should be fully taken advantage of. The art end of the clay industry is so attractive that the general public and lovers of art will be at the exposition to see how fully manufacturers of pottery have taken advantage of their opportunity to show something really worth while. There is no doubt but that the pottery manufactured in the United States is superior in art as well as utility, but here again the public must be shown. It is the plan of the management to give away daily some souvenir made from clay, in order that the impression gained by the visitor at the show may be rekindled daily during the life of the exposition souvenir.

The opportunity for the encaustic tile manufacturers is apparent. With those people in attendance at the exposition who are specifying, buying and using this class of clay products, the promotion possibilities of the exposition are invaluable. The publications of the country are interesting dealers in building material and other clay products, and other users of clay products have been alive to the possibility and advantages of this exposition and are urging the buyers to come to the clay products show to select the most superior lines and those offering the best advantages to the dealer. These dealers are going to take advantage of this opportunity and the manufacturer who is at all interested in selling his product can make trade alliances at this exposition which will prove profitable for many years to come. This feature of the exposition should not be underestimated, as its value is inestimable.

In order to further assist the manufacturers of clay products in stimulating trade, the exposition management has

cided to give to each exhibitor four season complimentary tickets for every dollar spent for space at the exposition. The possibilities of this feature ought to prove attractive for every wide-awake manufacturer. By making up a list of your best customers, and of those whom you desire to secure as customers, you can write a letter to each and enclose one of the tickets with your compliments. Space will be provided for you to inscribe his name and yours so that it will be a very acceptable reminder to him of your appreciation and good-will. Many persons thus remembered will make it convenient to be in Chicago either during the entire exposition or at least for such a length of time as will make it possible for them to see this great clay products exposition.

Floor space is being sold rapidly. Enough has already been disposed of to make the exposition a fully guaranteed success.

There are certain branches of the industry which are not as yet as fully represented as they should be to make a creditable showing and to secure the greatest advantage from this opportunity. Space is being held to fill out these departments and no more space will be sold to those lines that are more fully represented. Every manufacturer should see to it that his product is shown in some way at this exposition.

The public can not fail to be impressed with the extent of the industry if they see how widely distributed are the factories for turning out this product. The possibilities in a business developing way are entirely up to the exhibitor. If he makes the most of his opportunity, shows good samples, takes care of the visitor when he comes at his booth, and has some snappy printed matter to hand out, there is no question but that he will be pleased and more than satisfied with the results of the show.

The manufacturers of clay products who have not already written the exposition company regarding this show should do so at once as time is limited and prompt action will be necessary.

All the associations of clay manufacturers and allied organizations will meet in Chicago during the exposition, which will make it possible for the clayworker to attend the conventions and take care of his display with one cost, as the conventions will only be held in the morning, allowing the afternoons and evenings for the exposition.

By all means write the Clay Products Exposition Company at once relative to this show. The address is 815 Chamber of Commerce building, Chicago, Ill.

MODELS OF MODEL VILLAGES.

MODEL VILLAGES, SIMILAR to that erected by the Russel Sage Foundation near New York City, are to be established as object lessons in safe and sane suburban development throughout the country, according to plans announced recently.

The immediate object of the plan is to attract to good homes families of moderate means. The ultimate and chief object, however, is to show real estate operators with millions of capital that beauty of design, the use of fireproof building material and an abundance of playground space are not inconsistent with fair profits.

In order that people in all parts of the United States may gain an accurate idea of the construction and appearance of the Sage model village, plans have been made to have a model of it constructed for exhibition at the Clay Products and Permanent Home Exposition to be held at the Chicago Coliseum next March 7 to 12. Hundreds of thousands of persons from east, west, north and south are expected to attend the exposition and efforts will be made by the management to interest the visitors in projects for the erection of model villages in their own communities.

To determine suitable building material for the Sage village architects conducted elaborate fire and strength tests at a laboratory built especially for the purpose. They tested stone, concrete, brick, terra cotta, hollow tile—every material that could be used in home building—and selected burned clay as the very best material.

The village covers 140 acres of ground. The buildings

are constructed of fireproof hollow clay tile and designed in conformity with a definite architectural plan.

Written for THE CLAY-WORKER.

LOUISVILLE BRICK NEWS.



THE PAST YEAR was an excellent one in the volume of brick business done in Louisville, and was a little better than some of the previous years in the matter of profits, too. While brick prices are still low, they are somewhat better than in by-gone days, and the industry here seems to have taken on new life as a result of the convention last February, and to have gotten more stiffening material into its backbone, so that everybody seems to have gotten more out of the brick business during the past year than ever before for some time.

For one thing, there has been lots of building. It has really been a record-breaking year in Louisville, and the best of it is that a good share of the building is in big down-town structures. There were several completed, there are several more being finished up now, and still others of importance to be done during the present year.

One of the busy institutions of the city that has been crowded all the year is the Louisville Brick Company, in which the moving spirits are Messrs. Joe Nevin and M. J. Bannon. This company has been operating two four-mold Simpson dry presses and producing about 40,000 brick a day, which has not been anything near enough to take care of the demand on them the past year. As a result of this call exceeding their capacity, they are now planning to double the capacity of their plant. They are calculating on adding a stiff mud machine of approximately 75,000 capacity, which they expect to operate at the rate of 40,000 or 45,000 a day, so as to double their present capacity and put them in shape to take care of their trade better and give them a surplus capacity in case of an excessive rush of orders. The additional equipment and enlargement will include eight round down-draft kilns and dryers. While they have not selected their machinery and completed all the details of their plan yet, still it is the intention to get busy right away so as to have the new equipment in ready to help them out on the spring and summer rush of business.

Speaking of the year in sewer pipe, M. J. Bannon says that it has been a busy year with them, but the profits have been small and they have had all the work they could do, and still have a good demand and the prospects are for a steady run of business all through 1912. They are not satisfied with the price obtainable, however, and feel like the sewer pipe people ought to get a little more out of the business, as the price is too close for a fair margin of profit.

Down at the office of Owen Tyler, who represents the Hydraulic Press Brick Company's interests here, and features face brick and a whole lot of other clay products and building material specialties, they report an excellent year's business and bright prospects ahead. They are not only pleased with the results in the building world and their share of the trade, but they are especially pleased with the new Tyler Hotel, which was completed and opened in December. This is not only a thing of beauty, but it has proven so popular that they are already feeling the need of additional room, and right now are planning to add four more stories on top of the present structure and they expect to eventually build an addition alongside of it.

The Hydraulic Brick Company, the largest manufacturers here, had a good volume of business the past year and expect trade to continue good. They are not operating at present, but will, like the others, make up stock in advance of the spring needs.

Local interests in the West Point Brick and Lumber Company, with plant situated at West Point, report a splendid business down there, and say they are getting along fine, making lots of brick and finding a ready market for it.

COLONEL.

MAKING PAVING BRICK WITHOUT REPRESSING.

THE DUNN WIRE CUT LUG BRICK is the subject of deep and serious consideration in paving brick circles these days. After a struggle of several years Mr. Dunn has gained recognition for his patented device and many of the paving brick plants over the country are adopting his method.

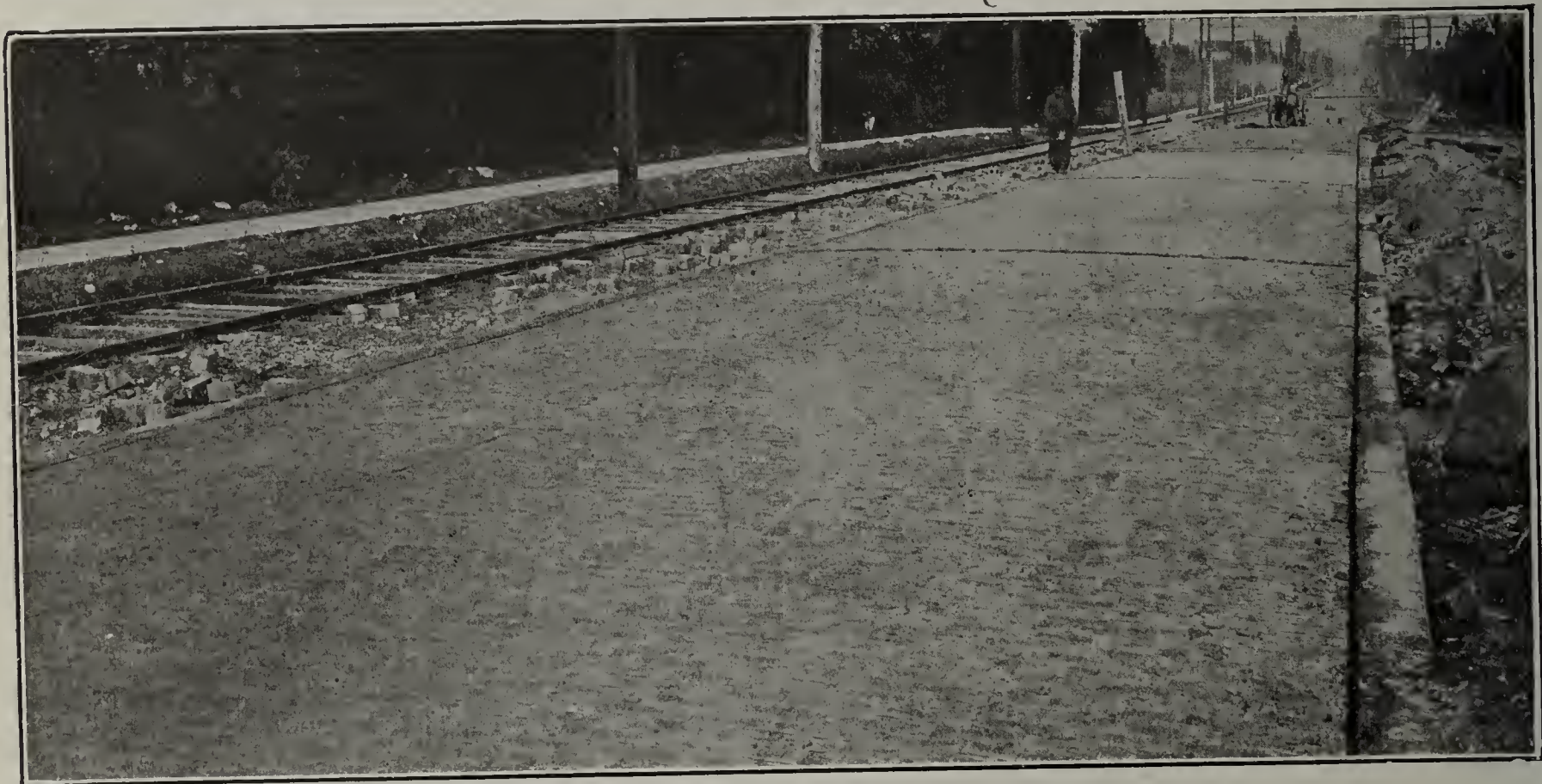
A little of the history of his struggle in this connection will probably interest THE CLAY-WORKER readers. Mr. Frank B. Dunn, of Conneaut, Ohio, the inventor, after many years' experience in the clayworking industry in the capacity of workman, foreman and superintendent on a brickyard, then machinist, erecting mechanic, salesman and accountant in a factory where clayworking machinery was manufactured exclusively, and finally general manager of a paving brick plant and incidentally a street paving contractor as well, became convinced that repressed paving brick, which were considered the best paving material, had many disadvantages which could be eliminated if a wire-cut brick could be used.

As a necessity, he therefore conceived the idea of a wire

that only rounded corner blocks could stand the tests imposed and repressing was the only means by which the protuberance necessary to form a spacing lug could be made. The lug on the paving brick is absolutely necessary, for it keeps the blocks sufficiently well separated to allow the filler to be poured in between them and gives the inside surface the features needed for a good bond between the blocks and cement.

A square edged brick could not be made successfully on a repress and was not wanted anyway. Why the rounded corners were desired is hard to tell except that it might have been for the sole reason that they believed such a block could stand a better test in the rattler which was required in all specifications.

Any claim that the rounded corners afford a better foothold for horses should not be considered for today the cement filler is the ideal filler and in its use the rounded corners are completely covered to make the bond good and the pavement absolutely smooth. The standard specifications for brick pavements require that all interstices be filled with cement filler and that this filler be flush with the top of the bricks. Now in this way the cement covering the rounded corners is in a thin shell or film and is easily broken, leaving a rough line



A Pavement Laid With Wire-Cut-Lug Blocks—First Grouting has been Applied—Only Two Groutings Required.

cut lug and invented a simple method of deflecting the wires during the process of cutting the brick, thus placing lugs or ribs on the wire-cut surface of the brick, which was the only point of advantage in a repressed brick.

It is true this is a very simple invention, but when the advantages of the invention were considered, it was generally conceded to be of great importance and the oldest manufacturers wondered that the idea had not been conceived years ago.

The first patents were applied for in 1907, but it was several years before he could interest any one in his new idea. So firmly had the repressed brick theory been impressed upon the minds of paving brick manufacturers the world over, and so thoroughly were they absorbed in their own process, that the wire cut lug brick was given scant attention.

The idea was pooh-poohed and ridiculed as an impracticable and unfeasible proposition, for the engineers, contractors and city officials in general as well as the manufacturers themselves believed implicitly that a good paving brick could not be made in any other way than by repressing. It was believed

which in time affords an opportunity for the gradual wearing away of the smoothness of the pavement.

So long had the rounded corner repressed block been used that it was hard for Mr. Dunn to get any attention to his arguments and appeals.

He struggled in the face of disappointments and after several years' patient waiting received an order for his block to be submitted to the New York State Highway Commission for competition with repressed brick for a large State highway contract.

The first of these was a roadway near Buffalo, N. Y. The paving brick plant at Conneaut, Ohio, formerly managed by Mr. Dunn, made the first wire cut lug bricks and shipped a big order of them to Buffalo. He had his troubles, for the engineers and contractors were prejudiced and would have nothing to do with them. They did not even wish to waste the time they declared in laying a trial strip of what they considered impractical and absolutely no account for their work. The wire cut lug brick could not be laid evenly was their chief argument, for the brick were rough in appearance

and seemed entirely unsuitable. The first consignment of brick had arrived and were piled up on the roadside. Many other carloads were in transit, while several were standing in the railroad yards at the expense of the Conneaut company.

Mr. Dunn was sorely tried and realized that it would be considerable loss to the company if they failed in their efforts.

After the foreman's refusal to lay them, he appealed to the contractor, who glanced at the brick and came to the same conclusion as the foreman. In turn he appealed to the engineer on the job to go ahead and give his brick a trial, but this was refused as before. In like turn the district engineer inspected the brick and he was unwilling to assume the responsibility of accepting or rejecting the block and put the responsibility on the State Highway Commission. Mr. Dunn still believed firmly in his project and was at a loss as to what to do. When the State officials arrived they immediately de-

in fact all the rows until ninety-three feet were laid, when the last row was found to be in as perfect alignment as the first. This was the real and crucial test of the Dunn wire cut lug block. The contractors and engineers were greatly surprised for this eliminated the trouble, labor and delay the repressed blocks always gave. Again they were astonished to find that a ten-ton roller could be used in rolling the pavement with better results and no injury, while the repressed block pavements require a lighter roller, for they will not stand the heavy ones. When the grouting of the roadway was done, they were even more surprised, for they discovered that only two groutings were necessary on this style of pavement, while the repressed brick always require three, and therefore with less labor and cost they found they could secure a perfectly smooth surface with the Dunn brick.

In applying the filler according to standard specifications,



The Dunn Block on Left Show the Cleavage, Also Density and Uniformity in Construction. On Right Are Repressed Block—Note the Cleavage Showing Lamination Due to Repressing.

clared the block unsuitable and would not permit the men to lay them. Mr. Dunn insisted that it was only right that his brick be given a fair trial and succeeded in his efforts only after he had assumed all responsibility of cost in the matter of laying a section of the pavement with his product. The contractor objected strenuously, declaring that it was hard enough to lay repressed blocks which required the straightening of the courses by force every fourth row, let alone laying the Dunn block which looked rough and therefore seemed more difficult to lay with any degree of straightness.

After much coercing, Mr. Dunn gained his point, the section was laid and to the astonishment of all who witnessed the work, when an inspection was made after the first four courses were laid, the block were found to be in perfect alignment, requiring no straightening.

This was the case of the second four rows, the third, and

the very careful use of brooms or sweeps is necessary in the final grouting, for the sweeps must be used diagonally across the face of the pavement in order that the cement filler should not be swept out of the V-shaped opening between the repressed block, thus leaving bad grooves between the top edge of the block. No such special care was needed in grouting the Dunn block.

It is needless to say that after this experience, the New York State Highway Commission was well convinced that the Dunn wire cut lug brick is an excellent material for their work. All the brick in transit were used and the company began a steady output of the wire cut lug brick.

The Corry Brick and Tile Company, of Corry, Pa., was the first to install the Dunn cutter, and made the first kiln of brick, but the United Brick Company, of Conneaut, Ohio, placed the first order. The outgrowth of this first order,

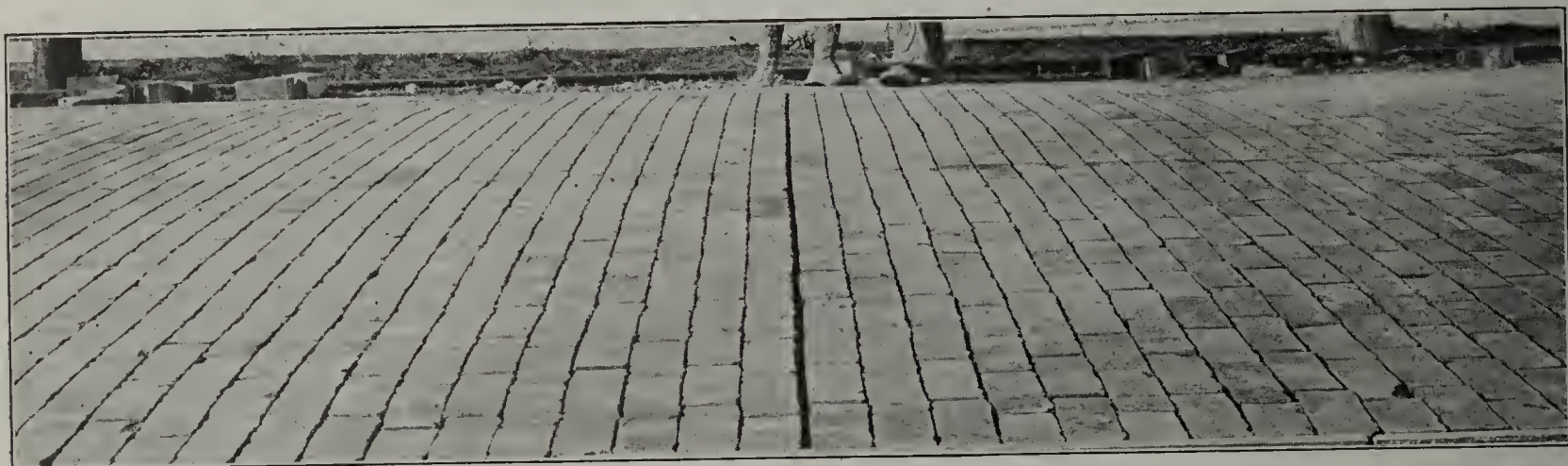
namely, the roadway near Buffalo, was that they were so successful that other plants adopted this method and the number of plants making the Dunn brick soon increased to seven. The following plants are now manufacturing under the Dunn patent: The United Brick Co., of Conneaut, Ohio; the Corry Brick and Tile Co., Corry, Pa.; The Sterling Brick Co., of Olean, N. Y.; The Kushequa Brick Co., of Kushequa, Pa.; The Reynoldsville Brick & Tile Co., of Reynoldsville, Pa.; the Danville Brick Co., of Danville, Ill., and The Patterson Clay Products Co., Clearfield, Pa.

The Invention.

In making the wire cut lug brick several unique devices are used, chief of which is Mr. Dunn's cutting table, which is made by E. M. Freese & Co., of Galion, Ohio, according to the Dunn idea. The E. M. Freese & Co. has been very valuable to them in working out the details of construction.

sides of the column, so that the wires will strike them in unison, a rib is formed which is uniform in thickness at both edges of the brick, but usually less towards the center, owing to the fact that the wire is flexible, and, being attached to tension springs, drags back towards the center of the column. Consequently, the wire has passed around the deflectors and has returned to its normal position before it had been deflected the full depth of the ribs in the center of the brick. If ribs of certain thickness at one edge of the brick and tapered to naught at opposite edge are desired, one deflector only is adjusted accordingly.

In making either wire-cut or repressed brick, the clay or shale is first mixed with water to such a consistency that when it has passed through the auger machine, emerged from the die under such intense pressure as can only be obtained in an auger machine, which is in reality a screw propeller, and has passed over the measuring belt and been cut into brick on



A Pavement of Dunn Blocks Ready For Grouting.—Note Evenness of Rows and Proper Spacing Due to Lugs.



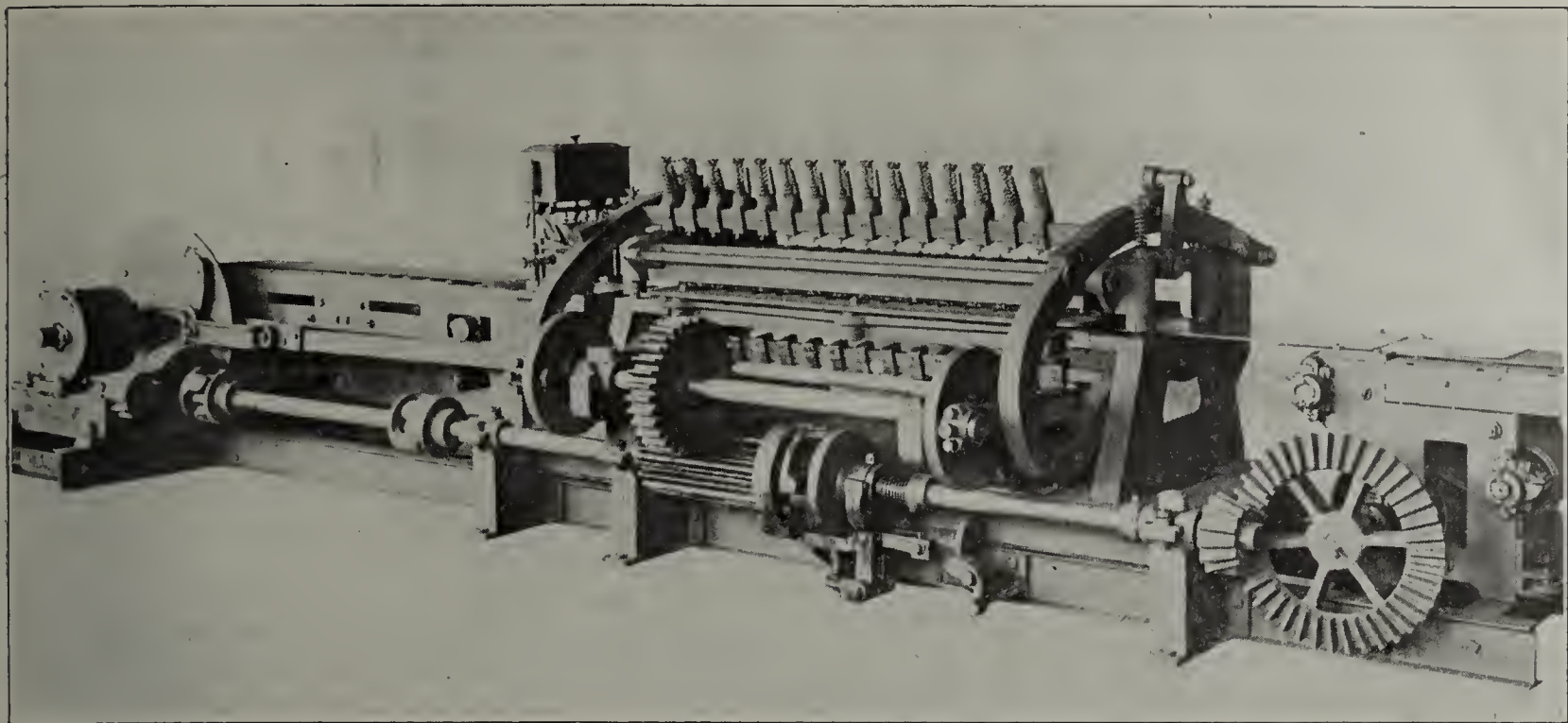
A Temporary Station Made by a Metal Sheet is a Simple Device Used on the Dunn Cutter that Gives an Even Distribution of Brick on Off-Bearing Belt. The First Picture Shows Usual Method, the Second the Dunn Method.

The invention consists of off-sets in the slots of the platten of the cutting table and projecting over the line of travel of each wire as it passes through the clay column, thus deflecting the wire and forming a rib or lug across the face, or rather the side of a side-cut brick. This also makes a corresponding groove in the adjoining brick, but the groove can be easily removed by attaching extra wires to cut off sufficient clay, which will immediately return to the augur machine by the waste clay conveyor. The groove, however, is generally considered an advantage to the brick, as it admits the filler more freely, and by not removing it, the waste clay is avoided.

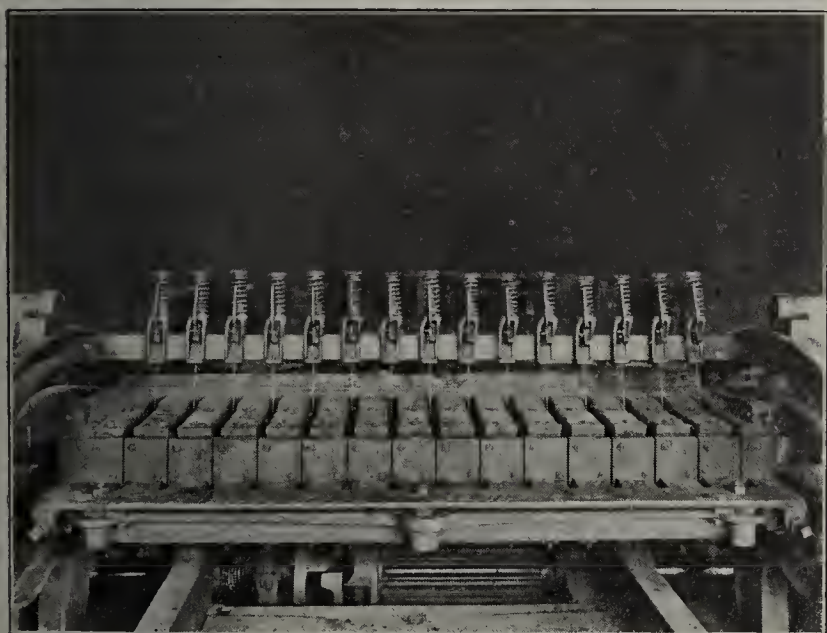
It will readily be seen that the size, shape, position and number of ribs made on each brick is governed by the guides or deflectors, their shape and position and the size of cutting table used. The position of lugs cut on a reel cutter depends entirely upon the location of the center of the reel in relation to the clay column. By placing the deflectors on opposite

a cutting table, it can be picked up by the off-bearer without being marred in handling nor in being piled from three to six courses high on cars, ready for the dryer. To make the wire cut lug brick the deflectors are attached to this cutting table, which then cuts the lugs on the brick, thus completing their manufacture without further handling.

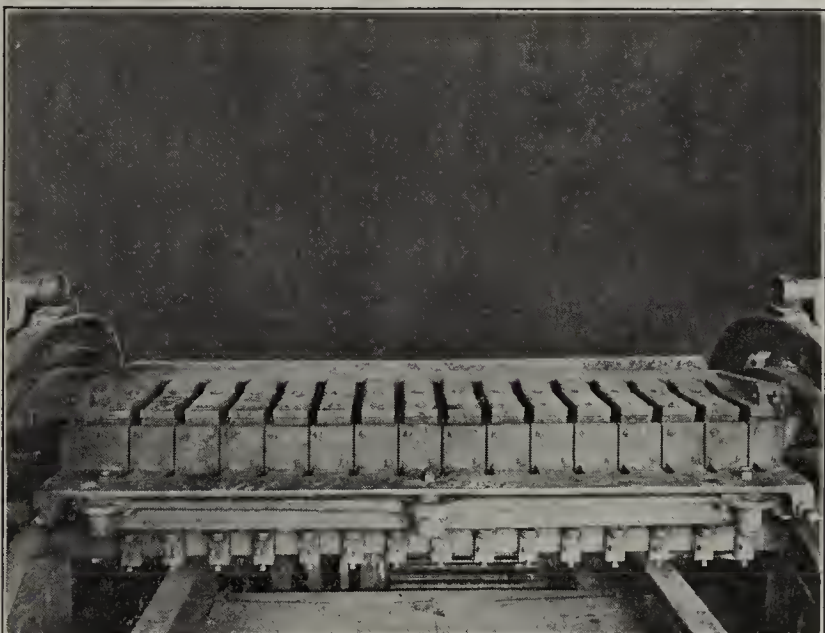
To place lugs on brick by repressing them, they are in this condition fed into a two-mold press, the mold boxes of which must be from one-eighth to three-eighths inches longer and wider than the brick to allow the brick to drop in freely, and to provide for any slight variation in size of the wire cut brick caused by the variation in the consistency of the clay column. The plunger then descends into the mold and presses downward on the broad side of the brick. First, the original formation of the wire cut brick is no longer maintained, but is broken and spread sufficiently to fill the mold in length and



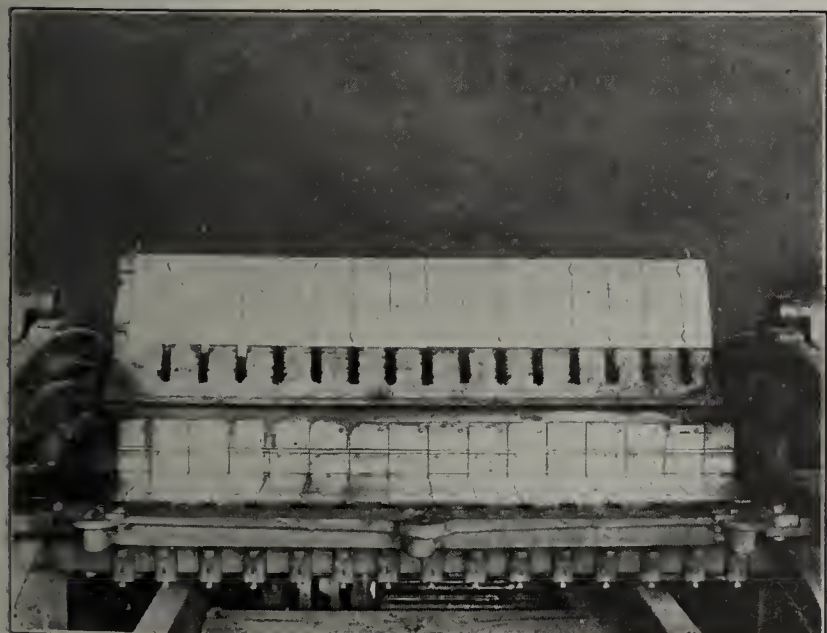
A Dunn Cutter on Which The Dunn Wire-Cut-Lug Blocks Are Cut.



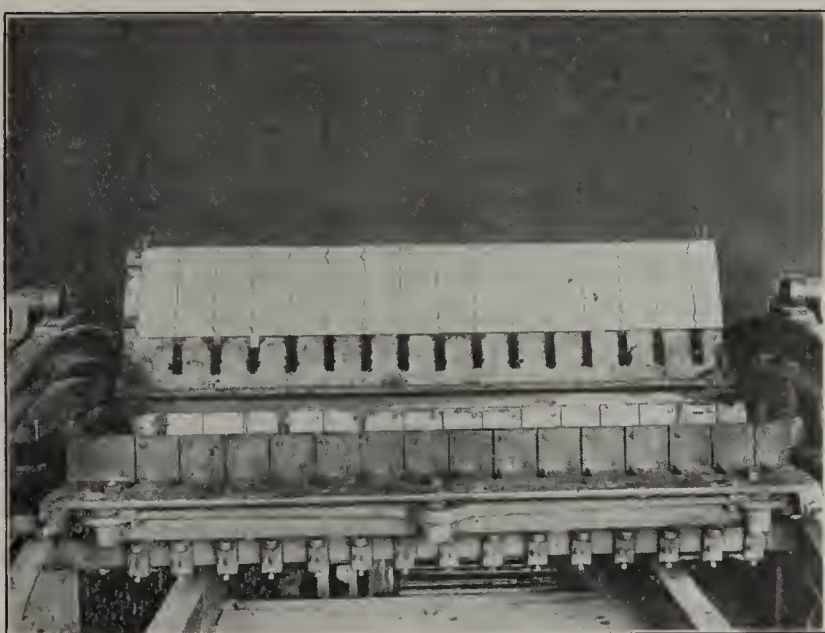
Complete Cutter Ready for Operation.



Wires and Bars Removed.



Hinged Top Platen Raised to Give Access to Interior.



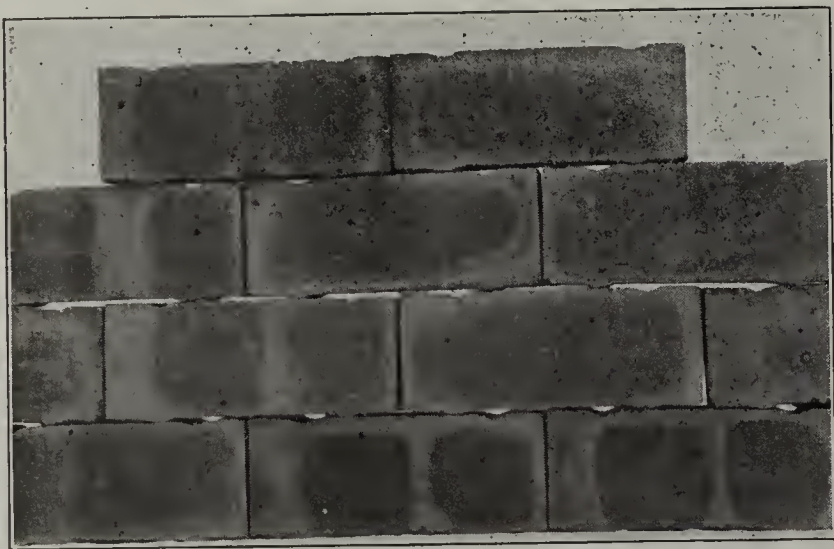
Side Bars Removed to Show Bottom Platen.

width. Then if there is sufficient clay in the brick it will fill up any letters, lugs or other design which the pressure plate bears, whether they are in convex or in concave form. If there is not sufficient clay in the mold or the clay is too stiff, the letters or lugs will not be formed and this latter not unusual condition accounts for the non-uniformity in depth of lugs on the average repressed brick.

There is not a repress on the market with sufficient power to make a brick out of clay that has not previously been formed into brick. It is not, therefore, to be expected that a repress can disturb the original formation of the wire cut brick, break it up and make it into a perfect brick, and especially when the clay is stiff enough to be handled, or piled as heretofore mentioned without marring.

Round edges, which are put on side-cut wire cut brick, by repressing, are of no value whatever, except that every manufacturer of repressed brick prefers the largest radius possible on the edges and corners of his brick where it is to be tested for abrasion in competition with other repressed brick. If all repressed brick were of the same size and square edges, abrasion tests would be of more value in general practice.

The rounded corners run contrary to the constant effort to make the wearing surface of the pavement smooth and Mr. Dunn has developed methods of filling the joints which perfectly protect the edges, and make the surface continuous, even with the rounded edges of the repressed brick. Prac-



Dunn Wire-Cut-Lug-Brick—Note the Uniformity and Space Formed by the Lugs.

tically, therefore, as well as theoretically, the wire cut brick is, under present conditions, in better form for making the smooth surface, which is now demanded, than the repressed brick. Many engineers and paving contractors have always held this, and some that this is more important than the other advantages claimed for the repressed brick. All admit the great desirability of lugs to make bricklaying with uniform width of joints, in straight lines, simple, easy and rapid, and the application of filler easy and complete.

Engineers invariably have for years past specified repressed brick or blocks, as this was the only paving material that by reason of the lugs formed in repressing, could insure as much as possible the admission of the filler between the bricks, in order that a bond might be obtained, which would not only make the pavement more rigid, but water-proof also.

However, now that wire cut lug bricks can be obtained, over four hundred cities have admitted them in their specifications.

THE CLAY-WORKER for December, 1907, published a signed statement of one of the largest paving brick manufacturers in this country, in which he said that their wire cut brick gained three and one-half cubic inches when repressed, showing that the clay was not as dense after being repressed, as before. He also stated that their tests showed wire cut brick stood

four per cent. less loss in abrasion than did their repressed brick.

Furthermore, it is generally known that the manufacturer has a much greater percentage of loss in seconds and culls in repressing brick, in addition to the actual cost of operating the press.

Now, therefore, in the wire cut brick with the wire cut lugs, we have the paving block with square edges, uniform thickness of lugs, a wire cut surface on the broad sides of the brick to which filler can adhere more firmly, and in all a perfect brick for paving purposes, which means a smooth pavement with bricks or blocks uniformly bound together, and a cheaper, though more durable, pavement than has been possible heretofore.

THE SEWER PIPE TRADE.

Talks with members of the sewer pipe fraternity bring an impression that the past year's business in sewer pipe was fairly good in point of volume, but somewhat disappointing in the matter of profits. There seems to have been enough pipe used that practically everybody was kept fairly



A Fine Roadway Paved With Dunn Wire-Cut-Lug-Brick.

busy, some were even rushed during the year, but it is hard to find anywhere in the rounds a man that was entirely satisfied with the profits of the business. There is complaint of close price making and too much business done for the amount of profits.

The indications are that the present year will be fully as good and perhaps better. There is lots of municipal improvement going on and being planned, and there is every prospect of a busy building season, so that with it all the volume of demand for sewer pipe in 1912 should exceed all previous years, provided nothing happens to interfere with the development of prospects. Under such conditions it is up to the trade itself to get more out of its product. With a good volume of demand, there is but little excuse for narrow margins of profit. The sewer pipe trade should be prospering now and laying up against the lean years, and not sacrificing the chance for profit in competitive prices. In other words, it looks like a good year to make hay in the sewer pipe trade if the manufacturers will just go about it right.

Explanations of why reciprocity failed doesn't make interesting reading.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO.



VERY brick plant in the city of Toledo is closed down at the present time and will remain so for several weeks. Most of them closed down earlier than usual on account of the light demand for building brick.

The year just closed has been a little unsatisfactory in some respects and trade appears to have been more or less spotted, some concerns reporting a splendid season, although somewhat inferior to the preceding year, while others say that a portion of the year was quite discouraging. It is a fact that the first half of the year was exceptionally satisfactory, while the latter part of the season carried with it a somewhat depressed atmosphere. During the last few months the outside demand dropped off materially and shipments to surrounding towns were far less frequent. Even locally there was an unsatisfactory condition, not only because of the decreased use of building brick but on account of the bickering and bartering by buyers who were inclined to substitute other material unless large concessions were made. On the whole, there was a lack of that healthy tone which characterized the earlier part of the season. There is not an abnormally large stock of brick on hand in Toledo at the present time, and indications point to an unusually heavy early spring demand. Many contracts have been signed up for buildings to be erected early in the spring and indeed there is a fair volume of new work being started now in Toledo which is calling for quite a quantity of brick. Brick men are inclined to take an optimistic view of the prospect for future business, and claim to see in the indications for next season's business the best prospects for years.

A pleasing feature of the condition has been the fact that prices have remained fairly firm despite the decreased demand. Kiln run brick are being quoted at \$6.50, and hard brick are bringing from \$7 to \$7.50. It looks now as if there would be a strong outside demand for the next year for Toledo brick. One thing that has affected trade more or less, not only in Toledo but in surrounding cities, has been the marked scarcity of bricklayers. During the past year in Toledo, bricklayers were at a premium and in many instances were not to be had at any fair price. Indications now point to even a worse condition at Detroit during the next year. Reports from that point show that there are already sufficient contracts for new buildings signed up to keep every bricklayer in sight busy during the entire season of 1912, and unless relief comes from some unexpected source it is probable that considerable difficulty will be experienced before the year is over.

One difficulty that has not yet been surmounted in Toledo by the brick industries has been the abnormally low percentage of building brick which has entered into the construction of residences. In short, Toledo has been a strictly wood town, and builders have never come to realize the beauty and economy of brick structures for residence purposes. A movement is on foot in Toledo among the brick men to stimulate the use of brick for residence purposes. While it has not yet assumed definite shape, the present plan contemplates the erection of numerous brick cottages and residences of various designs during the coming year for the purpose, which will be placed upon the market under conditions attracting attention to the material used and showing the advantages in beauty and the economy in upkeep of this class of structures.

C. W. Irwin has accepted a position as traveling representative for the Hydraulic Press Brick Company, of Toledo. Mr. Irwin was formerly connected with the National Brick Company, of St. Louis. He has assumed his new duties.

Gustave Boesel, a large brick manufacturer at New Bre-

men, Ohio, has acquired an option on fifteen acres of land at St. Mary's. It is rumored that he will remove his extensive brick manufacturing plant from its present quarters to that city.

Fire entailing a loss of about \$20,000 was recently sustained at the plant of the Gem Clay Forming Company at Sebring, Ohio. The plant was almost totally destroyed. The flames are thought to have originated by the falling in of the door of a kiln. The plant will be rebuilt at once, but in the meantime about 125 men are thrown out of work.

A large amount of paving will be done the coming season. There is unusual activity in many of the smaller Ohio cities along this line and legislation for the work is general throughout the state. Already legislation is under way providing for considerable paving at Youngstown, Bellaire, Fremont, Fostoria, Elyria, Lorain and Galion. In most all of these cities brick appears to have the preference as a material and the prospects for the paving brick industry are exceptionally bright. The larger cities are also planning a large amount of public work such as street improvements and sewerage, and the coming year promises to be one of the best for several seasons. In Toledo the paving block has suffered somewhat recently by reason of an unfriendly administration, which has leaned toward other materials.

The high price of foods during the past year has been responsible for many hardships among the laboring classes and plans to alleviate the condition are being worked out in many quarters. A plan unique in its character has been evolved by the employees at the H. B. Camp company sewer pipe shops at Greentown, near Akron. They will start a co-operative store for the purpose of supplying necessities to members, and by this means hope to fight the upward tendency in the prices of necessities.

The Inverness Club, at Toledo, will erect a handsome new club house of brick material during the coming summer, at a cost of \$25,000. Fred Mayer is president of the club.

T. O. D.

WESTERN GLASS AND POTTERY MEN BANQUET AT PITTSBURG.

TWO HUNDRED delegates from Pittsburg and surrounding territory attended the annual banquet of the Western Glass and Pottery Association in Pittsburg, Monday evening, January 8. Invited guests were present from all sections of the country and the occasion was marked by the spirit of business optimism that prevailed.

At the annual election preceding the banquet, radical changes were made in the personnel of the directors. W. W. Lang retired as president, while Julius Braun, H. A. Keffer and A. I. Duvall withdrew from the directorate. W. W. Lang, H. D. Wintwinger and Thomas Neely were elected directors. H. L. Dixon was elevated from first vice-president to the presidency, and John Nixon elected first vice-president. Three of the executive officers were retained in office. J. G. Kaufman continues as secretary; Robert West, treasurer, and W. J. Patterson, second vice-president. Old directors re-elected were Marion G. Bryce, George C. Thompson, Harry B. Whitney and W. C. Lynch.

William A. Donkin, general manager of the new Pittsburg Development Commission, was one of the speakers of the evening. He spoke on the city's new slogan, "Pittsburg Promotes Progress," and outlined the policies of the commission in encouraging the location of diversified interests and the rich natural advantages of the Pittsburg district. The Rev. Dr. J. Leonard Levy spoke eloquently on "The Glass of Fashion," which in effect was an optimistic view of the coming year. W. E. Wells, of Newell, W. Va., delivered a humorous address on "Prospects," and President J. A. Knox, of the United States Glass Company, spoke on "Glass," paying a high tribute to the Pittsburg district as a source of production.



The Home of the Chambers Brick Machine.

IMPORTANT ADDITIONS RECENTLY COMPLETED AT THE FACTORY OF CHAMBERS BROS.' CO.

DURING THE PAST season Chambers Bros. Company, Philadelphia, have built an addition to their works, of which they are quite proud. It covers a large part of the block at Fifty-second and Media streets, and as it ought to be, is a substantial structure, constructed of red shale brick, made on a Chambers machine, presumably. The new addition appears at the right of the above view. The interior posts and floor construction is of steel, thus making it fire-proof, by no means an unimportant feature, as the following incident proves:

A Southern customer wired them a few days since, stating that he had had a disastrous fire at his brick plant, his machinery, building and equipment being destroyed. By next mail, they were able to send the customer duplicate copies of the plans for his building, complete list of all the machin-

ery, drawings showing its arrangement and installation. This covered not only the machinery purchased of them, but other parts of the equipment, such as line shafting, journal bearings, pulleys, etc.

They were also able to quote him the price paid for the original equipment when purchased, and the price for duplicate equipment at this time, all of which information was very valuable to the Southern brickmaker in his day of distress, for it was of material assistance to him in adjusting his insurance loss and in planning for the rebuilding of his plant.

Brickmakers ought to build fire-proof plants and might readily do so by using their own materials to the exclusion of frame sheds and other inflammable structures. That such a fire-proof brick plant is the exception, not the rule, is proven by the fact that fire insurance rates on brick plants are excessive, often prohibitive, because brick plants are considered hazardous risks by underwriters generally. Messrs. Chambers



Main Office Chambers Bros. Co.



Drawing Room and Entrance to Fire Vault.

ent of brick and steel, thus minimizing the fire hazard. They have done more, they have built within this new addition a vault wall brick fire-proof vault for the safe storage of original drawings. This vault is 36 feet long and 10 feet wide, and they already have stored therein four hundred and seventy-five drawers of drawings averaging fifty sheets to the drawer. The vault opens into the drafting room, which is about 75 feet long. It is an exceptionally well lighted room, every drawing board being near a window.

Another department of the new addition worthy of mention is an erecting shop, which is 75 feet in length and is fitted with electric cranes and other facilities for loading and handling machinery expeditiously. The special feature is the arrangement of a pit in one part of the floor for use in erecting machinery which requires more overhead room than is permitted by the ceiling height above the regular floor level. The accompanying view shows a couple of extra heavy dry runs in place in the pit.

The company's general office is located on the ground floor of the new addition. It too is spacious and well lighted, and

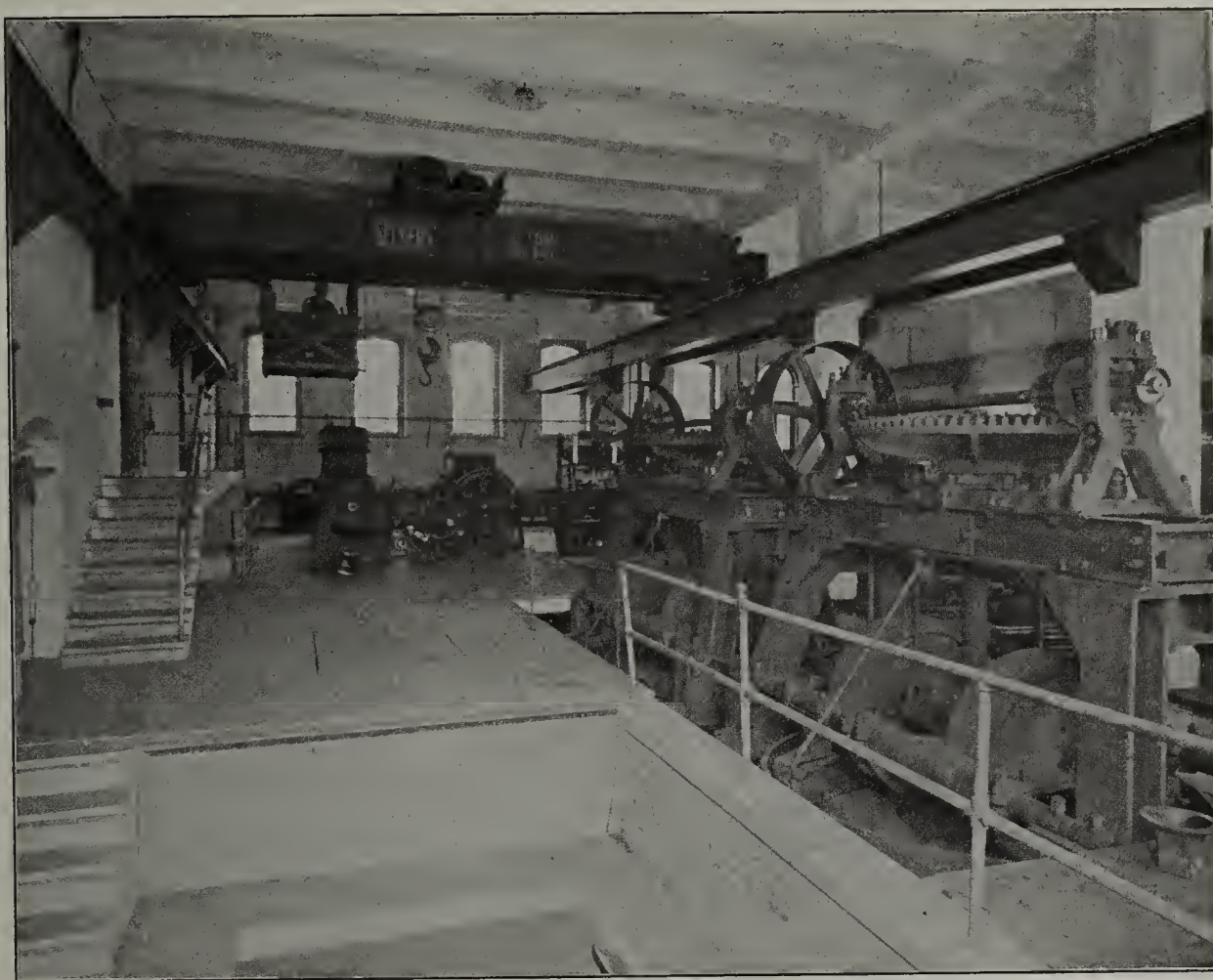
SELLING BRICK.

WE ALL KNOW that selling brick, selling the output of the plant, is one of the important essentials to the welfare of the business, but it is doubtful if the average man does properly associate modern salesmanship in his mind with the problem of marketing his brick output.

We are too likely to conceive of salesmanship as an intricate gift of gab that is built up merely around special striking points for elaboration and dissertation and to think that there is nothing of this kind connected with brick except special brick for ornamental face work.

Do you ever stop and think that the most important thing in connection with salesmanship is the hunting up of a prospective user and being on the ground with an offering when something is wanted? This strong factor in salesmanship applies just the same in the brick business as anywhere else, and that is the great point to work on.

Find the prospective customer. That is half of the battle in selling anything. Find the man that is going to build or the city that is going to pave its streets. Keep in touch



Interior View of New Erecting Shop, Chambers Bros.' Co., Philadelphia, Pa.

Chambers Bros. Company have set a good example in building their own factory. As our readers may see by the accompanying view, is equipped with every modern convenience. Brickmakers who may visit the City of Brotherly Love will find a cordial welcome there always. The factory is but a few minutes' ride from the heart of the city, via the subway, or the Pennsylvania railroad.

BUSY TIMES AT RIVERSIDE.

John V. Coe, manager of the Riverside Brick Company, which has lately finished remodeling its plant at Riverside, Ala., and is now operating full time, was elected vice-president of the Birmingham Lumber and Coal Co., of Birmingham, a few days ago. Roland L. Lide is president of the latter company and is interested in the Riverside Brick Company also. The Riverside Brick Company has also opened its general offices in this city, a suite of offices on the sixth floor of the Woodward building now being occupied by the company.

and find the prospective customer, get to him, and, if possible, get to him first. That is the big part of the job, and when you study it right you will find that there is just the same chance to exercise modern salesmanship in the brick business as in what seems like the more intricate and expensive lines.

It involves advertising and thinking. Also, the making up of lists and the getting out and getting acquainted with and learning about who might be the prospective customer. Concentrate your energies along that line and you will be surprised how easy it is to develop a market for brick. It is simply a matter of finding enough customers and getting to them first to sell your output easily.

There are other working points, many of them, each brick man can develop his own, but these are a secondary consideration. The first item of importance in the art of salesmanship is to find the man that is the prospective customer, and as soon as you find him and sell him, find more, and keep finding them.

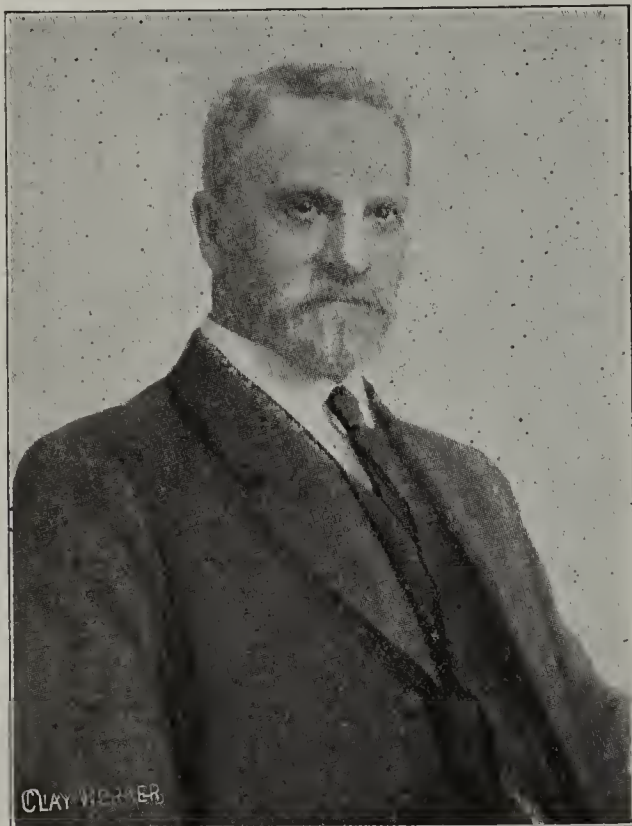
THE MANUFACTURE OF SAND-LIME BRICK IN EUROPE.

By P. L. Simpson, Chicago, Ill.

Paper Read Before the Sand-Lime Brick Manufacturers' Association at their Convention at Grand Rapids, December 5 and 6, 1911.

DURING MY RECENT trip abroad, covering a period of four and one-half months, it was my privilege to obtain permission to visit some of the best sand-lime brick works in Europe. My first experience was in Great Britain, and arriving as I did in Glasgow, I lost no time in communicating with my friend, Mr. Robert Brand, Jr., of Perth, Scotland, whom I had met in this country about a year previous. Mr. Brand immediately gave me a very pressing invitation to visit him and inspect his works as requested.

The Silicated Brick and Stone Company, of Perth, Scotland, is owned by Mr. Brand, who is also a member of this



P. L. Simpson, Chicago, Ill.

Association. That gentleman is entitled to a great deal of credit, because, notwithstanding many obstacles, he has now one of the best sand-lime brick plants in Europe. One can realize how many difficulties he has encountered when I state that he had to rebuild his plant twice over before obtaining satisfactory results.

The first outfit was designed by an English firm—which proved unsatisfactory, and a great bulk of it was rejected. Then Mr. Brand made a trip to Germany, where he bought another outfit, which also proved to be a failure, and a very small part of that outfit was retained. The press, for example, was discarded after a two-weeks' run. Then, after all this experience, involving great expense and worry, he became his own engineer and his present outfit is the result.

The essential features of Mr. Brand's plant comprises:

1. The thorough pulverization of the caustic lime. No part of it is coarser than 100 mesh.
2. The batch system is used to measure the sand and lime. In other words, a definite quantity of sand is united to a definite quantity of lime.
3. An adequate and changeable amount of water is used when the batch of sand and lime is dumped into a batch

mixer. When I say changeable, I mean that the quantity of water used is varied, according as the dampness of the sand varies. The sand is dredged from the River Tay, and naturally the dampness in same will vary according to the time taken for transportation to works, but a given quantity of water is always used with a given quantity of sand, which contains the same content of water.

4. After siloing the mixture, it is thoroughly prepared for the press by being put through two grinding and mixing pans. First the material is ground and mixed just as it comes from the silo, and after it leaves the first pan it receives another grinding, mixing and mulling, where it receives the necessary water. You can readily see from this bare outline of Mr. Brand's process, how thoroughly he prepares the material. His aim is to get plasticity, and of all the plants I visited in my travels, I did not find one that prepared the material as thoroughly as did Mr. Brand.

His object is, of course, to manufacture face brick, and for that reason it is quite necessary for him to adopt every known expedient to produce a first class article.

The quality of brick produced at Mr. Brand's works impressed me most favorably. A cracked or chipped brick is of rare occurrence.

The lime used is not first class, having, like most limes in Scotland, a content of magnesia, running from six per cent to ten per cent, but, notwithstanding this drawback his brick are first class. From a test made by David Kirkaldy, of London, on the strength and porosity of Mr. Brand's brick, the following table gives the results:

Test No.	Description	Dimensions inches	Base Area sq. in.	Cracked Slightly	Cracked Generally	Crushed
Sand-Lime Brick (No recess)						
2194	A3	2.82x9.03x4.40	39.73	268,800	282,400	282,400
Sand-Lime Brick (Recessed one side)						
2192	A1	2.82x9.04x4.38	39.60	202,000	217,500	217,500
2193	A2	2.84x9.03x4.40	39.73	198,200	210,000	210,000
2197	B5	2.88x9.00x4.38	39.42	187,200	194,600	194,600
2196	B3	2.94x9.04x4.40	39.78	162,500	171,000	171,000
2195	B2	2.88x9.00x4.38	39.42	140,300	144,200	144,200
Mean....				39.61	193,167	203,283
Lbs. per square inch				4,877	5,132	5,132
Tons per square foot				313.6	330.0	330.0

Made from River Tay sand and 8 per cent lime.
Bricks marked A made 12th April.
Bricks marked B made 26th April.

Test No.		Description	Before Immersion	After 24 hours Immersion	Difference	Absorption
00			lbs.	lbs.	lbs.	per ct.
2198	as above	A4 {	7.746	8.422	.676	8.74
2199		A5 {	7.826	8.445	.619	7.91
2200		B4 {	8.243	8.782	.539	6.54

Summing up this table you will find that the bricks withstood an average of 5,132 pounds to the square inch, the average base area being 38.61, and the results as to porosity showed an average of 7.73 per cent. Calculation is based on a twenty-four-hours immersion. You will doubtless realize how excellent these results are. Mr. Brand's plant is the only one in Scotland now running. Another plant was established at Bathgate, promoters having a scheme of mixing asbestos with the sand. I saw several buildings built with artificial stone from this plant but they were crumbling away which gives the sand-lime brick industry a setback in that part of the country. A friend of mine owned a large interest in this plant, but he stated to me it was a complete failure. There are but three plants that I know of in England and two of the three are running. Two of them I visited

near Liverpool, called the Hydraulic Brick and Stone company. The plant is erected for the system known in this country as the Schwartz process. The sand that is used is little like our Michigan City sand, namely, blown up by the sea into sand dunes, and has all the unfavorable conditions incident to a blown sand. This plant has been idle for a year and is for sale.

The other plant I visited was that of "Collier's Limited," Reading, near London, but it was merely an incident to their clay works, which is quite extensive. At the time of my visit they were making a black brick, using bone black dust. They use the pre-hydrate system, slaking the lime in the cylinders below the cars. The business is not at all extensive, as they are unable to sell their product in London in competition with clay brick.

The sand-lime brick industry has not, as a general thing, proven successful in the British Isles. The reasons for this are that there are immense deposits of first-class clay in England, bricks being produced and sold at a very low price, and in Scotland the drawback is extensive stone quarries are plentiful, and therefore stone of various kinds for building purposes is sold very cheap.

Passing over to the continent, the first plant I visited was near Zurich, Switzerland, the owners of the works being Hunsicker & Co. They are about twenty miles from Zurich. Notwithstanding that I had a card of introduction from Mr. Hunsicker from an influential party, I was denied admittance to a large proportion of his works. He showed me only the lower floor of his factory. They have two double-roller rotary presses and one single rotary press, making 10,000 a day on each of the former and 10,000 on the latter. They have also seven hardening cylinders. The bricks made here were excellent in quality, which I ascribed to the nature of the sand. The sand bank is really a gravel deposit. They screen the stones out of the gravel for cement products, the sand being retained for sand-lime brick. The examination of his sand showed great variability of grain and so sharpness, and this favorable condition showed its effect on the product.

(To be continued.)

[In our next issue Mr. Simpson will tell of the sand-lime brick plants in and around Berlin, where, owing to scarcity of clay, sand-lime brick have come into general use and, consequently, methods of manufacture have been perfected and the product standardized to a greater extent than anywhere else.—Editor.]

FIREPROOFING INTERESTS SOLD.

THE NATIONAL FIREPROOFING COMPANY, whose large plant is situated near Perth Amboy, N. J., has purchased a controlling interest in the Great Eastern Clay Company, of South River, N. J., and its subsidiary companies, the National Clay Company and the Lyle Conduit company, also of South River.

In taking over these interests the National Fireproofing company becomes the most influential concern in this business in the United States. For years the South River concerns undertook to compete with their great rival, but only with indifferent success. The Great Eastern Company eventually acquired the most power and absorbed its smaller rivals. Now the National Company has absorbed them all and virtually controls the entire fireproofing situation.

This transaction guarantees to consumers the best quality of material and enough of it to satisfy all ordinary requirements.

The National Company closed a very successful year and has begun one even more promising this season. It is expected that at least seventy-five per cent of its operative force will be employed throughout the winter season. This showing is unusual and is attributed to the prospect for greatly increased building activities during the present year. Indeed, the signs of progress visible at the plants of this great concern ought to go far toward removing the spirit of pessimism which has marred the building trades to some extent during the past few months.

Written for THE CLAY-WORKER.

CLEVELAND BRICK NEWS.



BUILDING RECORDS for the city of Cleveland were ruthlessly smashed when the figures for 1911 were made public by the building inspector's department. Nearly seventeen million dollars worth of building permits were issued during the year 1911. When it is understood that building permits in this city are seldom filed for half their real value, it is seen that the actual amount of building done has been remarkable. The total shown for 1911 is over one million dollars in excess of any previous year in the city's history. Here are comparative figures since 1900:

1900.....	\$ 3,845,833
1901.....	6,232,882
1902.....	6,559,545
1903.....	6,259,931
1904.....	6,562,590
1905.....	9,777,145
1906.....	12,972,974
1907.....	15,888,407
1908.....	9,896,869
1909.....	13,028,294
1910.....	13,948,413

The remarkable thing about the building record for 1911 in Cleveland was the fact that there were few real large structures begun. The bulk of the building was for comparatively small structures, the biggest permit being for the Statler Hotel, a new twelve-story structure, the exterior of which is now nearing completion on Euclid avenue at East Twelfth street. The largest previous building record was in 1907, just before the panic occurred. The following year it dropped near six million dollars, but in 1909 showed a gain of over four million dollars; 1910 showed a gain of less than one million dollars over 1909. The year 1911, however, showed a gain of over three million dollars over the previous year. Without doubt, Cleveland is in a healthier and more solid condition as far as its building projects go, than ever before.

The outlook for the coming year is unusually bright. There are several million-dollar structures planned and a number of others of almost equal volume are soon to be gotten under way. Among the very large building propositions which are to be gone on with during the coming year are the new city hall, estimated to cost six hundred thousand dollars; the new art museum, which is to cost one million dollars; a new twelve-story sky-scraper for Dan R. Hanna, which is to cost one million two hundred and fifty thousand dollars; a new twelve-story headquarters building for the Brotherhood of Locomotive Engineers and Firemen; a new model market house, costing five hundred thousand dollars, for a model market company on Euclid avenue, and a number of other large buildings which are to be proceeded with during the coming year.

It is becoming more apparent as the building reports for each year are issued, that fireproof construction is becoming more popular. Building statistics for the year just closed indicate a larger use of fireproof materials than ever before. The extension of the city fire limits has had something to do with this, but the more likely reason is that investors and builders alike have come to the realization that it pays to put up fireproof buildings.

Twelve new school buildings are now under construction or planned in Cleveland, in addition to one new high school building which is to cost five hundred thousand dollars. In addition to all these, the school director has indicated, in a report to the board, that four or five other new buildings are necessary. It is expected that nearly a million dollars will be spent on new schools during the coming year. W. S. Lougee, architect, has been appointed superintendent of con-

struction for the new \$2,600,000 city hall, succeeding the building commission of seven members, which resigned January 1. The entire work of supervising the construction of the new building will be in the hands of Architect Lougee. It is expected that the building will be under roof by the fall of the present year. The exterior will be of granite, but many millions of shale brick and large quantities of fire-proofing tile will be used in the new building, which is to be a part of Cleveland's group plan of public buildings. The city expects to spend one million one hundred thousand dollars on this structure during 1912 and the balance next year.

Active work is now in progress on excavations for the new fourteen-story office building for Dan R. Hanna, at Superior avenue and East Sixth street. A number of old buildings on the site have been wrecked and others will follow just as soon as leases expire within the next few weeks. The new building will be one of the largest in Cleveland and will contain more floor space for office purposes than any other structure in this city. It will be of brick and tile and will cost over one million dollars. The architect for the new building is Charles A. Platt, 11 East Twenty-fourth street, New York City, and the contractors are John Gill & Sons. The building will be 214 feet front and 150 feet deep.

A movement is on in Cleveland for the erection of a one hundred and fifty thousand dollar hospital for the use of Jewish citizens. A number of Jewish physicians met recently and discussed plans for such a structure. A committee has been appointed to consider the raising of funds and it is hoped that definite building operations may be started early this spring. Work has started on a group of buildings for the National Electric Company in East Cleveland. This will be the headquarters of the laboratory and office forces of this gigantic concern, and it is claimed that upwards of three million dollars will be spent in erecting a large number of structures for the use of the concern. Wallis & Goodlie, of New York, are architects for the buildings. Work is already under way and several structures will be rapidly pushed during the coming winter.

Ground has been broken for the new Cleveland club house of the Loyal Order of Moose, on Walnut avenue. The new club house is to cost about one hundred thousand dollars and will consist of terra cotta and stone trimming. It will be five stories high and will be fireproof throughout. It is hoped that it will be ready for occupancy in the fall of the present year.

One of the interesting incorporations of the past few months was that of the Cleveland Brick Sales Company, of Cleveland, which was incorporated with a capital of ten thousand dollars. Incorporators are F. B. Belden, R. W. Hartung, R. W. Umbenhour, George W. Belden, H. S. Belden, Jr.

Another matter of interest to clayworkers was the decrease in the capitalization of the Big Four Clay Company, at Malvern, Ohio, from two hundred thousand dollars to one hundred and forty thousand dollars. W. A. White is president of the Malvern Clay Company and George French is secretary.

One of the big building operations which is expected to be proceeded with during 1912 is that of the new interurban depot to be erected on Ontario street, corner of Prospect avenue. A solid block of land worth nearly a million dollars has been purchased or leased for this purpose. Several buildings have already been erected, and it is expected that others will be demolished to make way for needed improvements within the next few months. Cleveland is sadly in need of new interurban terminal facilities and it is expected that a building worthy of the name will be erected by the company which has recently acquired the new site.

Excessively cold weather during the first week in January has resulted in inconvenience to some of the brick plants around Cleveland which use gas for heating purposes.

Under the terms of the city ordinance, the gas company furnishing natural gas is required to cut off all factory consumers so that the pressure might remain adequate for home use. This has resulted in the shutting down of several plants. Owing to the very cold weather, however, this has not proved much of a hardship.

R. L. Quiesser, the Cleveland president of the Building Brick Manufacturers' Association, has been in conference recently with officers and members of the executive board of that organization relative to the program for the association's annual meeting in Chicago in March. It is planned to have several good addresses on timely topics in addition to the various discussions which invariably ensue at these meetings. Plans will also be considered for broadening the scope of the organization and interesting more brick manufacturers in it. Too much apathy has been evidenced by many manufacturers in their national organization, and plans will be considered for arousing greater interest in the work.

BUCKEYE.

THE GOOD ROADS QUESTION.

ONE OF THE most important influences of the automobile show which began in Madison Square Garden, New York, January 6, was that for improvement in roads. Next to the discussion of the machines and their qualities, good roads was the principal topic for discussion.

It is generally agreed, or seemed to be there, that some material must be discovered, or invented, which will make a road of common usefulness. That is, it must be able to withstand the tremendous wear of motor vehicles and still be serviceable as a road for horse-drawn vehicles. So far, none of the new materials have accomplished this. Amiacite, the latest, is suitable for motor vehicles, but when wet, or covered with a slight coating of snow or ice, is practically impassable for teams.

There is a growing sentiment in favor of brick. The inventors and promoters of the new materials have so strenuously urged their good qualities, and they have many, that the more substantial value of brick has been quite generally overlooked. But there is evidence that it is coming into its own again, and much in its favor was heard in side conversations at this show. It would appear, therefore, that the brick manufacturer might, with little effort, secure the co-operation of the automobile manufacturer and user by spreading the propaganda of brick roads for general use.

This discussion marks a favorable change in sentiment and indicates a possibility well worth considering. The manufacturer of paving brick might, with advantage to himself and profit to the entire industry, offer to make a suitable demonstration under the most difficult circumstances. This is perhaps a bold proposition. Maybe more than one could be induced to undertake something of this character. The effort would be beneficial and in the end would lead to important development of the paving brick business. It is, therefore, with some degree of expectation that the more progressive in the advocacy of this suggestion are renewing it upon every possible occasion.

So far, it is certain that nothing has ever been invented or discovered which equals brick as a road material. In some instances the only thing required is to demonstrate this to the satisfaction of the powers that be.

The time to push brick is now. The principal advocates of good roads are in a receptive mood, and their influence will be paramount with those who have the construction of roads in charge.

Sooner or later it will have to be the motor truck handling brick, because everybody else is getting them and it is said they are proving economical.

A NEW OPPORTUNITY FOR CLAYWORKERS.

SELDOM in any industry has there sprung up so suddenly a demand for a new product as now in the clay-working industry for hollow tile of the load-bearing type used in building construction. Many manufacturers are watching this development with great interest and many also are turning their plants to the production of this ware with good profit.

Several causes combined are inducing architects and builders to substitute hollow tile in load-bearing wall construction for common brick and wood. Among these causes may be mentioned the high cost and inflammable nature of lumber. The high cost of mason labor also is an inducement in favor of tile construction, since their large units lay up so much more rapidly than common brick. The strength of hollow tile has only recently been appreciated. In a series of tests made some time ago to determine the properties of hollow tile, a single tile whose displacement equaled six common brick, and whose weight was only one-half that of six brick, sustained the enormous load of 177,000 pounds. These tests thoroughly demonstrated the safety of tile walls when used to support heavy floor and roof loads. The crowning virtue, however, of the hollow tile wall is its nonconductivity. This renders the building warm in winter and cool in summer. The wall also needs no "furring" to prevent dampness.

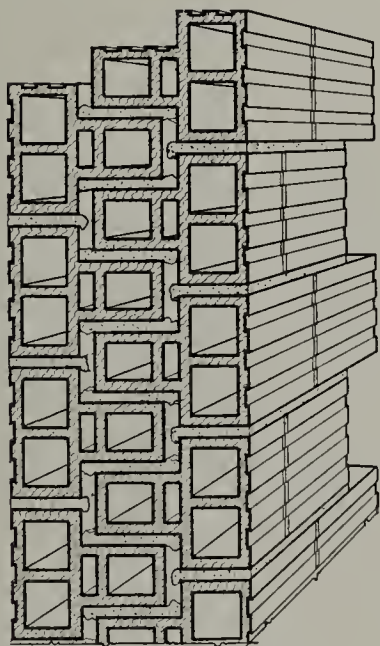
Mr. W. C. Denison, president of the Ohio Clay Company,

dated. The street and sewer department ordered the bricks taken up and cement put down. Mr. Connelly refused absolutely to change his pavement and was later placed under arrest for breach of ordinance. His case was called up before Judge Cochran who, after hearing the evidence and admitted facts, decided that the rule of the street and sewer department that all sidewalks except those in front of lots should be paved with Portland cement is arbitrary and discriminative in character and therefore null and void. The bricks put down by Mr. Connelly are down to stay.

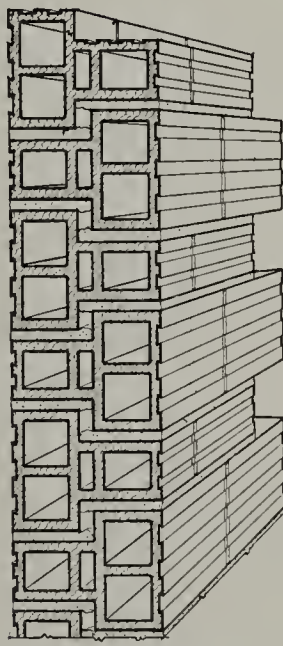
BUILDING IN NEW JERSEY.

THE REPORTS from various cities throughout the state were not as encouraging as they might have been at the end of the year. Indeed, there was a substantial falling off all over the state, most marked, perhaps, in Newark. The condition was explainable through the fact that during the closing weeks of 1910 a good many large permits were granted, which of necessity could not be repeated so soon afterward. Disregarding these particular permits, there was comparatively little difference in the two Decembers.

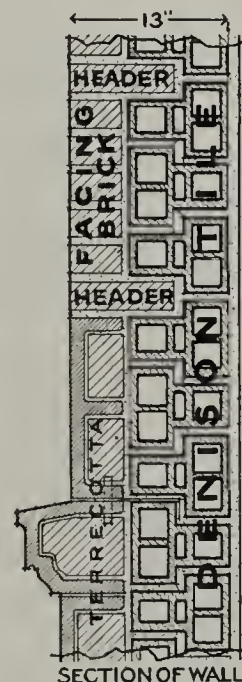
What has occurred during the year just closed should, and probably will not, have any bearing upon what will happen this year. The situation will not develop until spring. Cold weather always retards or entirely stops building operations,



TWELVE INCH WALL



EIGHT INCH WALL



Walls Made With the Patented "Denison Tile."

Cleveland, Ohio, has done much toward the development of tiles especially adapted to this purpose. His patented "Denison Tile" is being adopted by many of the best and largest architectural firms, besides receiving the highest commendations from large manufacturers. Its especial merits lie in its double beds which secures thorough bedding and bonding and in its web over web construction, which insures maximum strength. It is ingenious and convenient also in that a single size and shape lays the several desirable thicknesses of walls.

Hollow tiles are already displacing much frame and concrete construction in many localities and we believe are destined to make a very large and lucrative addition to the clayworker's output.

PREFERRED BRICK TO CEMENT.

A decision handed down at Wilmington, Del., by Judge Cochran may mark the beginning of a general campaign in that city and elsewhere against arbitrary paving ordinances. In this particular case the city of Wilmington specified cement for certain streets. William M. Connelly, a local contractor, preferred bricks in front of his house and proceeded to lay a splendid brick sidewalk on a concrete foun-

and this is especially true of brick construction because of the danger of mortar freezing and becoming worthless. But there are plenty of indications that this year will be good, though no especially large contracts are expected.

The Mahville-Johns Company, large paint and asbestos manufacturers, will erect a great plant at Somerville, which is the largest structural contract now in sight. Perhaps the increase in business about Newark, which is expected as one result of the multiplication of rapid transit facilities, will compensate in some degree for what has been lost the past season. Indeed, those interested in structural work have little cause for pessimism this year. The outlook is very promising.

One class of buildings has not suffered—moderate-priced dwellings. Indeed, there has already been a steady increase in all these and in all towns. For example, Hackensack, with a population of 15,000, has had seventy new dwellings erected, all of them costing as much as \$8,000 each. The number of lower-priced ones is unknown, but probably ranges up to almost as many more. Englewood, with a population approximating 9,000, has seen over fifty additions, each one worth nearly or more than \$10,000. There are many smaller communities which have benefited proportionately. The present year will see a better development than this.

be taken to the kiln, set twenty high, and then dried. The only process by which brick can be taken direct to the kiln from the brick machine is the dry-press process, but the great difficulties encountered with this process in the drying of the brick in the kiln, has made this method of making brick less desirable. In fact the dry-press process is getting more and more out of date. To dry stiff mud and repressed brick properly they should be run through a dryer. This will save fuel in burning and breakage of the green brick.—Tonind. Z. No. 83, 1911.

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.



GOING THROUGH more than the first half of the year of 1911 under the greatest disadvantages imaginable, Chicago builders managed to keep the building record up to former standards and, indeed, a little ahead before the New Year's chimes rang out for 1912.

However, 1911 can not be regarded precisely as a record breaker, because in actual number of permits taken out and even in frontage involved in these permits, the building department's record for 1911 is behind that for 1910. In expenditures involved, however, 1911 is somewhat ahead of 1910, all of which is illustrated best by the following table:

Year.	Permits.	Frontage.	Cost.
1910.....	11,409	327,250	\$ 96,932,700
1911.....	11,203	305,326	105,498,600

This interesting combination of figures indicates only one thing—that buildings grew upward rather than in horizontal area during the twelve months just closed. They did, and there was a very good reason for it. It has been acknowledged by those who are in a position to know that the ordinance limiting the height of buildings in Chicago to 200 feet had a tendency to spur on prospective builders, and so soon as the date—September 1—was fixed by the city council as the last upon which permits for buildings higher than this limit could be secured, then capitalists who were holding off from announcing their plans for new sky-scrapers came out into the open. Plans which had been under consideration for two years or more were suddenly perfected, and it is significant that during the week just preceding September 1, permits were taken out for seven new cloud-brushers.

The passage of this limit-fixing ordinance, undoubtedly had much to do with bringing the total record for the year up to a point of favorable comparison with 1910, although it is not unlikely that even without this the record would have been higher than in any previous year except 1910, and this in the face of untoward circumstances which marked the opening of the building season is interesting. No year, probably, at least in recent years, opened less auspiciously. Labor troubles loomed large from the first, and the fact that the strife lay between two warring unions, and was not a straight out issue which might have been settled between employers and employes, made the trouble more difficult of curing than usual. Large structures well under way were held up for long months, and builders were discouraged from starting new undertakings with prospects so unpromising staring them in the face. On top of this came the general economic depression, dating approximately from the interpretation of the Sherman anti-trust law, handed down by the United States Supreme Court in the spring, and augmented by the horde of political Cossacks of all tribes taking the field, each with some new and freakier "ism" for giving the business interests of the country—legitimate and grasping alike—a sleeping powder and permitting "the people to rule," but always in accordance with the ideas of the prevailing

wind-jammer of the lot. All were crying for the "unscrambling of the eggs," and when asked "how?" outlined their scientific and definite ideas by shouting that the people should have the initiative and referendum so that they could solve the trust problem for themselves, and the recall so that all our courts might glow in the white heat of politics. In other words, that the Sherman law, begotten carefully under the deliberative method provided by a representative form of government, having failed to meet the conditions created by the irresistible force of economic development, the people should permit any busybody, responsible to nobody, in fifteen minutes to write a law for the regulation of that business upon which a nation of workers depends, and in six months or a year to place it before the voters for adoption without change as the law of the land. To make matters worse, the press of the country, with a few patriotic exceptions, were hammering to the same tune and refusing absolutely to permit the people to hear arguments on both sides of these proposals, discounting sensible objections with a sneer, and handing out appeals to prejudice and class hatred instead of the facts to which the people were entitled.

Under such circumstances it was small wonder that business interests, large and small, felt like Br'er Ground Hog on a sunny candelmas day and sadly sought their burrows.

However, providence works in many wondrous ways to help out the builder and the honest building material man, and about the time that stocks and bonds became investments of decreasing desirability, it happens that land improvements look better to the investor than they do at any other time. This was forcibly illustrated during the panic of 1907; it had been to a lesser extent in previous periods of depression, and now it is practically an economic truism. So the money that was shaken out of market securities began to find its way into the building market, and so soon as the labor troubles were half out of the way that began to have an immediate influence.

Although there were few apartment buildings available for occupancy, owing to the paralyzing effect of labor troubles in the first half of the year, this type of building had not been neglected by the builders. A great number were under construction, and final figures show that the flat construction was greater in 1911 than during all the preceding year.

Chicago led other cities in the value of her manufactured brick output last year, with a record of approximately \$8,000,000. Illinois, in the manufacture of brick and tile, stands third in the nation, being outranked by Ohio and Pennsylvania, and having an output valued at \$14,331,414. In pottery, however, Illinois is away back, ranking only a poor seventh with an output valued at \$844,747, while Ohio leads with \$14,294,712 to her credit. Illinois will do better, however, as the new school of ceramics at the University of Illinois begins to make its influence felt.

The outlook for the new year is bright in spite of unsettled business conditions, and it would not be surprising if a new record was made. However, the limit on the height of sky-scrapers will probably keep expenditures on office buildings to a much lower notch than ever before, and this may make record breaking more difficult than of yore.

On the other hand, the new height limit will probably also have the effect of spreading the business and commercial district over a wider area than would otherwise be the case. This will tend to relieve the congestion of the so-called loop district. Of particular interest to the building material man, however, is the tendency which it will have to increase the total number of structures and hence the total volume of building business in Chicago, not alone during the next year or two but throughout all the years to come.

Among the more attractive buildings now nearing com-

pletion in the downtown district is the new home of the Hamilton Club of Chicago, on the west side of Dearborn street just south of Madison street. It is to be a ten-story fireproof structure in architectural style after the manner of the English Renaissance. The caisson foundation and the steel work are being made strong enough to carry five additional stories when the future growth of the club demands them. The lower courses of the front will be of polished granite with gray vitreous brick above, trimmed liberally with terra cotta to match. The south alley is being faced with white enamel brick, and the appointments of the swimming pool give play for the sanitary and artistic uses of the clay products.

It is expected that the building of the great railway terminals planned for west of the river and along Twelfth street will be the high points in the building history of the year just started.

SCRIP.

Written for THE CLAY-WORKER.

AMONG ALABAMA CLAYWORKERS.



NEGOTIATIONS which have been under way for some time for the purchase of a large tract of clay land at Reed's Mill, near the Etowah county line, Alabama, have been concluded successfully by the New York capitalists interested, and it may now be definitely announced that a large plant, suitable both for common, face and fancy brick, and also for tile, will be erected on the property.

The purchase included about 175 acres and is closely adjacent to Gadsden, Ala., through which excellent transportation facilities will be secured, a branch line, probably narrow gauge, will be constructed from Gadsden to the plant, enabling prompt shipments.

J. J. Willett, a prominent and wealthy attorney of Aniston, Ala., through whom the negotiations were conducted, is the representative of the eastern people who are financing the undertaking, among the company being F. B. Fisk, of New York City, and George C. Graham, of Quincy, Ill., and Mr. Willett is authority for the statement that a plant of large capacity, with all of the latest modern equipment, will be constructed as soon as plans for the plant are completed. This enterprise will represent the investment of about \$300,000, it is estimated, and will add an important factor to the already large clayworking interests of Alabama.

The developments which the Empire Lumber Company have under way in Wayne county, Tenn. (not Alabama), include the construction of a large face and common brick plant adjacent to West Point, which will be the terminus of the railway line the Empire company is now planning. Surveyors are engaged in laying off the line of railroad now, and it is stated that the N. C. & St. L. R. R. will build a branch line from Allen's creek to Furnaceville, the other terminus of the lumber line. This property possesses some very large and valuable clay deposits, reputed to be of exceptionally high grade, and the Fulenwider syndicate, of Birmingham, of which R. A. Fulenwider and H. Fulenwider are active members, are interested in the company which is planning the brick plant. The Fulenwiders, through several building supply and contracting firms in which they are interested here and elsewhere, form active factors in the brick trade locally, and could easily market the capacity of such a plant in this section.

A handsome brick school building has just been completed at Crawford, Ga., the brick with which it was constructed having been furnished by the Ogeechee Brick Company, Union Point, Ga.

Shepherd Brothers, Columbus, Ga., recently secured the contract for supplying the common brick for the new federal postoffice at Cordele, Ga. The contract called for 300,000

brick and was awarded to them by A. B. Stannard, of New York City, the general contractor in charge.

Shepherd Brothers are also supplying 600,000 common brick for the construction of the Bunn building, a large office building, in Waycross, Ga.

Turner E. Berry, son of George O. Berry, one of the most prominent brickmakers of Columbus, Ga., has gone into the coal business, though he has not retired from the clayworking trade by any means. The Columbus Coal Company is the name of the new concern, and Albert F. Lynch, who is also well-known to the trade, is interested with Mr. Berry.

The R. B. Small Company, of Columbus, Ga., is at present shipping vitrified pipe in heavy quantities to Tampa, Fla., and to Americus, Ga., to fill large contracts for street sewerage systems recently secured.

The Rockmart Brick Company, to be known in the future as the Rockmart Brick and Slate Company, has been purchased by John H. McKenzie, a well-known brick dealer and contractor, and associates, and has been remodeled on an extensive scale, being made into an up-to-date plant now in active operation. The interests represented by Mr. McKenzie are now planning to develop the rich slate deposits on the property of the Rockmart Company, which has been operated under lease by B. Mifflin Hood for several years.

The brick plant of Joseph Kentz, at Mobile, Ala., was destroyed by fire recently, entailing a loss of about \$9,000.

The Sibley-Menge Brick and Coal Company, of this city, furnished the face brick for the new union depot at Memphis, Tenn. The ornamental terra cotta was supplied by the Atlantic Terra Cotta Company, of New York City. The terra cotta fireproofing was supplied by the National Fireproofing Company, of Pittsburg, Pa., and the common brick by the Cubbins Brick Company, of Memphis, Tenn.

L. L. Stephenson, a prominent brick manufacturer of Lovick, Ala., who is president of the Brick Selling Company, of this city, has returned from an extended visit to the brick, tile and pottery plants in Indiana, Illinois and Ohio, during which he was accompanied by Frank H. Reid, general manager of the Memphis Brick Supply Company.

B. Mifflin Hood, who is justly regarded as one of the largest dealers in brick in the entire south, has lately opened a branch office in Memphis, Tenn. Joseph T. McKinney, an experienced and popular man of fine ability, is in charge of the Memphis office, which is located at 907 Exchange building. Mr. Hood makes a specialty of shale brick and states, in discussing the opening of this office, that he did so because he found the mass of the brick sold on the Memphis market was inferior to the shale brick, in the popularizing of which he has been a potent factor, and the selling forces of the new branch will be concentrated on shale sales.

Birmingham.

A. L. A.

BRITISH BRICKMAKERS COMBINE TO REGULATE PRICES.

An amalgamation of English brickmakers, to be known as the Manchester Common Brickmakers' Association, has been formed for the regulation of prices for common bricks in the area. Negotiations with this object have been proceeding since March, 1911, but it is only within the past few days that the agreement has been signed by the firms concerned. The scheme is on lines that have been successfully worked in London and Liverpool, and provides that no member of the association shall sell at less than the minimum rate agreed upon for bricks delivered in any part of the district. The Manchester and district brickmakers have been among the last to adopt a scheme of this character, but they now state that some arrangement is absolutely necessary in view of the fierce competition that has been proceeding for several years. The scheme went into operation January 1.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

A Good Book for Burners.

T. A. Randall & Co.:

Gentlemen—Please mail to us at Gainesville another copy of Prof. Bleininger's work, "The Effect of Heat Upon Clays." This is the very best little treatise on the subject we have ever read, and should be purchased by every brickmaker for presentation to his burners.

GAINESVILLE BRICK COMPANY.

December 15, 1911.

A Member of the N. B. M. A. For All Time.

Dear, Good Old Secretary Randall:

Please pardon me for my tardiness. I have been somewhat in bad health, but I never want to be dropped from the membership rolls, and I have the intention to provide in my will that after my passing my membership fee must be sent to you.

Enclosed please find a United States treasury note of five dollars for my 1911 fee, and for the remaining two dollars please send me the book worth its weight in gold, "The Effect of Heat Upon Clays," of Professor Bleininger, and be so kind to send it to me "registered."

I am very anxious to pay you the 1912 fee in person at Chicago next March and shall do my best to enjoy this pleasure.

My best wishes for your prosperity and a Merry Christmas and a Happy New Year.

Yours truly,

J. F. VILLALTA, C. E.

Barcelona Spain.

Canadian Manufacturer Wants Information Relative to Continuous Kilns.

Editor CLAY-WORKER:

As a subscriber to your very interesting paper, we would like to ask you about a matter in which we would be very glad to receive some light.

We are interested in a brick proposition here in Canada and our clay expert, whom we have engaged to lay out our plant, proposed a continuous Hoffman kiln, a real German system with a continuous burning channel, fired from the top only. We are a little afraid of this continuous kiln because of the fact that so few of these being in use in Canada or in the States, and would like to hear from you or some of your readers about the results obtained from kilns in operation and how they succeed.

We contemplate making 50,000 wire cut brick or equal fireproofing daily. The wire cut brick will be set face on face and shall go as far as possible as face brick. The brick does not take any flash; the temperature will be cone 01 2,066 degrees Fahrenheit; the ware will not be vitrified in this kiln. The material is a very easy one to dry and to burn; does not crack or check when quick heated or cooled. The coal, mine run, will cost \$5 a ton delivered on the plant.

It is the opinion of the directors that instead of making any experiment with continuous kilns we should use down-draft kilns as used in the States. Against this we hear that the Hoffman kiln is used in the States and exclusively in

Germany for all ware, and mostly in England, and burns the brick cheaply and as economically and satisfactory as claimed. It is surprising to us that this kiln is not more used in America, and what might be the reason of not more frequent adoption of this kiln?

Any information you can give us in this question will be very much appreciated.

Yours very truly,
CANADIAN FIREPROOFING COMPANY.

A Correction.

Editor CLAY-WORKER:

We notice an item in November issue of THE CLAY-WORKER stating that the Kingston Brick and Tile Company had purchased property just outside the city limits.

We beg to correct this, as our plant is inside the city, being situated on Division street within a mile and a quarter of the business center of Kingston, admirably located for all purposes. We are installing the Bechtel system, with their "555 Wire Cut Machine," in a machinery building 50 x 70 feet. Our dryer, with a daily capacity of from 40,000 to 60,000 brick, will occupy a building 48 x 160. We use their pug mill, a crusher, also one Quaker stock machine with crusher and pug mill attached, with power plant sufficient to attach another machine if necessary. We are also using Bechtel's trucking system with clay gatherers. This plant when completed will be one of the largest in this section of Canada, and is under the able management of Albert Neal, who has owned and successfully operated plants in various parts of Canada and the United States. His ability in the manufacture of brick and tile is well known. Mr. Neal owns a large brick and tile plant at Seely's Bay, where he has resided for a number of years, removing to Kingston when he formed the Kingston Brick and Tile Company, amalgamating his Seely's Bay plant with the new concern, as he owns one-third interest in it.

KINGSTON BRICK AND TILE COMPANY.

Kingston, Ont.

Low Prices Prevail in Kansas.

Editor CLAY-WORKER:

I note in the issue of THE CLAY-WORKER for December, the letter from your Kansas City correspondent, and particularly that part referring to the situation in the gas district of Kansas.

There is a note of despondency in the last paragraph, relative to the shut-down of the plants, followed by the suggestion of better profits for the future.

There is a prospect of a better volume of business the coming season, but so far as we can learn there is little encouragement in the way of prices.

Our plant is in the eastern part of Kansas in the coal district. We are not in position to say what is the cost of manufacturing in the gas belt. We are told that a number of plants have changed from gas to oil for fuel. When these changes were announced, there was a feeling among brick contactors and dealers that the prices of all grades of brick would rule higher. It seems, however, that the plants that are yet burning gas are selling even cheaper than ever, and that the oil-burning plants are meeting the prices.

During the past summer we bought brick from plants in the gas district at a price of \$2.25 per thousand for common builders, f. o. b. cars at the point of manufacture. I have been told that the low cost of gas for burning is 75 cents per thousand and that many plants pay more. The cost of oil for the same service is given as \$1.40 up to \$2.00 in different estimates. If we deduct the cost of burning from the selling price it would seem that the remainder would be a strong argument in favor of shutting down.

Somewhere I saw a summary of the average prices of brick in the different states, and if I remember aright, the

prices at the Kansas plants were the lowest in the country.

At our plant we are making tile and paving and face brick, keeping away from the common builders excepting for our local trade. At the same time we are preparing, at the opening of spring weather, to begin the manufacture of sewer pipe, a product for which our shale is exceptionally well suited. With best wishes for THE CLAY-WORKER.

E. T. WHITESIDE,

Manager Columbus Brick and Tile Co.

Columbus, Kansas.

A Brick Paved Florida City.

Editor THE CLAY-WORKER:

No doubt many of your readers have visited Florida for the winter season, and many may have visited the little city of St. Petersburg, on the west coast, twenty miles from Tampa, with Tampa bay on the north and Bogaciga bay on the south, located on the Pinellas Peninsula. The territory covered is about ten miles wide by thirty miles long and, by a recent act of the legislature of Florida, has been separated from Hillsborough county and is now known as Pinellas county, with Clearwater as the county seat. St. Petersburg is a little city of about 5,000 souls, and the largest by far in the new county and the best town by far in southern Florida. This population is increased to about 20,000 during the months of January, February and March, with tourists from all the northern and many eastern and western states, the largest number coming from Ohio, Indiana, Illinois, Wisconsin and Minnesota, followed by New York, Pennsylvania, New Jersey, Delaware and Massachusetts. The city commenced to use brick for permanent street improvements about seven years ago and today there is completed and under contract eighteen miles, covering 200 city blocks.

During this period the city has laid more than seventy-five miles of cement tile sidewalks. These tile are sexagon shaped, about eighteen inches in diameter, and make a most durable as well as economical pavement, easy of tread and pleasing in appearance. In addition to this the city has built twenty-five miles of sewers and with a perfect water works, electric lighting and street car system, is much like one of our progressive northern cities. There are more people here at this writing than have ever been here this early in the season; the Ohio register contains the names of about 250, with Indiana 230 and Michigan 150, other states following, and scores from all states not having registered at all. The writer will stay here until March 1 when, not because of necessity but because of interest in the National Paving Brick Manufacturers' Association and the convention of the National Brick Manufacturers' Association, I will come to Chicago for these meetings.

In looking over this southern field the writer is of the opinion that the several southern manufacturers of paving brick are losing a golden opportunity in not taking advantage of conditions, as I view them, in first forming a southern organization for the promotion of brick and its use for road and street improvements, by taxing themselves a small assessment of twenty-five cents per 1,000 on their respective outputs and with it employing a capable field promoter to educate the south in the use of brick for permanent road building and by joining in as a whole the National Paving Brick Manufacturers' Association, paying into this organization one-fourth cent per square yard for all the brick manufactured for street and road building purposes, and getting the benefit of the Association's advertising and literature on proper construction, and with this nominal expenditure double the demand and use of their product for permanent road building, and thus check the efforts of the "smear pavements" that are so prevalent in many sections of the south, and all because of the lack of advantages by the southern manufacturers in promoting their own business, in a business way,

and with proper business methods. These suggestions are not offered as a criticism, but as advice, and as the situation appeals to me from my viewpoint and observation.

I know that if as many northern or western manufacturers had an exclusive field of such magnitude as have our southern brethren, there would be "things doing" and the price to the taxpayer and property owner would remain so satisfactory as to make them an army of co-workers for permanent, substantial and economical brick pavements. But while the sun do move, some people do drag and trust to future development without effort to lead the procession.

Yours in happiness and sunshine,

CHAS. J. DECKMAN.

St. Petersburg, Fla., Jan. 1, 1912.

The Year 1911 Largest in History.

Editor CLAY-WORKER:

Dear Sir—Your recent letter, asking if we had any information of interest for publication in the January number, indicates that your ever apparent thirst for knowledge is still unappeased. We rather hesitate at this time to make statements that are apparently in conflict with the general trend of business conditions. The fact is that 1911 was in every way the largest year as regards number of machines, amount of sales and, fortunately, amount of profits, that we have ever experienced. Further, the month of November, 1911, was the largest month by far, from the standpoint of sales, in the history of this organization, and presages, we believe, an excellent business for the year 1912.

This information we, of course, attribute to the excellence of the Thew shovel and its adaptability to the requirements of the brick manufacturers, the contractor and every one who uses a steam shovel of moderate size, such as we build.

With kindest personal regards, and wishing you a Happy and Prosperous New Year, we remain,

Very truly yours,

THE THEW AUTOMATIC SHOVEL CO.,

Lorain, Ohio.

F. A. SMYTHE, President.

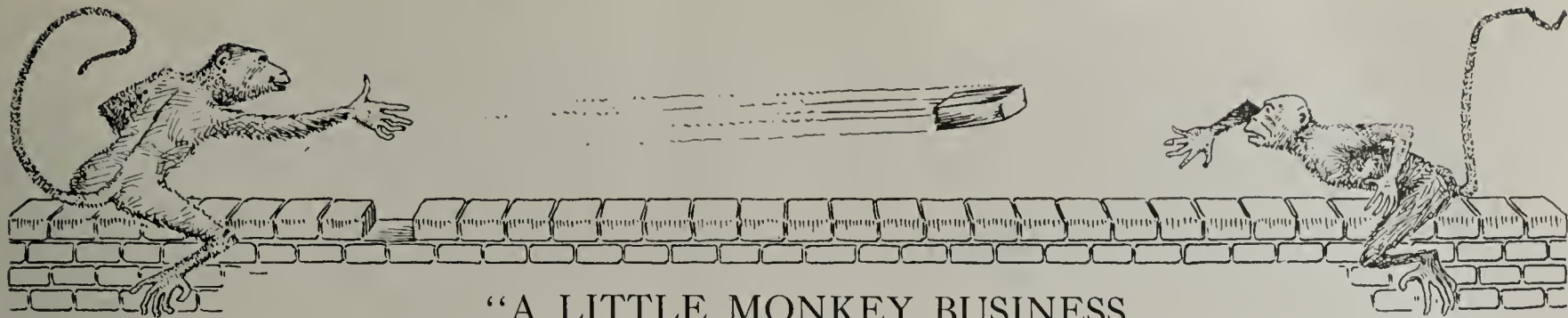
THE MINERALS OF VIRGINIA.

THERE is probably no state in the Union of the same area as Virginia that can show a greater diversity of mineral resources, declares "The Southern Field," in its December issue. The total value of the mineral production of Virginia has reached the enormous value of \$30,000,000 per annum. Coal and iron have thus far been the predominating factors but there are several other minerals that add vastly to the state's wealth, not the least of which are her clay deposits. The state contains a variety of clays widely distributed, including residual and sedimentary clays which are suitable for many economic purposes. The principal use made thus far of Virginia clays is in the manufacture of brick and tile. The total value of these products during the year 1908 was \$1,466,569, and more than three-fourths of this amount was produced in counties tributary to the Southern railway. The industrial department of that company (see ad. on page 159) is playing an important part in the development of the south. M. V. Richards, land and industrial agent, Washington, D. C., solicits correspondence from any one desiring information in regard to desirable sites for clayworking plants or other industries. A copy of "The Southern Field," a very interesting publication, can be had for the asking.

AFTER A FASHION.

Church Member—"Does your father always practice what he preaches?"

Minister's Son—"Yessum; before a mirror."—Cornell Widow.



"A LITTLE MONKEY BUSINESS NOW AND THEN IS RELISHED BY THE BEST OF MEN."

THE PIPES.

The pipes of Pan—where are they now?

The melody of summer
Is still, and Pan, with ruffled brow,
Is looking for a plumber.

—Washington Star.

THE DEPOT WAS LOST.

Chinaman—"You tellee me where railroad depot?"

Citizen—"What's the matter, John? Lost?"

Chinaman—"No! Me here. Depot lost."—Ladies' Home Journal.

CALMING AUNTIE.

Aunt Mary (horrified)—"Good gracious, Harold! What would your mother say if she saw you smoking cigarettes?"

Harold (calmly)—"She'd have a fit. They're her cigarettes."—Red Hen.

PROPER PLACE.

His Friend—"There'sh a tipless hotel down street a little way. Let'sh go down."

Jaggs—"Justh the place. These other ones here are tipping something awful"—Judge.

BEFORE HOSTILITIES BEGAN.

"I hope your novel ends happily."

"Indeed it does. It ends in the marriage of the heroine and hero; does not go into their married life at all."—Houston Post.

WILLING TO RISK SOME.

The Christmas church services were proceeding very successfully when a woman in the gallery got so interested that she leaned too far out and fell over the railing. Her dress caught in a chandelier and she was suspended in midair. The minister noticed her undignified position and thundered at the congregation:

"Any person in this congregation who turns around will be struck stone blind!"

A man whose curiosity was getting the better of him, but who dreaded the clergyman's warning, finally turned to his companion and said:

"I'm going to risk one eye."—Ladies' Home Journal.

THE MULE WAS UNINJURED.

Senator John Sharp Williams whose supply of darky stories seems inexhaustible, tells this new one:

"I was proceeding leisurely along a Georgia road on foot one day, when I met a conveyance drawn by a mule and containing a number of negro field hands. The driver, a darky of about twenty, was endeavoring to induce the mule

to increase its speed, when suddenly the animal let fly with his heels and dealt him such a kick on the head that he was stretched on the ground in a twinkling. He lay rubbing his woolly pate where the mule had kicked him.

"'Is he hurt?' I asked anxiously of an older negro, who had jumped from the conveyance and was standing over the prostrate driver.

"'No, boss,' was the older man's reply; 'dat mule walk kind o' tendah for a day or two, but he ain't hurt.'"—Lippincott's.

IMPORTANT.

Mrs. De Style—Marie, I shall take one of the children to church with me."

Maid—"Yes'm."

Mrs. De Style—"Which one will go best with my new purple gown?"—Boston Transcript.

HE DID IT.

He—"If I should kiss you, what would happen?"

She—"I would call father."

He—"Then I won't do it."

She—"But father's in Europe."—Lippincott's.

AS TO QUEER NAMES.

The man from Punxsutawney and the man from Kokomo Discussed the Chinese troubles, and the first said, "Don't you know, I think these Chinese names are queer enough to stop a clock."

"That's right," replied another man from fair Caucomgomoc.

The man from Kokomo observed, "By ginger, that's a fac! That's what my brother says—he lives down here in Hackensack."

And still another stranger said the man's comment was true; And added, with a smile of pride, "My home's in Kal'mazoo."

Another man took up the strain, "Now, down Skowhegan way And up at Ypsilanti we speak it every day.

The names are all uncivilized and heathen in their ring. That's what I told my uncle yesterday in Ishpeming."

"Hohokus is my native town," another stranger said;

"And I think these Chinese names the worst I ever read."

"Quite true," agreed a quiet man; "they're certainly uncanny. That's what my neighbors all assert in Tail Holt, Indianny."

—Baltimore American.



A Story Without Words.—Judge.



OFFICIAL ANNOUNCEMENT.

Twenty-Sixth Annual Convention of the National Brick Manufacturers' Association to be Held in Chicago, Ill.,
March 4 to 9, 1912.

AT OUR LAST CONVENTION at Louisville, it was agreed that if a National Clay Products Exposition was held in Chicago the following winter, we would hold our twenty-sixth annual convention there at the same time. The clay products show will eventuate March 7 to 12 next. The great Chicago Coliseum has been leased for the occasion, and it is anticipated that it will be an exhibition which will reflect credit upon the entire clay industries of the country and prove a source of interest and profit to every clayworker in the land, and hence will insure the largest attendance in the history of our organization. Consequently, it has been decided to hold our twenty-sixth annual convention in Chicago March 6 to 9, 1912.

Hotel Annex Headquarters.

Owing to its proximity to the Coliseum, its immense capacity, and the splendid facilities it affords, Hotel Annex has been selected as headquarters during the convention and exposition. All convention sessions and functions will be held in the Hotel Annex. Its numerous convention halls, beautiful banquet and reception rooms, all of which will be at the disposal of the Association, will afford unexcelled facilities. The Hotel Annex is one of the largest and finest hotels in America, and will comfortably accommodate our entire membership. If, as it is hoped, the attendance is double that of previous conventions, all who attend may find satisfactory accommodations under its roof, and those desiring luxurious quarters for entertainment purposes, etc., will have no fault to find with the service, which is par excellence in every respect. The ladies, particularly, will be delighted with the parlors, cafes, library and lounge rooms, all of which are elegantly appointed.

Convention Sessions.

As usual, the N. B. M. A. sessions will begin Wednesday, March 6, at 2:00 p. m. Succeeding sessions will be held from 9:30 a. m. until 2:00 p. m. on Thursday, Friday and Saturday. By holding one session a day only, the members will be given ample time and opportunity of visiting the Clay Products Exposition and indulging in sight-seeing trips, as suits their individual fancy. A series of able papers will be presented and the program of events, which will provide for a busy and profitable week for all who attend, will be announced in due time.

The National Paving Brick Manufacturers' Association will meet at the same time and place. Their first session will be held in Hotel Annex, Monday, March 4, at 9:00 a. m. For program of full particulars, those interested should communicate with Will P. Blair, secretary, 824 Board of Locomotive Engineers building, Cleveland, Ohio.

The American Ceramic Society, too, will meet the same week as in former years, beginning their sessions Monday a. m., March 4. Prof. Edward Orton, Jr., secretary, Columbus,

Ohio, will give full particulars as soon as he has completed preliminary arrangements and program.

The Building Brick Association of America will hold its regular annual meeting in the assembly room of the Annex Wednesday, March 6, at 9:30 a. m. The general publicity meeting will be held Thursday at 9:30 a. m. in the main convention hall. Secretary J. Parker B. Fiske, Flatiron Building, New York City, will be pleased to correspond with those desiring further information in regard to the aims and work of that, our publicity organization.

All other allied organizations, whether manufacturers of or dealers in clay products of any sort or character, are cordially invited to hold meetings during the exposition period, and ample accommodations will be afforded each and all who will do so. The executive officers are requested to communicate with Secretary Randall relative to time of meetings, etc., in order to avoid the interference of one organization with another.

Our members are invited to suggest topics for discussion and subjects for formal papers touching on various important phases of the business in which they are interested. Those desiring information as to the requisite of membership in the N. B. M. A. or other particulars as to the convention or exhibition, are requested to address the secretary at Indianapolis.

THE EXECUTIVE COMMITTEE,
Charles M. Crook, President.

Theo. A. Randall, Secretary.

CONVENTION DATES.

The Iowa Brick and Tile Association will hold its annual convention at Fort Dodge, Iowa, January 23, 24 and 25. Secretary C. B. Platt, of Van Meter, Iowa, is now at work on the program, which he will be pleased to mail when completed to those desiring same.

The Wisconsin Clay Manufacturers' Association will hold its annual convention at Milwaukee, Wis., March 5 and 6. This time has been selected in order that the members may go from this convention directly to Chicago and take in the sessions of the N. B. M. A. and the Clay Products Exposition. Prof. Samuel Weidman, of Milwaukee, will gladly give information to those interested.

The National Paving Brick Manufacturers' Association will hold its annual convention in Chicago, Ill., March 4 and 5, at the Annex Hotel. Secretary Will P. Blair, 824 Brotherhood of Locomotive Engineers' Building, Cleveland, Ohio, should be addressed for further particulars.

The Illinois Clay Manufacturers' Association will hold its annual convention in Chicago, Ill., March 8 and 9. Former Secretary George H. Hartwell has resigned and President W. D. Gates has appointed A. E. Huckins, of Champaign, to fill the vacancy. For further information relative to program, etc., address the latter.

The American Ceramic Society will meet in annual convention at Chicago, Ill., March 4, 5 and 6. Hotel headquarters have not yet been announced. For information regarding membership in the society, program, etc., address Prof. Edward Orton, Jr., secretary, Columbus, Ohio.

The National Clay Machinery Association will hold its annual meeting at Chicago, Ill., March 5 and 6, at the Annex Hotel. For further details, write W. N. Durbin, Anderson, Ind., secretary.

The Building Brick Association of America will hold its annual convention at Chicago, Ill., March 6 and 7. The sessions will be held in the Annex Hotel. For program and details as to membership, etc., address J. Parker B. Fiske, secretary, Flatiron Building, New York.

The National Builders' Supply Association will hold its thirteenth annual convention in New York City, January 30 and 31, with headquarters at Hotel Astor, where all sessions will be held. Further particulars can be had by addressing R. Dinsmore, secretary, Wilmington, Del.

PROGRAM OF IOWA BRICK AND TILE CONVENTION.

THE TWENTY-FIRST annual convention of the Iowa Brick and Tile Association will be held at Fort Dodge, Iowa, January 23, 24, and 25. Headquarters will be at the Waukonsa hotel and the sessions will be held in the club room of the Commercial Club. A large attendance is anticipated. Secretary C. B. Platt announces the following program:

TUESDAY, JANUARY 23.

Enrollment 8 to 11 o'clock a. m.
11 a. m.—Address of Welcome..J. F. Ford, Mayor of Fort Dodge
Response for the Association.....Hon. J. L. Stevens, Boone, Iowa
Reports from members, covering conditions present in the trade.
Noon recess.
President's Address.....C. F. Green, Sioux City, Iowa
Reports—Legislative Committee, J. B. McHose, Chairman, Boone, Iowa. Secretary's and Treasurer's Reports.
Appointment of Committees.
Reception of invitations for 1913 Convention.
What of the Future Work of the Association? Suggestions from Members.
Advertising as a Function of Association..Paul Lessing, Des Moines
Election of Officers.

TUESDAY EVENING

Special meetings of Tile Manufacturers and Brick Manufacturers for the purpose of discussing matters of especial interest to each of these branches of the industry.

WEDNESDAY, 9 A. M.

The forenoon session will be devoted to brick and building subjects.
Iowa's Standing as a Brick Producer; Chances for Future Development.....Prof. S. W. Byer, Ames, Iowa
The Common Brick Plant—Essential Conditions.....
.....F. W. Stuart, Des Moines
Some Observation of and Experience in Brick Making.....
.....F. A. White, Versailles, Mo.
Ideas For Local Advertising Campaigns to Promote the Sale of Brick.....C. W. Lansing, Chicago, Ill.
The Clay Block Silo.....Prof. M. L. King, Ames, Iowa
Requirements in the Manufacture of Fireproofing.....
.....Leon Goodman, C. E., Des Moines
Manufacturing Difficulties Met With in Fireproofing.....
.....C. L. Smith, Mason City, Iowa
The Afternoon will be devoted to Tile and Drainage subjects only.

WEDNESDAY P. M., 2 O'CLOCK.

Standards of Quality.....Prof. A. Marston, Ames, Iowa
The Cost Feature as Affected by High Standards of Quality..
.....W. U. Turpin, Fort Dodge, Iowa
The Dealer's Position.....W. T. Shepherd, Harlan, Iowa
Thorough Burning as a Feature of Quality—Its Cost.....
.....C. C. Carhart, Sheffield, Iowa

WEDNESDAY EVENING.

Fort Dodge business men will entertain members at the Opera House, followed by a "Dutch" lunch.

THURSDAY A. M., 9 O'CLOCK.

Reports of Committees not previously reporting.
The Clay Products Show at Chicago—An Iowa Exhibit.....
.....G. C. Stoll, Chicago, Ill.
The Hard Surfaced Country Road—Its Future Development in Iowa.....Paul Beer, Des Moines
Burning Brick—Paper followed by questions and answers by members.
System in the Rotation of Tile Sizes to Secure Most Economical Manufacturing Conditions.....
.....B. J. Whipple, Lehigh Clay Products Company
Seeing Fort Dodge and Visiting the clay plants will be a feature of Thursday afternoon, following the adjournment. The program may be continued into the afternoon in the discussion of subjects not yet considered. Members wishing to have additional subjects taken up should address the Secretary at Van Meter, Iowa.

Some of us take the Dutch treat idea as a joke, but not so with the National German American Alliance. At its recent meeting in Washington, D. C., it was pointed out that much of the intemperance of this country is due to the treating habit and recommends the general adoption of what is termed the Dutch treat, of every man paying for his own drink. Joking aside, that's not a bad idea.

BRICK NEWS FROM ST. LOUIS.

THE CLAY manufacturing industry here is at a standstill. None of the plants are operating, not having started up since they closed down, as they usually do, towards the end of the year.

Owing to the shortage of clay and because of many big buildings being contemplated, such as the Ranken, Jr., School of Mechanical Trades, the Railway Building, a \$4,000,000 proposition, and several other such buildings, the price of common brick has gone up about a dollar a thousand. Other bricks are about the same price as they have been for some time.

The building operations for the past year show a slight falling off from the record of the year before. During 1911, 6,324 permits were issued for new buildings, all of which cost \$16,574,482, and with 2,658 permits for alterations, amounting to \$2,033,307, made a total of \$18,607,555 expended in this way. During the year 1910, 8,704 permits were issued for new buildings and alterations, amounting to \$19,600,063. This indicates a decrease of nearly \$1,000,000 in the estimated cost of buildings for which permits were issued, or a decrease of about five and one-half per cent for the year.

The permits of the last year were for 2,163 dwellings, 208 stores, 11 office buildings, 96 factories and workshops, 23 school houses, 7 churches, 1 municipal building, 35 theatres and places of amusement, 1 hospital, 44 warehouses, 12 mercantile buildings and 1 freight depot.

The St. Louis Vitriified and Fire Brick Company elected F. C. Pauley, president and treasurer, John B. O'Meara, vice-president, and Frederick W. Christmann, secretary, at the election a few days ago.

The board of local improvements of East St. Louis, Ill., recently adopted plans and specifications for the improvement of Twenty-fifth street from the Louisville and Nashville railroad tracks north to Morris avenue, in Landsdowne. The estimated cost for this work is \$53,469. Vitriified brick will be used in the improvement, the street to be thirty-two feet wide. It will have no sewerage save drain pipes.

The Anthony Ittner brick Company is doing nothing in the way of manufacturing. They closed down for the usual repairs during the latter part of December and have not resumed. They are doing a nice business, however, and are able to supply all the demands made on them because of their good supply of brick on hand.

George W. Jones, secretary of the Evens & Howard Fire Brick Co., says there is hardly anything doing in the way of business. They had an average year during 1911 and business looks good at the present time for the present year when business starts up, which he hopes will be early in the spring. At present they are only doing their usual business. The cold weather has put a stop to all sewer pipe business, and until the weather breaks, nothing in that line will be done.

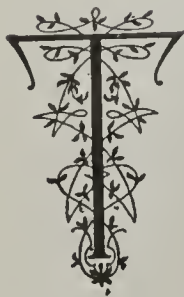
The Progress Press Brick and Machine Company reports that they shut down for the usual repairs on the plant the latter part of December and have not resumed work in some of the departments. They are manufacturing face brick, however, right along, when the weather permits. They are a little more fortunate than many of their competitors in one respect, and that is that they have a sufficient supply of clay on hand to last them for some time. They have not sold many brick ahead but have plenty on hand to supply necessary requirements.

Walter P. Grath, of the Illinois Supply and Construction Company says everything is quiet in their line just at present, although they are figuring on several contracts. Their last year's business was satisfactory and they had a fair business. Prospects for the present year are uncertain.

A. SAINT.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



THE YEAR 1911 in the clay products industries of the Pacific slope shows a general improvement over the previous year. The improvement is not great, but the business conditions which now obtain mean that the future holds out promise for much better things. The price-cutting mania has subsided to a great extent, and manufacturers of common brick, especially, feel hopeful that there will not again occur a price war very soon. Bitter lessons have been learned in the past few years, and now there is a general desire for economic peace. While the manufacturing facilities of the coast plants are by no means taxed to their utmost, yet the amount of material produced is larger in volume than in 1910, so the largest dealers affirm, and it is a fact that the prices have been better.

Since the fire of 1906 San Francisco has seen many varied conditions commercially and industrially. False values arose, unduly stimulated markets obtained for a time, unreasonable competition reacted disastrously in the building trades and so on, but now it is believed by conservative business men that the city has arrived at a normal stage. While the volume of building operations during the past year did not compare advantageously with the years just after the fire, yet the increase over the year just preceding the fire is most assuring. This increase represents the natural growth of building activities in proportion to the increase in population. The total value of buildings erected here since the fire is not less than \$215,000,000. The value of building contracts, not taking into account the inevitable "extras," for the year 1911, totals \$24,634,954, an increase of about two millions over 1910. By reason of the building of the Panama-Pacific International Exposition of 1915, it is likely that the next few years will see a more than normal increase in building enterprises. It is not likely, however, that local construction firms and material and supply concerns will lose their heads over the situation. Business here is now on a firm, sane basis. Though money has been tight for building purposes, the present indications are that capital will not be wanting for new enterprises which show a reasonable opportunity for safe investment. With James Rolph, the mayor-elect, and his progressive board of supervisors in office next week, the long-hoped-for political security will have been attained in San Francisco. Much is expected of the new mayor, too much, perhaps, but in view of the failure of the present administration, there can not possibly be anything but an improvement.

The Gladding-McBean terra cotta plant at Lincoln, Cal., is being equipped with a steam tile drying system which is being installed by the Western Heating Company, of San Francisco. This system is the most modern one possible. It includes steam heating coils and automatic regulation. Work is now well under way on the large steel clay sheds, etc., which are being added to this plant.

The United Materials Company has completed its annual inventory and state that the brick situation last year showed considerable improvement. They look for still better business for this year since prices will be better and the amount of material needed much greater.

J. H. Corey, a pioneer brick manufacturer of California, died at his home in Alameda, Cal., on January 1st at the age of seventy-seven years. Mr. Corey was the owner of the brick plant at Pleasanton, Cal., which is now known as the Remillard Brick Company. The deceased was also well known as a contractor and builder. He was born in Vermont but migrated to California in 1857, and was a member of the Alameda Lodge of the Knights of Pythias. J. F. Corey, of San Francisco, and L. Corey, of Alameda, are the nearest surviving relatives, they being nephews.

Within a week work will be commenced upon a new factory plant for the Western Porcelain Manufacturing Company on a newly acquired site at Millwood, Wash.

The Wilmington Dock Company has ordered Architects John C. Austin and W. C. Pennell to prepare plans for a

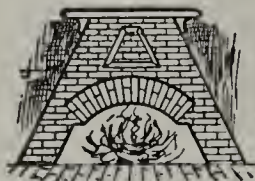
group of factory buildings at Wilmington, Cal., to be occupied by the Wade Art Tile and Pottery Company, of which J. N. Wade is the president. The group will consist of six frame and corrugated iron structures, besides the kilns. Each building will be 40 by 100 feet in dimensions.

SUNSET.

San Francisco, January 5, 1912.

Written for THE CLAY-WORKER.

MILWAUKEE AND WISCONSIN BRICK NEWS.



ALL BUILDING RECORDS in the history of Milwaukee were broken during 1911. During the year there were 5,064 permits issued, representing an investment of \$12,055,700, as compared with a total of 4,086 permits granted during the previous year, aggregating \$9,737,581. There were 172 store buildings erected, as against 182 in 1910, and 2,004 living apartments as against 1,798 for the previous year. A total of 18 municipal buildings were erected during the year, representing an investment of \$392,000. Six bank buildings were erected, or are in the course of construction, with a total value of \$681,000, while new churches were built, with a total value of \$53,000. There were nineteen buildings erected during the year costing over \$50,000 each, and it is interesting to note that brick was used in the construction of a majority of these structures.

Wisconsin brick manufacturers are, of course, finding business rather quiet at the present time, but the outlook is bright and a busy season is anticipated. Most of the manufacturers and jobbing concerns are still in the midst of their annual inventory taking and the figures which have been disclosed thus far are satisfactory. Building operations, not only in Milwaukee but all over the state, showed a decided gain, while the demand for brick increased even to a greater extent. There is not the slightest doubt but that the coming year will be favorable to the brick interests, despite the fact that it is a presidential election year. There never has been a time in the history of Milwaukee when so many really large buildings have been planned for erection as at the present time, and it is only fair to assume that brick will be used in a large proportion of these structures.

As the result of the passing of a law by the last Wisconsin legislature doing away with the necessity of issuing bonds for street work and raising money through direct taxation, street work will be started as early this year as the spring weather will permit. The new law provides for a one-mill tax for permanent street improvements, and for this reason Milwaukee, for the first time, will be able to finance its paving work without issuing bonds. The city will expend \$2,397,450 on street work this year, according to the provisions made in the budget by the board of estimates.

Herman G. Hass, a well-known brick manufacturer of Fond du Lac, Wis., died recently, following injuries which he received in a distressing accident experienced while hunting. Mr. Hass was out hunting rabbits and in leaping a fence his gun was discharged, the contents of one barrel tearing away the lower part of his head, while those of the other penetrated his abdomen. Mr. Hass was a prominent member of the Wisconsin Clay Manufacturers' Association, and his death has caused widespread sorrow. He was one of the best known citizens of Fond du Lac and had served the city in various positions.

James Ricketson, familiarly known as "Jim" to his many Milwaukee friends, a member of the well-known firm of Ricketson & Schwarz, brick and building material supply concern, celebrated his fifty-fourth birthday on December 31. Congratulations by wire and messenger poured in on the well-known brick man all day long. George J. Schwarz, junior member of the firm, recently returned from a tour of Europe.

The Falls Brick and Tile Company, of Sheboygan Falls, Wis., has completed the erection of a 65-foot chimney at its plant, containing 30,000 bricks. The company experienced a brisk business during 1911 and has plans under way for a general expansion during the coming year. A. BADGER.

OBITUARY.

C. W. Raymond, One of the Few Remaining Charter Members of the N. B. M. A., and Head of the C. W. Raymond Company, Fatally Stricken While in Apparently Good Health.

MONDAY, JANUARY 8, the family and friends of Charles Worthington Raymond, the noted clay machinery manufacturer of Dayton, Ohio, gathered at the flower-strewn grave to pay a last sad tribute while his mortal remains were laid therein. He had been summoned without warning on the previous Friday. While in his office talking to his associate, Mr. Brannock, in a casual way, he was stricken with paralysis. It was wholly unexpected and came so suddenly that there was time for but a word or two ere he became unconscious. His sons, George and Charles, Jr., were near by and quickly helped him to a



The Late Charles W. Raymond.

couch, but he soon lapsed into unconsciousness from which he never recovered. Medical aid was summoned immediately, but death followed an hour or two later.

Mr. Raymond was born in Dayton January 15, 1851, and so was very near his sixty-first birthday. He was educated in the public schools of Dayton and when still in his teens put aside his books and became associated with his father in business, learning the trade of blacksmithing and wagon making. The information gained in that work proved of much benefit to him in after years. He displayed marked inventive talent and in after years developed fine executive ability. He continued in business with his father in the original lines until 1888 when, his father wishing to retire, he purchased his interest and subsequently incorporated under the name of The C. W. Raymond Company. One of his early inventions was a clay tempering wheel which came into general use throughout the country. To this was added other brick and tilemaking machinery and appliances which have made the name Raymond familiar to clayworkers the world over.

In his social and fraternal relations, Mr. Raymond made

many friends. He was a member of the Order of Odd Fellows and of the Knights of Pythias, an influential member of the Dayton Board of Trade, and took an active interest in all important local affairs.

Mr. Raymond was a charter member of the National Brick Manufacturers' Association, and gave the work of that organization active support. Few men of his time did so much in the upbuilding of the clay industries of the nation. He was unusually successful in business ventures, and well deserved to be, for his energies were always well directed and he was ever ready and willing to lend a helping hand and a kindly word to all with whom he came in contact. "He gave the best he had to the world, and the best came back to him."

A. S. REID & CO.'S NEW ASSOCIATES..

A. S. Reid & Co., of Newark, N. J., dealers in front, paving and enameled brick, announce that W. Harry Gaul and James Tongue, formerly with O. W. Ketcham, of Philadelphia, have associated themselves with Reid & Co., and have opened offices in the Morris building, Philadelphia.

CHICAGO OFFICE OF OHIO CERAMIC ENGINEERING COMPANY.

The Ohio Ceramic Engineering Company, of Cleveland, Ohio, advises us that their Chicago office, which is in charge of Mr. E. A. Allen, has been moved from 1015 First National Bank building to 555 West Quincy street, where their warehouse is located, and where they carry a complete stock of their standard equipment for quick delivery.

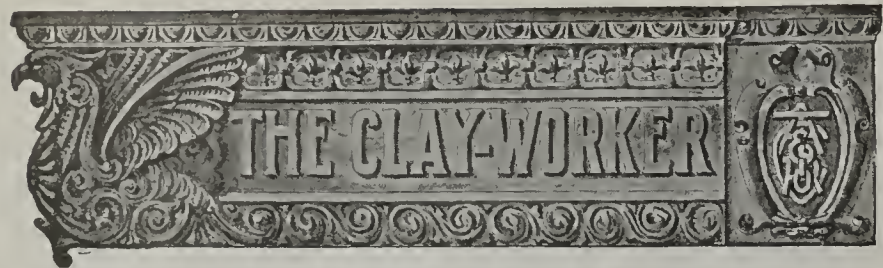
HOTEL HEADQUARTERS CONVENTION WEEK.

Taking time by the forelock is a very wise proceeding in all the affairs of life. It is wise to anticipate one's needs and wiser still to provide for same in advance. A commendable example of foresightedness is afforded by the J. D. Fate Company, of Plymouth, Ohio, who advise us that they have already secured apartments at the Congress Hotel and Annex for convention week. Rooms 1118, 1120 and 1122 on the parlor floor will be headquarters for Fate machinery (see advertisements on pages 160, 161, 162, 163, 164, 165, 222 and 223 of this issue) and they hope every visiting clay-worker will call on them there early and often convention week.

NEW MANAGER FOR SALES DEPARTMENT OF THE EVERHARD COMPANY.

The Everhard Company, manufacturers of high grade impervious face brick, at Massillon, Ohio, announces that Mr. Frederick W. Donahoe has purchased an interest in their company and joined their forces January 1 as manager of the sales department. Mr. Donahoe is well and favorably known to brickmakers and builders generally, for he was connected with Fredenburg & Lounsbury, of New York City, for ten years or more, after which he was associated with Fiske & Co., of New York, for five years, and for the past two years he has been identified with Thomas Moulding Company, of Chicago. Mr. Donahoe's wide experience in the marketing of face brick makes him a valuable "asset," as it were, to the Everhard Company.

The coal production has been so heavy the past two years that prices are unsatisfactory to the producers. This means that the brick maker has probably been getting coal cheaper the past two years than he will be able to the next. Keep that in mind when figuring on the problem of future cost.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-NINTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

LVII. JANUARY, 1912 No. 1

CURRENT COMMENT.

It is better to mend than to discard a broken New Year's resolution.

* * *

It is indicated that the next N. B. M. A. convention will be the largest ever held.

* * *

No matter just what the building consumption was in 1911, let's make a booster slogan to double it the coming season.

* * *

Our clay products are not such a big item in the international trade, but it is increasing at a rate that will soon bring it into more notice.

* * *

The United States Geological Survey report on the brick industry shows a new record and when the figures for 1911 come in they should show it as still growing.

* * *

To boost the Clay Products Show is to help your own business. It is not enough that you go yourself—persuade others to go, and especially architects and prospective builders.

* * *

We ought to get out of the coming clay show a lot of new practical pointers about the ornamental use of brick in structural work. And these in turn ought to be mighty useful in promoting the use of brick.

* * *

The Bureau of Statistics of the Department of Commerce and Labor has just issued its annual statistical abstract of the United States. This is the thirty-third annual issue of the big volume of figures, which might be termed by some dry statistics, but which contains a wonderful fund of valuable information about the area, industry, wealth, and general development of the country. One of the things it shows

is the wonderful progress made by manufacturers as compared to our exports of food stuffs and raw material.

* * *

The value of the fire brick product of 1910 was nearly double that of 1901. That's what may be called healthy progress.

* * *

If you didn't include among your New Year's resolutions one to the effect that you are going to be at the national convention at Chicago and take in the Clay Products Show, get busy and resolute some more.

* * *

It is figured that fifty per cent of our present fire loss is preventable, and we may add to this that the biggest item in the work of prevention is the use of brick and clay products in the erection of buildings.

* * *

Those especially interested in the paving brick business should keep in close touch these days with the city fathers in their territory, because the time is ripe for making plans and selecting material for a campaign of spring and summer paving.

* * *

One reason the wear and tear account of brick machinery is so heavy is the nature of its work, and another reason is frequent neglect of exposed machinery and equipment. Look after your outside equipment and keep the exposed parts painted.

* * *

The Rochester, N. Y., Chamber of Commerce has issued a brochure on fire prevention, the slogan of which is, "All fires are the same size at the start." And one item of comment that deserves special attention is that every fire is the personal responsibility of the occupant of the building for the first five minutes of its life.

OUR COVER DESIGN.

Our readers will find much to admire in this our anniversary issue, not the least attractive feature of which is our cover design. The central piece, the wall fountain, is from the kilns of the Hartford Faience Company. The major part of the picture is a photo reproduction of a beautiful panel of tapestry brick, one of a number of similar ornamental brick walls which are shown in the offices and display rooms of Fiske & Co., Arena building, New York City, to whom we are indebted for the view and the privilege of reproducing it. No where else, so far as we know, are the artistic possibilities of brick architecture portrayed so effectively as in the Fiske offices. Really it is a treat to see the various wall designs and color schemes which Fiske artists work out and delineate in Tapestry Brick for the benefit of their customers, architects and builders. Brick manufacturers who go to New York and fail to visit the Fiske offices, miss one of the most attractive sights of the metropolis. The art panels and decorative features are so beautiful that it is an inspiration to look upon them. Our cover design is but an intimation of the pictures in building brick that may be seen in the Fiske display rooms.

TAKE THE HOME MAKERS ALONG.

Not only should every brick man attend the convention and the Clay Products Show and take with him architects and building contractors and others interested in work of this kind, but let him also take the home makers along—the women folks. The architects may be the designers and the men may be the builders of homes, but the real makers of homes are the women. Often, too, they are prominent factors in determining the kind of home that will be built, selecting material and everything else, and they are good companions to have along on an occasion of this kind, and

always, too, they are the real home makers. So take them along. They will not only enjoy it and get information worth while from it, but it will make the week a better one for all concerned.

THE FINGERS AND THE CALENDAR.

Not the handwriting on the wall, but the fingers on the wall calendar have been steadily pointing the day for the Clay Products Show for several months now, indicating the beginning, March 7th, and the last day, March 12th. The object of these is to keep impressed on your mind in advance just when the date is, so that this part of your calendar may be relieved from other engagements and provision made for a full week at Chicago. And they mean more than that. The fingers on the calendar may at first seem to mean to you only the date, but the success of the Clay Products Show on that date means a whole lot to you personally and to the clayworking industry generally. So, let us make these dates on the calendar memorable. Make it the greatest week that ever happened in the history of the clayworking industry, and also make it a great occasion for each one of us individually. There is lots to see and plenty to learn.

WAYLAY THE TOWN BOOMERS.

The country is full of town boomers and city boosters, each group rooting for their own particular city and trying to present it in the most attractive light so as to draw additional residents and industries. These are good people with a good purpose and they are also good people for the brick manufacturer to waylay. The paving brick men should coat-tail, button-hole, or get the ear of these town builders or city boosters some way and tell them how brick paved streets help the cause, and how they put a better dress on the town and make it so attractive generally that it is one of the best advertising investments that they can make. There is a whole lot of good, strong argument that the paving brick man can put up when he gets the ear of the town boomer, and it should be used and hammered home until it brings results. And the building brick man should get hold of the other ear and tell how attractive brick buildings make a town, make it look more substantial, and give it the appearance of permanency and wealth. In fact, the town boomer and the city booster is entitled to all the argument that is forthcoming for both brick paving and brick construction, and it is the duty of the brick manufacturers to waylay them and see that they get it.

THE CLAY SHOW AND THE CONVENTION.

If you are planning to go to the Clay Show and the N. B. M. A. convention you are probably asking yourself, "How can I get the most out of it, and how much may I expect to get out of it?"

This is really putting the cart before the horse, and there is another question that should take precedence to this question of how much can I get out of it. The question for you to be asking yourself now is, "What are you going to put into it?"

You get out of a convention or a Clay Products Show of this kind in pretty much the same measure that you put into it. In other words, that is the way to measure what you get out of it directly. Indirectly you get a lot more out of it.

The first point when taking the convention into consideration is to see how much you and all the other fellows can put into it. The more that is put in the more there is to get out for everyone. It is like being called to a feast where each one must bring a part of the makings. The more liberally each goes provided with things to make the feast, the greater will be the feast and the more each one will get in return.

The brick convention is a feast of the mind where there

is put into circulation knowledge and information that everybody can give without losing, and the more that is given the more each has in return. So, don't ask yourself the question, "What you can get out of it," except as a finale to the other. The first and most important question for consideration right now is, "How much are you going to put into it?"

It is pretty much the same way with the Clay Show. This clay show is not merely for what the clayworkers can get out of it. It is more for boosting clay products, informing the world in general and architects and builders in particular on the subject, and naturally the more every clay manufacturer can put into it the more it will be worth, the more influence it will have, and the more value it will bring in the way of future returns to the clayworking industry as a whole.

There is no question of whether or not you will get good out of it yourself. Every man who goes will either find it worth while or it will be his own fault. The question is to make it the most worth while by putting into it all that you can possibly think of and then some.

THE SHORT DAY AND THE SHORT PURSE.

It does not seem to have occurred to many of the hard workers who are pinched most severely under the high cost of living that the short work day itself is responsible for quite a measure of this short reach of the purse these days.

Indeed, the freedom of connection between these are so apparent that there are several eight-hour bills pending before Congress now, and labor is continually seeking for short hours and presenting many ingenious arguments that we can obtain shorter hours without lessening the efficiency of work a man can do. That a man can do as much, if not more, work in eight hours as he can do in ten.

No fair minded man will argue because a man is a working man that he should be burdened with work, his life made dreary, and his hours made so long that there is no time left for enjoyment. But, just the same, there is a direct connection between the hours of work and what we are able to get in return for our work. A man may do more per hour when working eight hours a day than when working ten or twelve, but the man that works more hours will get more done in the course of a day.

To reduce the hours of a day's work is to directly increase the cost of a product. This in turn makes everything produced that is bought by the laborer himself cost him more money, consequently, indirectly, it is he himself who pays for these shorter hours.

Moreover, the shorter the hours, the more leisure time the people have for enjoying themselves and the more they cultivate the habits of luxury, the more it takes to do them, to supply not only what we term necessities, but to satisfy the pleasure-loving spirit.

You may say we have no right to deprive people of this. Neither have we, but if, in getting this, it is found that the purse is shortened and will not reach or cover as much as formerly and that we are handicapped in it all, by what we call the high cost of living, then it is in order to stop and think when the thing gets to pinching, and to analyze carefully and see how much of this is due to the shorter work day, and handle the whole matter in the light of reason. A universally shortened day naturally means a shortened purse. There is no other way to get around it except what assistance we get from improved methods and mechanical appliances that enable us to turn out more in the same space of time, and this is in a great measure counteracted by the steadily increased cost of raw material for manufacture.

So, no matter how we look at it, if it is analyzed and reduced down carefully, we find that the short day is in a measure responsible for the short purse, and today, as in times gone by, it is the man who toils continuously and even burns the midnight oil who accomplishes much.

1912 CALENDAR SHOWER.

OUR CROP OF SOUVENIR calendars for the new year is not so extensive as heretofore, but what is lacking in numbers is fully made up in the quality of the holiday offerings. The first to be received was an immense wall calendar bearing the compliments of The Deckman-Duty Brick Company. It is quite similar to their 1911 calendar; the chief difference being that of the picture feature, which is entitled "Christmas Eve at Mount Vernon." This excellent reproduction appears on the upper half of a 29x42-inch beautifully-printed paper, the general design representing a craftsman metal panel in grey. Below the picture are the words, "Paving Brick; Capacity, 30,000,000," under which hangs the 1912 calendar pad. Above the picture is the name of the company, while at the extreme bottom is the information that their offices are in Cleveland, Ohio. We prize this New Year's greeting very highly.

The J. W. Hensley calendar for 1912 shows a rural scene in colors, which is very pretty and finds a welcome place on our office wall. Mr. Hensley, whose office is in the Lemcke Building, Indianapolis, sells improved brick machinery and clayworking devices.

The C. K. Williams & Co.'s 1912 calendar is a "dandy." It shows their No. 1 Easton, Pa., plant (one of their four manufacturing plants). The main point of interest in the picture is the tall smoke stack, the third largest in the world, 375 feet in height, 37 feet in diameter at the base and 10 feet at the top.

"The Pompeian Bazaar" is the title of the Roessler-Hasslacher Chemical Company's calendar. If you like artistic things, write to them for one of these clever bits of advertising, which is free from advertising. It does not mention the fact that they are manufacturers and dealers in all manner of chemicals used by clayworkers, a list of which is given in their ad. on page 166.

"The Guardian," a large Newfoundland dog watching a tow-headed youngster wading in the surf, is the title of the calendar recently mailed us by the E. T. Lewis Company, general contractors, builders and manufacturers of brick, drain tile and fireproofing, at Nashville, Tenn. The picture is beautifully colored and unusually pleasant to study.

The Alumina Shale Brick Company, of Bradford, Pa., sent to us with their compliments a very artistic water-color sketch of an autumnal scene made along some picturesque stream in a wooded country. Their wishes for a happy and prosperous 1912 are heartily reciprocated.

"May success and happiness attend you through the year" is the wish printed on the 1912 calendar of the United Brick Company, of Conneaut, Ohio. We do not know of any calendar that could be more welcome than this one. The picture of the "Road Home" is beautiful and restful to look upon. This calendar advertises their wire-cut-lug paving block as "A paving block that will stand the test."

J. C. Steele & Sons, the well-known clay machinery firm, of Statesville, N. C., mailed us recently one of their very useful calendars. It contains a separate sheet, 14x28 inches, printed in blue, for each month. On the upper half of each sheet is printed a general view of their factory. This firm manufactures a complete line of brick machinery, their five sizes of machines ranging up to 100,000 brick per day capacity.

TRADE NOTES.

W. H. Gorsline has sold his interest in the Rochester Sewer Pipe Company, Rochester, N. Y., as well as his interest in the "Rovaque" quarry tile business conducted by this company, and which was started by Mr. Gorsline. At the present time he is devoting his attention to a realty business in Rochester, but after the same is fully organized he expects to return to his first love and engage actively in some branch of the clay business.

The Farmers' Clay Products Company, which has recently been incorporated at Omaha, Neb., with W. Sedgley president; S. A. Corneer, vice-president, and L. H. Ouren, secretary and treasurer, has purchased thirty-five acres of fine clay land on which they will erect a plant for the manufacture of face brick, paving brick and drain tile. Secretary Ouren writes that they have not contracted for the machinery and equipment as yet, but expect to do so ere long. Temporary offices have been opened at 1714 Farnam street, Omaha, Neb.

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"GETTING THE MOST FOR A DOLLAR"
has been given as a definition of good engineering such as is done by

**The Richardson-Lovejoy
Engineering Company.**

[See page 196.]

FOR SALE, WANTED, ETC.

POSITION WANTED

By an experienced engineer and superintendent of nearly twenty years experience. Have been with present employer five years. Can give satisfactory references as to character, sobriety, etc. Competent to take superintendency of brick or tile plant, or to serve as chief engineer or master mechanic. Also familiar with operation of electrical machinery. Permanent position desired. Correspondence solicited.

Box 1 - E. B. B., Care Clay-Worker.

11 dm

For Sale, Wanted, Etc., Ads Continued on
pages 157, 158 and 159.

We can heartily recommend the Clay Products Exposition to every Clayworker who desires more business or has the growth of the clay products industry at heart.

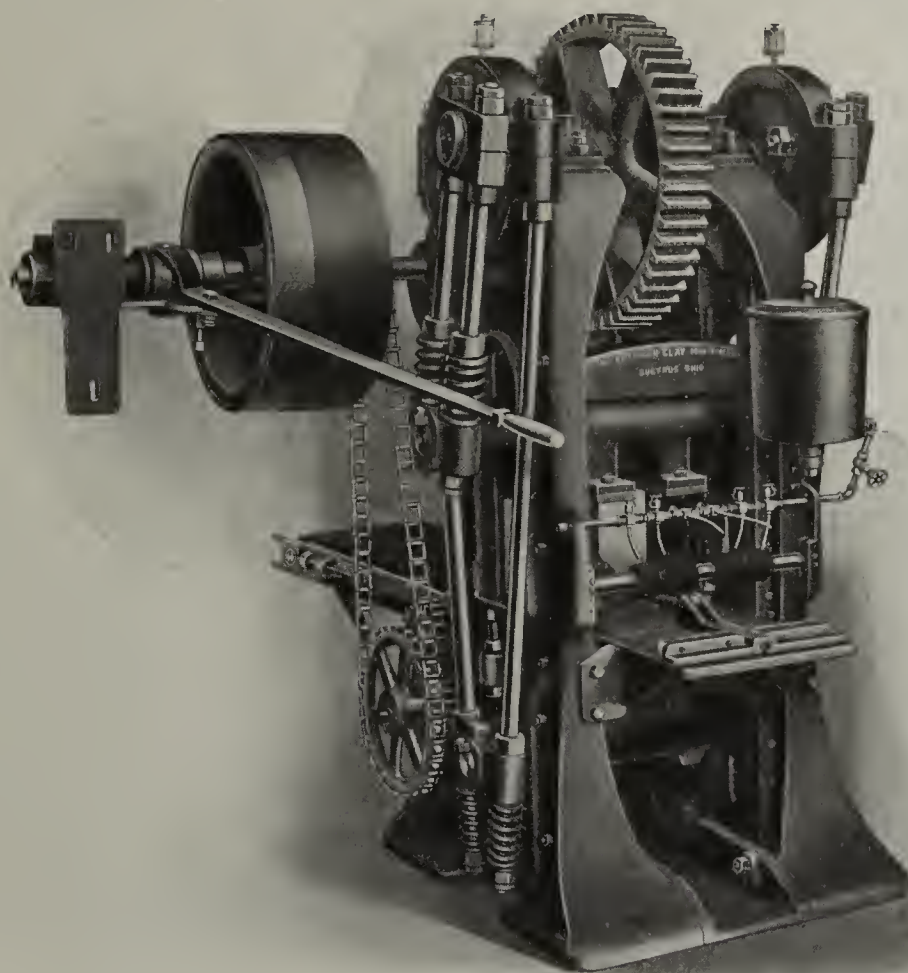
CLAY PRODUCTS SHOW

COLISEUM, CHICAGO

1912 MARCH 1912						
SUN	MON	TUE	WED	THU	FR	SA
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THIS IS YOUR SHOW
HAVE AN EXHIBIT
BE SURE TO ATTEND
GET OTHERS TO GO

No. 219 Repress



Here is a new candidate for popular favor in the well-known Repress line of The American Clay Machinery Company. While it is new from top to bottom it belongs to a family of represses so well and favorably known that its success should be conceded.

The 219 Double Mold Repress has the lines of quality stamped upon it and in the field of battle, where the days work must be successfully accomplished day after day, it will be found replete with those points of simplicity, convenience and strength which produce results.

The 219 has special advantages in the arrangements for pressing the brick which also add to the strength of the machine. We have provided for a dwell when the pressed brick are being pushed off onto the off-bearing belt. Following this dwell the lower cross head drops suddenly, which gives a more accurate feed and obviates the brick being carried over the mold. The side rods are provided with necessary springs to relieve strain and many original features are fully told of in our complete description which will be sent on application.

The Old Reliable Eagle

Nothing need be said here regarding the old reliable Eagle Repress. Its record stands as the envy of all presses. Its successes are innumerable. To those who do not know all about the Eagle we will send illustrations and a complete description.

We also build other Represses of smaller sizes and capacities. Let us know what your wants are in this line and we will fully advise you.

We build every machine and appliance for the manufacture of every class of clay products by all processes.

The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.

Much the largest manufacturers of Clayworking Machinery in the world. And much the best.



We can heartily recommend the Clay Products Exposition to every Clayworker who desires more business or has the growth of the clay products industry at heart.

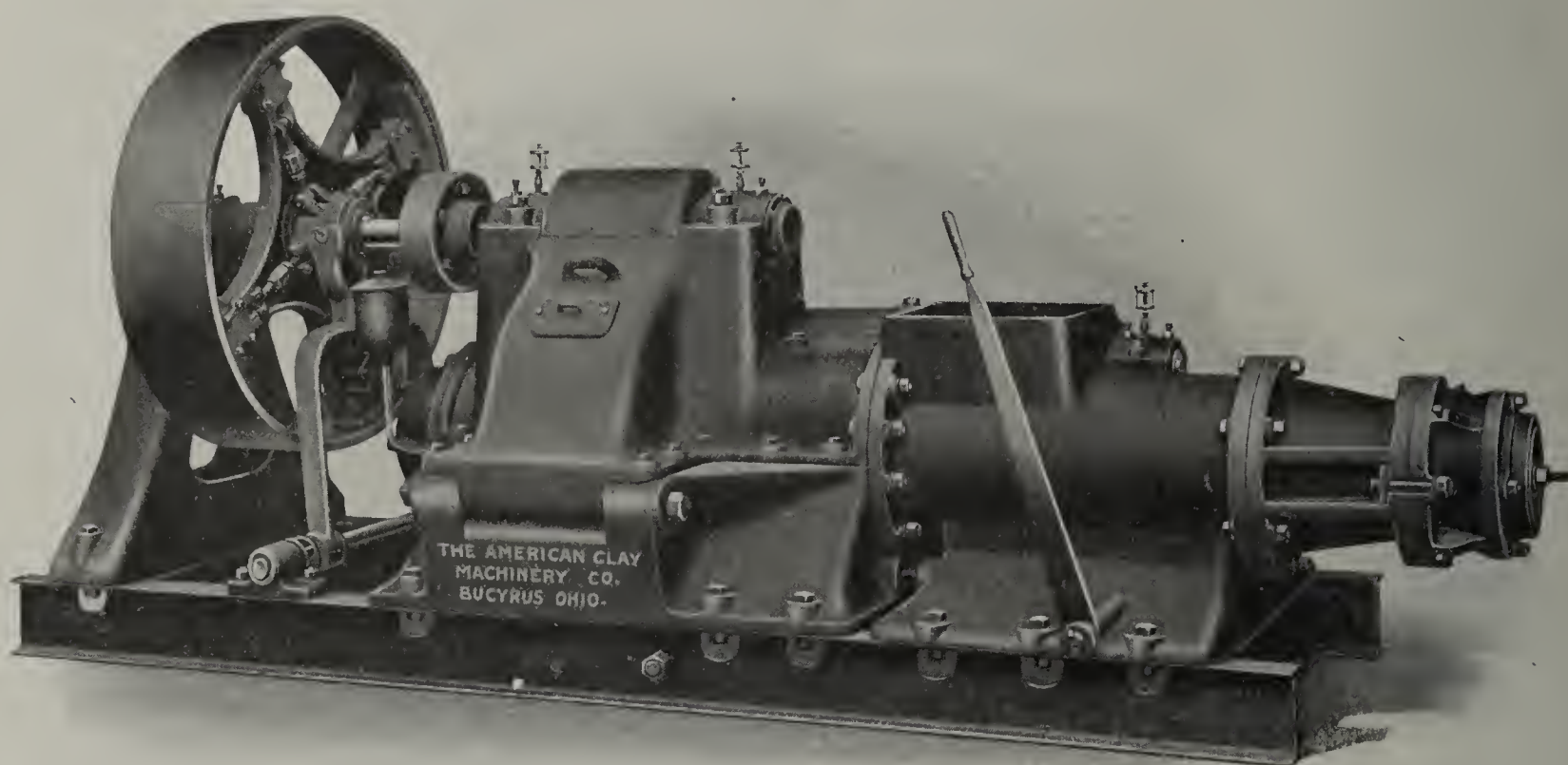
CLAY PRODUCTS SHOW

COLISEUM, CHICAGO

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THIS IS YOUR SHOW
HAVE AN EXHIBIT
BE SURE TO ATTEND
GET OTHERS TO GO

World's Greatest Tile Machinery



No. 218 Tile Machine

The World's Greatest Line of Tile Machinery is the absolutely new line just put upon the market by the American Clay Machinery Company. It is making good everywhere and has been installed by the largest manufacturers of Drain Tile and Fire Proofing in the country.

The first of this line was the No. 218, which was a record-breaker from the start. It makes tile up to the capacity of the plant, and that, too, without noise, fuss or waste of power.

The No. 231 and 233 are brothers of the 218, with the same racy quality lines which have won them pedigrees. The one is for those who consider economy in first cost, the other is the big brother of the 218, with a correspondingly wider range of sizes and capacities.

For those who want less capacity our Centennial and Acme, with newly designed augers, will prove satisfactory. These new augers can be installed in your present machine if you have a Centennial or Acme.

Our line of cutting tables, elevators, trucks, cars and other equipment for hollow ware is complete. Write for cuts and descriptions of these machines. We build everything in clayworking machinery and appliances.

The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.



Much the largest manufacturers of Clayworking Machinery in the world. And much the best.

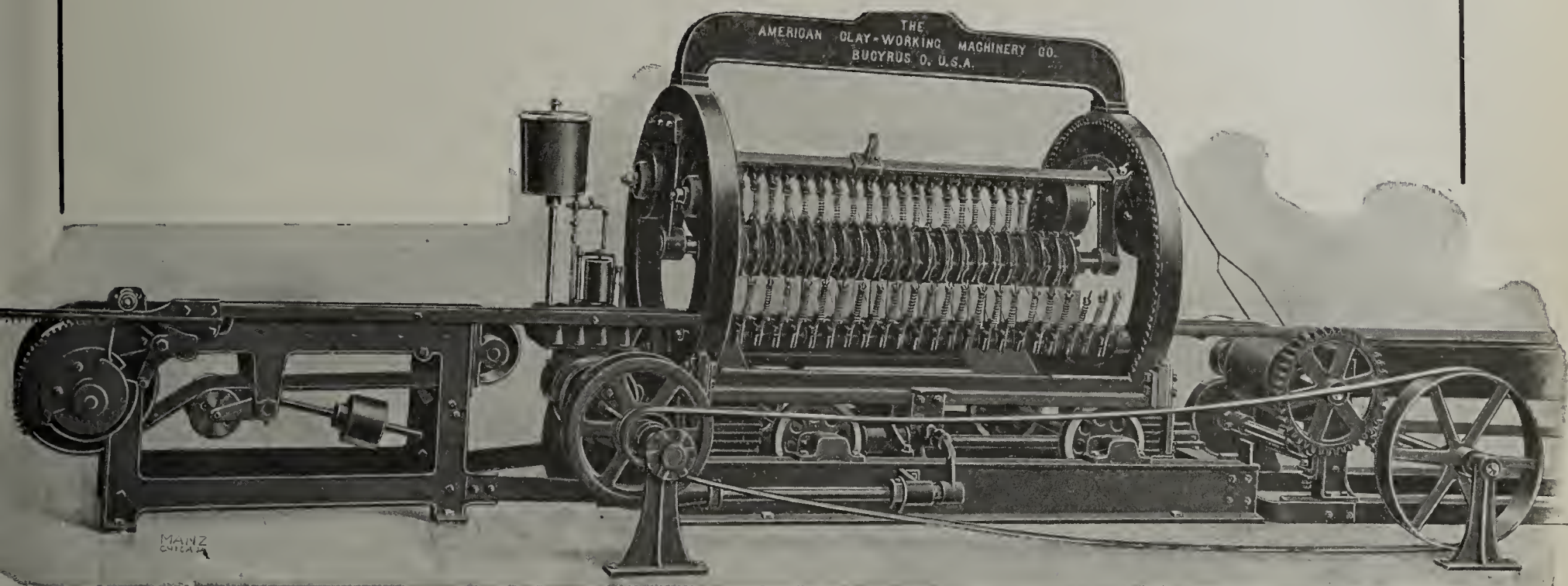
We can heartily recommend the Clay Products Exposition to every Clayworker who desires more business or has the growth of the clay products industry at heart.

CLAY PRODUCTS SHOW
COLISEUM, CHICAGO

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THIS IS YOUR SHOW
HAVE AN EXHIBIT
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GET OTHERS TO GO

Cutting Tables



No. 20 Rotating Brick Cutter

The line of Cutting Tables built by the American Clay Machinery Company has a wide range in style and capacity, but every table is built on a uniform standard of quality.

From the No. 20 Automatic up to the No. 224 Automatic and down to the lesser capacity types there is a complete range from which any manufacturer can select a cutting table that will exactly suit his needs.

This American Clay Line of Cutters is not limited to brick, tile or any other class of clay products, but includes cutters for cutting all kinds of clay products, no matter by what process made.

The design of these cutters is backed by half a century of experience. The construction is all that good material, first-class workmen and a fully equipped modern factory can assure. A full description of any cutter will be sent upon application.

We build every machine and appliance required in every branch of the Clay Trade.

The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.



Much the largest manufacturers of Clayworking Machinery in the world. And much the best.

We can heartily recommend the Clay Products Exposition to every Clayworker who desires more business or has the growth of the clay products industry at heart.

CLAY PRODUCTS SHOW
COLISEUM, CHICAGO

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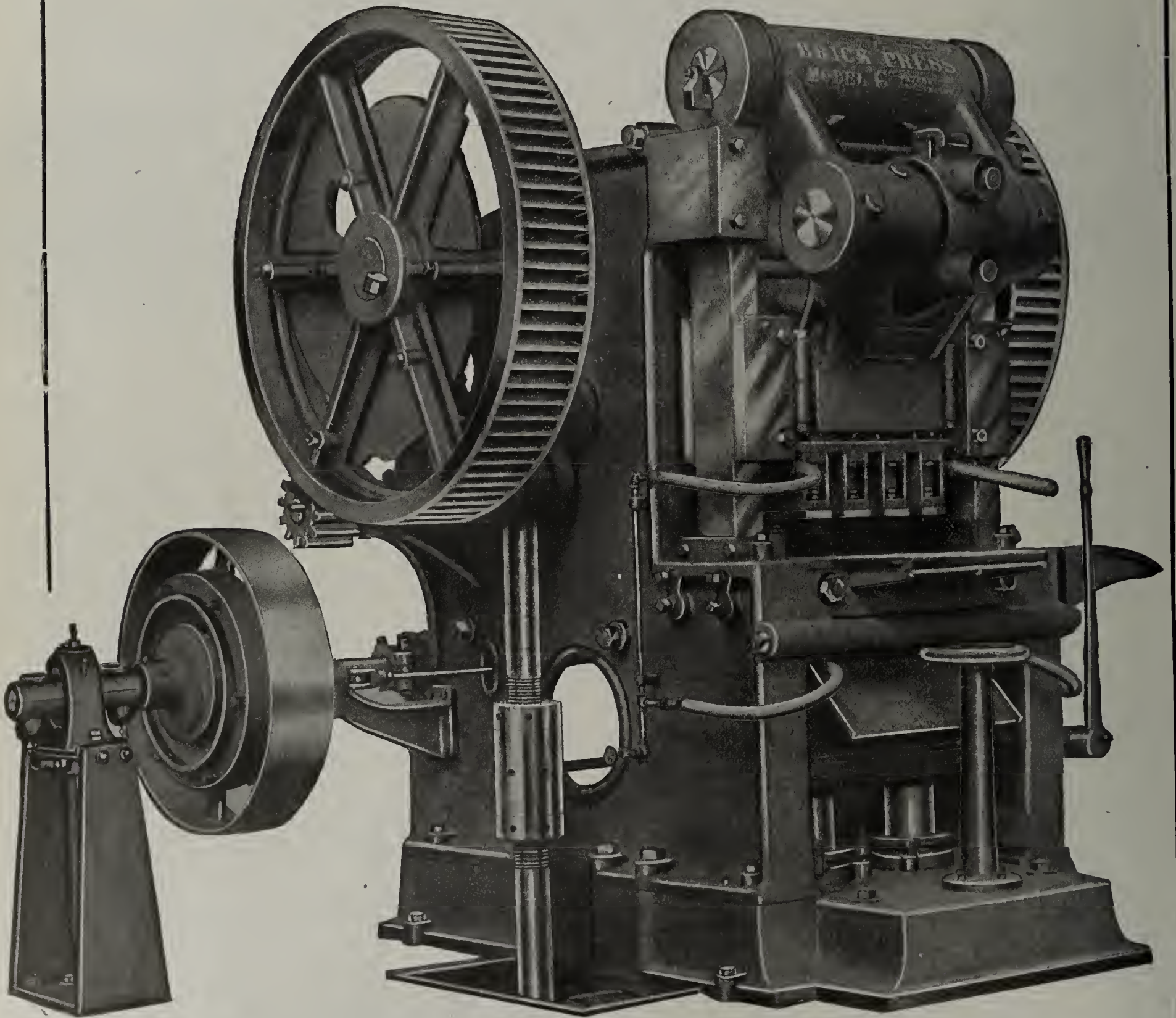
THIS IS YOUR SHOW
HAVE AN EXHIBIT
BE SURE TO ATTEND
GET OTHERS TO GO

Dry Press Brick Machinery

In the manufacture of Dry Press Brick there is no line of machinery superior to that of The American Clay Machinery Co. Years of experience and the employment of the best designers has given this line excellent features possessed by no other. Faultless workmen and flawless material have given the final assurance of quality. Each machine is massive to the point of necessity without waste of material. The workmanship is careful to the point of exactness. The operation of each machine is perfect so far as human skill and ingenuity are able to produce it.

Our presses have a wide range from the Model C here shown to the 605 Hand Power and on down and up the line. Write for illustrations of any press of any size or any capacity.

We build everything in Clayworking Machinery.



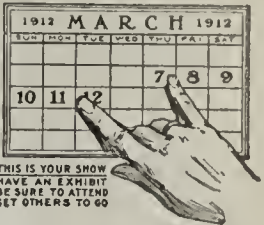
THE AMERICAN CLAY MACHINERY COMPANY
BUCYRUS, OHIO, U. S. A.



Much the largest manufacturers of Clayworking Machinery in the world. And much the best.

We can heartily recommend the Clay Products Exposition to every Clayworker who desires more business or has the growth of the clay products industry at heart.

CLAY PRODUCTS SHOW
COLISEUM, CHICAGO



THE KEYSTONE OF SUCCESS IN Steam Pipe Rack Dryers

We have a number of vital patents on the Steam Pipe Rack Dryer which are the Keystones of Success in the operation of this type of dryer so far as efficiency and economy are concerned. Those who are using our improved dryer are loud in its praise. It is at once a model of neatness, comfort, light and convenience and in its operation will distribute the heat to a better advantage

and at less cost than any other dryer of the kind on the market. This dryer has been selected by those careful to investigate and has won out in competition with all others. One user says: "We have used your dryer long enough to convince us that its success is complete and its operation will be a decided economy. Brick made one day



are set in the kiln next day uniformly dry throughout entire holding capacity of dryer, which means a considerable saving in burning. We dry with exhaust steam during day and finish with 5 to 10 lbs. live steam during night. Cost of drying with our hot air dryer was 65 cents per thousand. With your dryer it is 25 cents. We believe you have the best dryer on the market."

Let us figure with you on one of these dryers or any other
Clayworking Machinery or appliances.

Send for Pipe Rack Dryer Catalogue Just Out.

The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.

Much the largest manufacturers of Clayworking Machinery in the world. And much the best.



We can heartily recommend the Clay Products Exposition to every Clayworker who desires more business or has the growth of the clay products industry at heart.

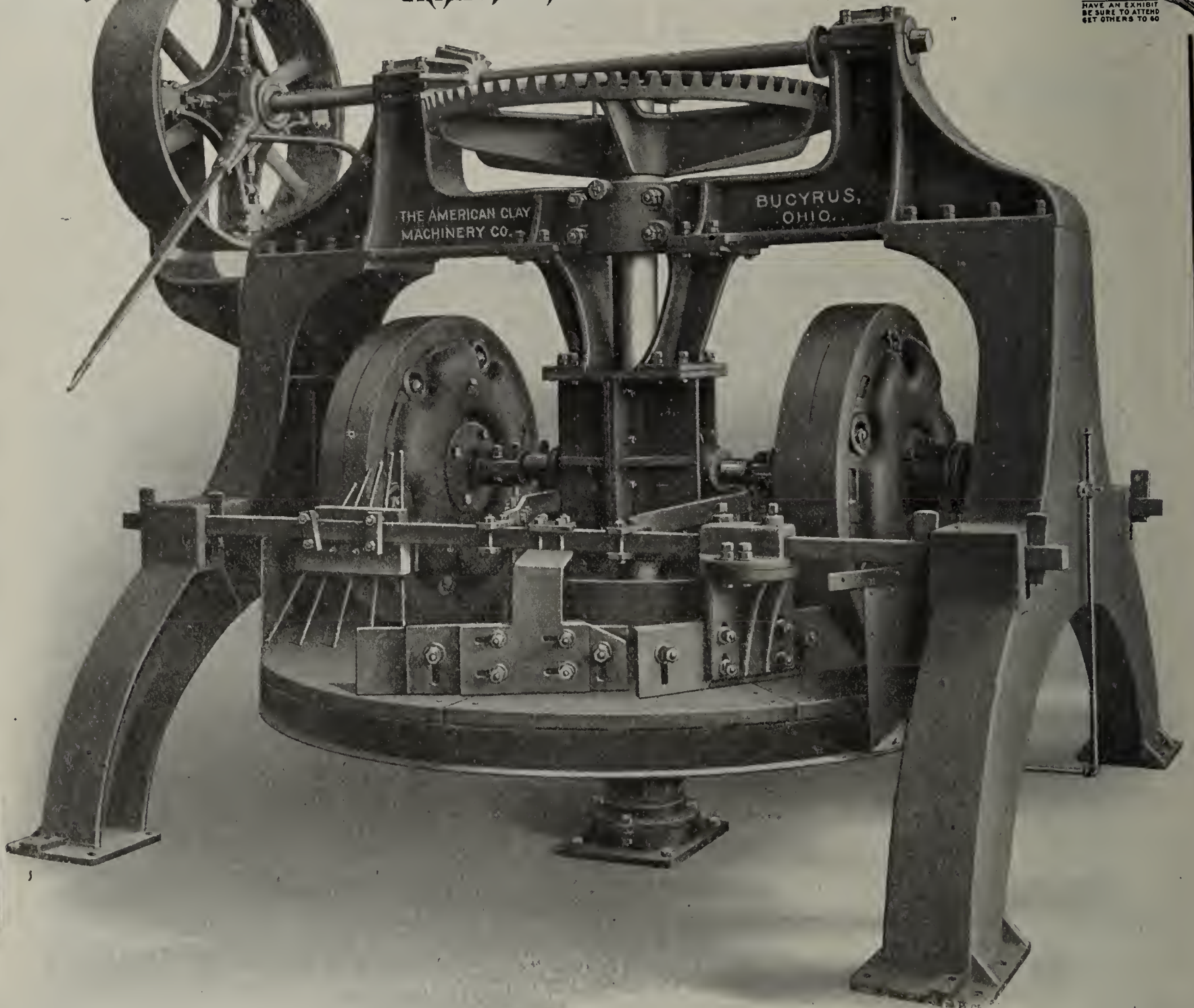
CLAY PRODUCTS SHOW

COLISEUM, CHICAGO

1912 MARCH 1912						
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THIS IS YOUR SHOW
HAVE AN EXHIBIT
BE SURE TO ATTEND
GET OTHERS TO GO

GRINDING MILLS FOR SAND-LIME BRICK



For the manufacture of sand-lime brick, Wet and Dry Grinding Mills do much to improve the quality of the brick and thus popularize this type of brick and extend its market.

Our Special Style F, 9 ft. wet and dry grinding mill, which we have developed for use in the sand-lime brick trade, is made in two sizes, 8 ft. and 9 ft., which designates the diameter of the grinding pan. Where more than one mill is required to obtain the desired capacity, the mills can be furnished either in a duplex setting, where both are joined together, or in single independent settings.

Many features in the construction of these mills are the direct outgrowth of our long experience in grinding silica sands, crushed rock, and similar substances, and more particularly in mixing and grinding sand and lime in their preparation for the manufacture of sand-lime brick. The use of these mills enables the manufacturer to combine the several operations of moistening, mixing and grinding into one, thus greatly simplifying and improving the method of sand-lime brick making. The mills possess the further advantage of so grinding the sand that it is given the sharp and gritty consistency which is essential in obtaining a perfect bond between the sand and lime; and this is necessary to secure a high-grade product. The abrasive action of the mullers, by virtue of which the sand is broken up into sharp angular particles instead of a fine and granular powder, explains the high efficiency of the machine.

By the use of these wet and dry grinding mills the highest quality of brick yet made in the United States has been produced, and factories throughout the country are being rebuilt and rearranged so that the advantages of these special machines may be utilized.

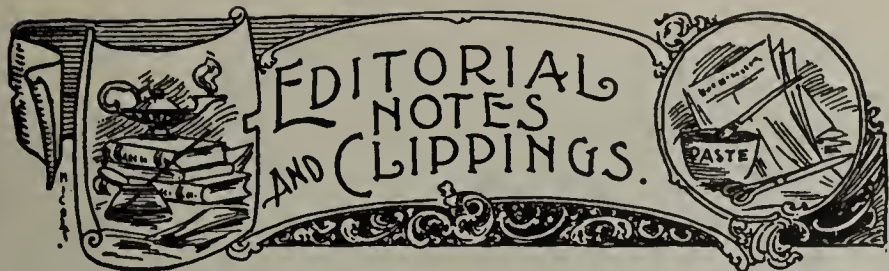
More than twenty of these machines have already been installed in sand-lime brick plants throughout the United States and have in each case proven more than satisfactory.

We build every machine and appliance required for the manufacture of sand-lime brick.

THE AMERICAN CLAY MACHINERY CO.
Willoughby, Ohio



Much the largest manufacturers of Clayworking Machinery in the world. And much the best.



J. V. Warne will establish a brick plant at Winlock, Wash., where he has some good clay lands.

The Alberta Clay Products Company, of Medicine Hat, Alberta, Canada, will spend \$175,000 in improvements at its plant in the near future.

The Hall Brick Company is a new concern recently incorporated at Macon, Ga., by Jesse H. Hall, J. E. Hall and others. The company is capitalized at \$40,000.

The Rector Tile and Brick Company, formerly of Rector, Ark., has changed its name to the Clay County Tile and Brick Company and moved its plant to Piggott, Ark.

Harmon W. Cropsey, president of the South River Brick Company, South River, N. J., died at his home in New Utrecht, N. J., after having been ill but two days. Two sons survive.

H. A. Tagatz, of the United States Manufacturing Company, of Lena, Wis., desires to correspond with the manufacturers of sand-lime brick machinery with a view of installing a plant at that place.

Suit has been brought against the Kittanning Brick and Fire Clay Company, of Kittanning, Pa., by Mrs. Harriet Henry for \$10,000 damages for the death of her husband, who was killed while working for the company more than a year ago.

Edward Martz, for fifteen years manager of the plant of the Hoosier Brick Company in New Albany, Ind., died recently at his home in that city. He had been in failing health for five years, suffering from a complication of diseases.

The Rose brick plant at State Line, near Sharon, Pa., has been purchased by W. C. Taylor as trustee for a corporation that will be formed later for the purpose of enlarging and remodeling the plant. They will manufacture high grade shale paving block and face brick.

Samuel P. Adams, formerly a Harbison Walker district works manager, and before that connected with the Portsmouth and Kentucky and Portsmouth Fire Brick Companies, has been engaged as sales manager by the Pyro Clay Products Company, Oak Hill, Ohio.

The plant of the Winterset Brick and Tile Company, at Winterset, Iowa, was bought in at sheriff's sale recently by a company composed of ten of the old stockholders who held a mortgage on the plant. It is the intention of the purchasers to again put the plant in active working condition.

The Calhoun Clay Manufacturing Company, of St. Louis, has been incorporated with a capital stock of \$300,000. The company has been organized to take over the brick and tile plant and properties near Golden Eagle, Calhoun County, Ill. The company will have offices in the Fullerton building, St. Louis, Mo.

At the first meeting of the directors of the New England Steam Brick Company, of Barrington, R. I., M. J. Houlihan, receiver, submitted an exhaustive report of the indebtedness of the company to be \$243,000, with an assessed valuation on real estate and personal property of \$165,000, besides a business which was not included in the estimate.

The Keokuk Brick and Tile Company, of Keokuk, Iowa, has been granted articles of incorporation. The capital stock of the company is \$50,000, and the incorporators are F. W. Swann, W. F. Scott, P. T. Peckstein, H. J. Spann, J. N. D. Dickinson and others. Mr. Swan is president of the company, Wm. F. Scott, vice-president, and P. T. Peckstein, secretary and treasurer.

Four Iowa brick concerns, the Sioux Paving Brick Company and the Lower Brick Company, both of North Riverside, and the Holman Brick Company, of Sergeant Bluff, and the Cherry Pressed Brick Company, of Correctionville, Iowa, have been consolidated and will be operated under the name of the Clay Products Company, of Sioux City, Iowa. Extensive improvements will be made in nearly all of the plants. The

officers of the new company are G. N. Fairchild, president; D. C. Shull, vice-president, and C. M. Stilwell, secretary.

The A. E. Hill Company, of Crooksville, Ohio, has let a contract for an addition to their pottery plant that will cost in the neighborhood of \$30,000.

The Imperial Clay Company, of Ashbury Park, N. J., has been incorporated with \$125,000 capital stock by C. A. Rogers, A. J. Flynn and G. K. Wilkin.

A dissolution of charter has been granted the Carolina Clay Company, of Georgetown, S. C., which was chartered about two years ago with a capital of \$25,000.

The Cleveland Brick Sales Company is the name of a new company recently organized at Cleveland, Ohio, by P. B., George W. and H. S. Belden, Jr., and others.

The Hill & Karnes Brick Company, of Paducah, Ky., have certified to a change of name and will hereafter operate under the firm name of the Hill & Smith Brick Company.

The Indiana Clay and Coal Company, of Greencastle, Ind., recently elected the following officers: C. W. Bence, president; George Hanna, secretary, and Arthur Reat, treasurer.

Wm. T. Hughes, of Moundsville, W. Va., and W. C. Steward, of Shadyside, Ohio, have entered into a partnership and will erect a plant for the manufacture of enameled brick.

B. F. Hickman, of St. Louis, Mo., contemplates purchasing the Halsey Brick Manufacturing Company plant at St. Joseph, Mo. The plant has not been in operation for some time.

The brick sheds of the Delaware Terra Cotta Company, at Wilmington, Del., were destroyed by fire recently, which is supposed to have been caused by tramps. The loss was entirely covered by insurance.

Michael Kelley has brought suit against the Wabash Clay Company, of Terre Haute, Ind., for \$5,000 damages for the death of his son, Clarence Kelley, which he claims was due to negligence on the part of the company.

The Mehrhoff Brick Company, of Little Ferry, N. J., manufacturers of brick and dealers in building material and supplies, was recently incorporated with \$150,000 capital stock. The incorporators are N. Mehrhoff and H. C. Mehrhoff, both of Little Ferry.

Robert Tutty, an employe of the Hydraulic Press Brick Company's plant at Malcolm Station, St. Louis, Mo., was found with his head crushed in near a machine he had been oiling. It is thought he became faint and fell into the machine and died before help arrived.

G. Gilbertson, of Pelican Rapids, Minn., is investigating clays at Valley City, N. D., with a view of starting a brick plant there. He has been operating a brick plant at Pelican Rapids for some time, but the clay has become exhausted and he is compelled to look for a new location.

The plant of the Douglas Whistler Brick Company, located at Eastvale, Pa., was sold at sheriff's sale to Alexander Dempster, of the Monongahela National Bank, of Pittsburg, for \$50,000. It is understood that the new owners will at once make arrangements to put the plant in full operation.

The Taylor Iron and Steel Company, of High Bridge, N. J., announce that they have opened an office in the Fort Dearborn building, at 105 West Monroe street, Chicago, Ill., which will be in charge of Mr. H. A. Johann. Mr. Johann will be pleased to welcome all clayworkers who are in the market for any material in his line.

The National Fireproofing Company, of Pittsburg, Pa., has acquired the properties of the Great Eastern Clay Company at South River, N. J., and has taken over active conduct of the company's three big plants. The terms of purchase are being protected by an issue of bonds on the property acquired. Acquisition of the new properties, it is stated, will increase the output of the concern 100,000 tons annually. There is to be no increase in the capital stock of the National Fireproofing Company. The Great Eastern Clay Company is known to the trade as the largest individual producer of conduits in the world, having the largest plant for the manufacture of this material, which is used in carrying wires and cables underground. The company also manufactures glazed ware, sewer pipe, building blocks and flue linings. These products are the output of three distinct plants of large proportions. The plants to be merged are eight miles from the big works of the National Fire-

(Continued on next page.)

EDITORIAL NOTES AND CLIPPINGS—Continued.

proofing Company at Perth Amboy, N. J. They have excellent rail and water facilities for shipment.

The brick yard of the Baab Brothers, at Canal Dover, Ohio, was completely destroyed by fire recently. The loss was partially covered by insurance.

W. A. Gossett is at the head of an enterprise which is being erected at Baker, Ore., for the erection of a plant for the manufacture of fire clay products.

John B. Myers, of Lock Haven, Pa., is at the head of the enterprise which will establish a brick plant at New Hope, Pa., to have a capacity of 10,000 brick a day.

James Holliday, a pioneer brick manufacturer of Maysville, Ky., died at his home in that city December 23rd, aged ninety-three. He had lived in Maysville all his life.

Work has been commenced on a new brick plant for the T. B. Townsend Brick Company, at Zanesville, Ohio. They hope to have the plant ready for operation by early spring.

Fred W. Alhorn, of Alhorn & Waller, of Morganfield, Ky., in sending in renewal for THE CLAY-WORKER writes that prospects are very bright for a busy season the coming year.

The brick plant of Shepard Brothers, at Columbus, Ga., was almost completely destroyed by fire, January 6, which started in the engine room. The loss is estimated at \$20,000.

A charter has been granted the Sunnybrook Brick Company to manufacture brick at Miles Mills, S. C. Those interested are Henry F. Lee, R. H. Johnston, J. C. Bauman, Y. M. Mayand T. S. Millford.

P. J. Sheehan, superintendent of the Niles Fire Brick Company, of Niles, Ohio, recently won fourth prize at an agricultural show in Syracuse, N. Y., with an exhibit of Golden Nugget corn which he grew in his own garden.

A landslide of shale at the United States Roofing Tile Company, at Parkersburg, W. Va., recently, resulted in the death of one of its employes, James Brookover. Several other of the employes were working with Brookover, but managed to escape.

George P. Putnam, treasurer of the American Terra Cotta Company, of New York City, was knocked down and badly injured by a taxicab recently. Mr. Putnam is seventy-four years old and for a while it was feared that his injuries would prove fatal.

The Western Porcelain Manufacturing Company, of Spokane, Wash., has closed a deal for the purchase of a new factory site, and work on the construction of the new plant will be commenced at once. It is hoped to have the plant ready for operation by the first of March.

J. F. Denison and W. F. Dodge, of Delaware, Ohio, have purchased the Yoke Vitrified Brick Company, of Coffeyville, Kansas. Mr. Denison, who is an experienced brick man, has moved to Coffeyville and will have charge of the plant. The plant will manufacture the Denison interlocking block and probably later on will make sewer pipe.

The Jackson Tile and Brick Company, of Jackson, Minn., will make a number of improvements in its plant this winter, including the building of a new steam dry shed which will hold eighty triple deck dry cars, and the installation of sufficient machinery to increase the output of the plant from 20,000 to 50,000 brick daily. A large shed for the storing of clay will also be erected. S. G. Cass is manager of the plant.

The New York Coal Company, of Columbus, Ohio, has purchased the plant of the Kerlin Brick Company, at Logan, Ohio. The plants have been idle for some time but will be started in the very near future with a full force of men. E. M. Poston is general manager of the New York Coal Company and will have charge of the operation of the new plant. The company at Kerlin will be known as the Logan Brick Company.

Louis M. Nonnemacher, a pioneer brick manufacturer of Allentown, Pa., died suddenly at his home, December 22, following a brief illness. He was sixty-nine years old and had been engaged in the manufacture of brick nearly all his life, having first entered the business with his father and grandfather. About twenty-five years ago the original brick yard was abandoned and the new one established, which is still in operation. It is now conducted by William Hausman, who leased it from Nonnemacher a number of years ago when he retired from active business life.

Written for THE CLAY-WORKER.

NEW YORK AND VICINITY.

PERHAPS quite the most important feature in the eastern situation at the opening of this year is the increased demand for brick. Where for years it has been neglected and in many instances it has seemed as though cement and its compounds was driving it out, this year opened with almost everyone ready to admit that brick is the most important of all building material, and in the long run the cheapest.

A good many influences have contributed to this improvement. The organization of the Greater New York Brick Company and its propaganda concerning the use of brick has been, perhaps, one of the most important. Builders have had their attention diverted, for the time at least, to the possibilities for permanent construction which abides in brick.

Cement failures under widely varying conditions have exerted more influence upon the public than has seemed probable. The constant recurrence of these disasters, with their resulting loss of property and life, have roused the more thoughtful portion of the public to the menace of cement construction. Then when the promoters of increased sales and use of brick began to advertise its advantages, the public was in the mood to be convinced.

Prices are higher in the eastern market than ever before at this season, with a few exceptions. No common brick can be bought below \$7.00, and it is promised that they will not go below that figure. There is a fair profit in this price for the manufacturer. Not as much as there would have been a few years ago, for the cost of production has increased, but the profit is still sufficient to enable him to clear himself and something beside. With the selling end under firm control, there is assurance that the future holds further opportunities for development and increased profits. With such a prospect, manufacturers will be encouraged to go forward and develop their business to the utmost.

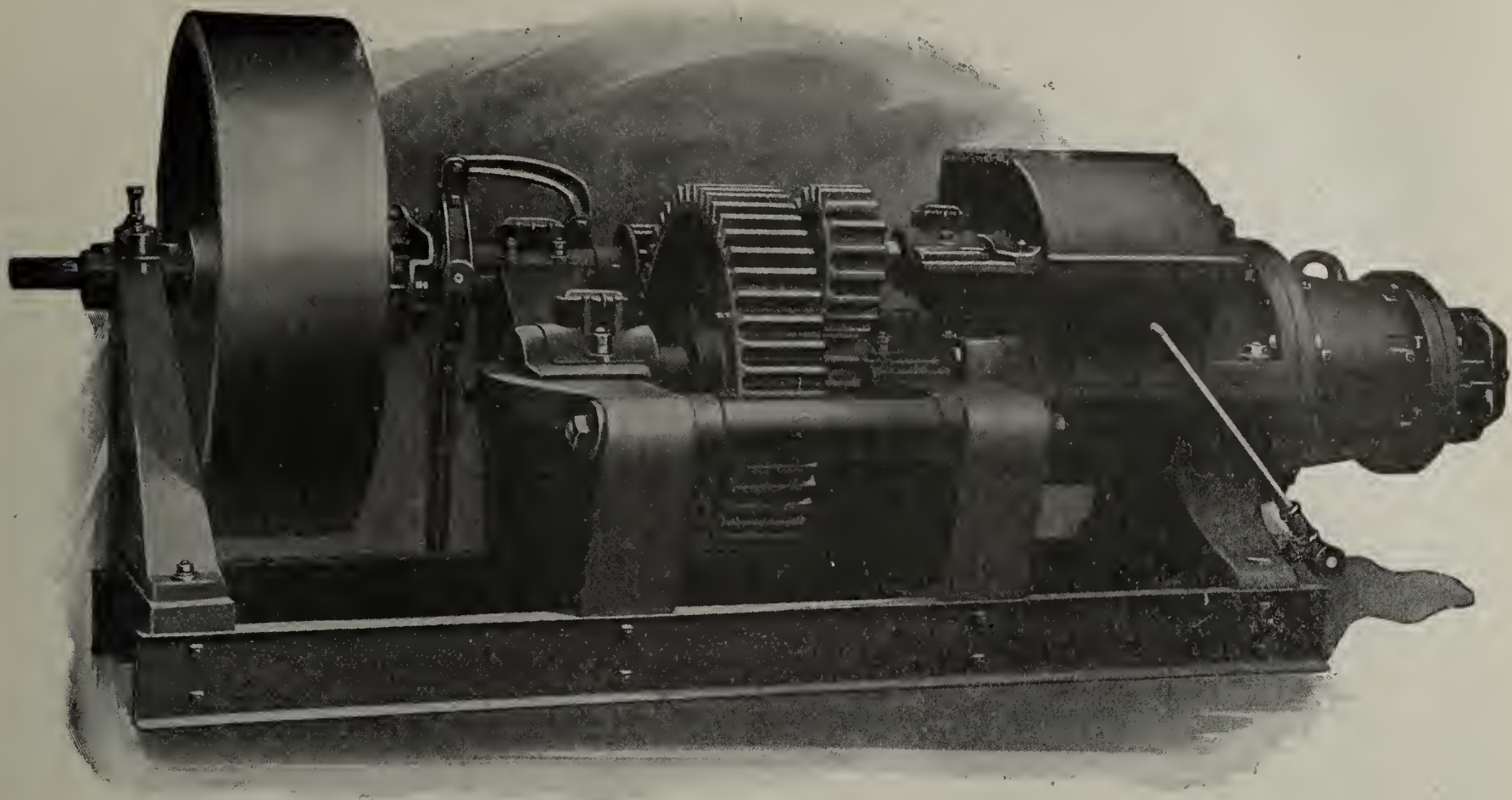
Already manufacturers are talking of improving their plants. It seems to be their aim to turn out better, not more, brick. In this way, they say, lies the possibility of steady increase in sales. Builders are no longer content with mediocre or poor quality product. Only the best is wanted; and apparently the situation will be permanent. The market has improved and manufacturers have been progressive enough to see their opportunities and improve their product proportionately.

Builders say that with quality held up there will be no difficulty in obtaining price. They are quite willing to pay a fair figure for what is really good stock. The difficulty has often been with the poor brick offered. They say, too, that demand will increase with the improvement in quality, and look for an increase in sales with the opening of the new season. The price doesn't seem to offer any insuperable difficulties. Indeed, this phase is scarcely ever mentioned.

In and about New York, demand has been greatly helped by the outlook for better building operations in the future. Probably all will admit that some measure of reform is necessary, but a reform that paralyzes business is at best questionable, and some reforms have done that.

What is needed now is hearty co-operation on the part of all brick makers in the eastern part of the country. All price cutting and similar unbusinesslike methods should cease. There should be an endeavor on the part of all engaged in the business to do their part toward building up the industry as rapidly and substantially as possible. The time for temporizing with such matters has passed. The success in New York is sufficient evidence that the industry can be put upon a basis of profit and confidence. A fair price, allowing to manufacturers sufficient profit to compensate them for their investment and their work, will be paid without question by consumers who want good brick. They are quite willing to pay what is fair and right. But they don't want to find a liberal proportion of poor brick among what they buy. With the improvement in stock an additional firmness in price will cause a greater stability in the business as a whole. The year begins very favorably for the manufacturers. If they do not reap the benefits it will be their own fault.

A. L. B.



Model "GA" Auger Brick Machine

In general design, this machine is similar to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and avoiding the use of high speed gears. The result is less wear and tear on gearing, less noise, less power lost through gear friction and consequently less expense for maintenance. Owing to the slow speed, the operation is unusually smooth and quiet. There is very little vibration to work loose nuts and keys. It is a reasonable conclusion that an almost noiseless machine will require less care and last longer than one which is continually shaking itself to pieces.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled for the foundation bolts, thus providing a very rigid construction. The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

This type of machine is built in several sizes—further particulars on request.

E. M. FREESE & COMPANY, Galion, Ohio

See ads on pages 216-219.

Written for THE CLAY-WORKER.

PHILADELPHIA BRICK AND BUILDING NEWS.



THE AMERICAN Enameled Brick and Tile Company, Hale building, is finishing up some contract work for the city of Philadelphia. This work consists of a police station at Twenty-eighth and Oxford streets, a public bath house at Fifty-seventh and Summer streets, a truck house at Huntingdon and Belgrade streets, and a playground building at Fifty-sixth and Christian streets.

The new plant of the McLain Fire Brick Company, at Snowshoe, Pa., has just started operations. The factory will turn out something like 20,000 fire bricks a day, and Mr. H. E. McLain, head of the company, intends to specialize on linings for blast furnaces.

Mr. Joseph Mack, of the Hamburg Vitrified Brick Company, Land-Title building, has been traveling through the western territory.

The National Fireproofing Company, manufacturing Natco bricks, is figuring on the large addition to be built to the Bellevue-Stratford hotel at Atlantic City, N. J., which enterprise P. A. B. Widener, the traction magnate, is backing. Mr. E. E. Nickson, of the Philadelphia office, says that business prospects are bright for this year. "We completed some big work last year, the Packard building and the Presser building, for instance, and we are hoping to duplicate our success this year," said Mr. Nickson.

A large flywheel on one of the engines at the plant of the McAvoy Vitrified Brick Company, at Perkiomen Junction, Pa., jumped off while running at full speed and completely wrecked the engine. Fortunately, no one was hurt, but the damage done to the plant was extensive.

"The closing of the Tradesman's Trust Company, the failure of the firm of G. W. & J. M. Zane, and the death of Mr. John Megraw has thrown so many small houses upon the market, for which there seems to be no demand, that the building trade is almost demoralized. By the failure of the Tradesman's Trust, investors have had their eyes opened as to the small equity carried by builders in their operations, and as a result money for financing purposes has become very scarce," said Mr. E. C. Watson, of the Jarden Brick Company, Land-Title building.

The building erected by the William S. Steele & Sons Co., at Eleventh and Ludlow streets, for the Horn & Hardart Baking Company, is the first example of building in Philadelphia using polychrome tile work. In New York, a few of the newer buildings have used this form of decoration, but this is the first time that any local builder has attempted the difficult task of using this facing material. The color scheme in this particular case is green and buff upon cream, and is a very striking combination of tints. The tile was furnished by the Atlantic Terra Cotta Company, with factories at Perth Amboy, N. J. Mr. C. T. Myers, the local manager, is enthusiastic over the work done by his firm, both here in Philadelphia and in New York, where two handsome buildings are now being completed.

S. B. Dobbs, 1218 Chestnut street, who is the sole selling agent of the Atlantic Brick Manufacturing Company, with plants at Mays Landing, N. J., says he delivered about 7,000,000 bricks last year for this company. "Some of the important work which we are now serving," said Mr. Dobbs, "is the Scottish Rite Temple, Washington, D. C.; the Fidelity building, Baltimore, Md.; the Royster apartments, Norfolk, Va.; the Curtis building, Philadelphia, for which we furnished 2,250,000 impervious brick for interior finish, and the St. Patrick's Roman Catholic church, Philadelphia, which required nearly 500,000 gray tapestry No. 2 brick for both exterior and interior finish. We have also furnished mu-

nicipal contracts during the year in both face and paving brick. The prospects for the year are good. We are increasing our force and are making preparations for a strong demand in our line. Two features in the brick line which demand special mention is the increasing call for tapestry brick for high class work, and the demand for face brick for interior finish. This idea combines beauty, durability and perfect sanitary conditions, and is coming in favor more every day."

John Wanamaker, the merchant prince of America, began his working life as a passer in a brick yard in the classic environs of Philadelphia known as "The Neck." On December 30, the President of the United States, the mayor of Philadelphia and 30,000 other citizens set aside all other concerns to do honor to the brickyard boy, who had just completed his golden jubilee in business. The commemoration ceremonies lasted less than three hours and cost Mr. Wanamaker upwards of \$100,000, or about \$33,333.33 an hour. No such tribute was ever before paid to a merchant by the American or any other people. A foreign power sent a decoration to Mr. Wanamaker, and rivals in trade advertised their felicitations at great cost. The affair marked an epoch in retail trade and demonstrated the possibilities of American life—a brickyard boy, friendless and alone, crowned a merchant prince with a fortune of \$50,000,000 and 18,000 employes.

All the brick manufacturers in Philadelphia have been notified to file a sworn statement before January 15, setting forth in exact detail the gross business done during the year 1911, on penalty of suit and a heavy fine. The schedule is required for the purposes of mercantile tax.

Those who ship brick south of Richmond, Va., will be pleased to learn that the Philadelphia and Gulf Steamship Company will soon add two new ships to its fleet.

Director Cooke, of the department of public works, has petitioned the city council to so amend the annual appropriation bill so as to permit the employment of non-resident experts to pass upon bricks, tile and all similar supplies bought by the city of Philadelphia. The privilege will be extended. This paves the way for real inspections and for fair competition.

The bricklayers' union, Pottstown, Pa., has adopted a scale of forty-five cents per hour and a nine-hour day for 1912.

The steamer Montawk Point, of British register, was docked at this port on January 5 after a most severe voyage from Fowey. The cargo was china clay. Captain Reasley feared the loss of the vessel several times and had the life boats ready for a get-away in the event of the Montawk Point foundering. The men were at the pumps continuously from December 27 until January 5.

The American Enameled Brick and Tile Company has registered to do business in Pennsylvania. The Philadelphia office will be in the Hale building.

The Yellow Rock Pottery Company is defendant in a suit brought by O. A. Shingleton, who alleges breach of contract.

The Excelsior Brick and Stone Company has been dissolved by order of court on petition of the majority interest in the corporation.

Murrell Dobbins, the brick manufacturer, who serves as treasurer of the city of Philadelphia, has issued a formal notice that he will not accept \$4,000 a year voted to him for collecting the school tax. It is an open secret that he hoped he could take the money and spend it on the public trade schools, but when he learned that he would not be permitted to do this he said they could keep the money and a few other things not usually printed in a family newspaper.

A. QUAKER.

F. JULIUS FOHS MINING GEOLOGIST AND ENGINEER

Special Attention Given to Examinations of Clay Properties,
Mines Located, Plants Designed and Efficiencies Increased.

LEXINGTON, KY.



Barrett's PAVING PITCH



Cherry Street, Macon Ga. Brick with Barrett's Paving Pitch applied in 1898. "Never repaired. Still good as ever."

Paving Fillers Compared by an Expert

In a letter addressed to the Editor of Municipal Engineering Mr. R. M. Adams, of the Detroit Vitriified Brick Company, compares pitch and cement grout fillers. His conclusions, he states, are based on an experience in street paving of about forty years and in brick paving in particular of upward of twenty years. In his opinion Paving Pitch is a far more desirable filler for brick pavements than cement grout.

He gives the following reasons for his preference for Pitch Filler: "Pitch is the only filler that will penetrate and fill all the interstices of the brick. . . . (It) makes a thor-

oughly waterproof pavement; prevents absorption; prevents frost, one of the greatest enemies of brick; prevents granulation, rotting, etc.; gives room for all expansion; lessens the noise 50 per cent. and takes away all disagreeable rumbling sound; (it) withstands the action of street flushers. . . . By the use of Pitch any good brick will not show wear to any great extent for a period of eight or ten years under heavy traffic "

We can quote many instances where Pitch Filled pavements have lasted upward of 20 years with satisfaction. No other filler can show such a record.

Booklet on request.

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The BOSS TEN HOUR DRYER

is completed and has proven to be what every brick-maker is striving for:

A DRYER THAT WILL DRY BRICK IN TEN HOURS.

Your brick are dried exclusively with the exhaust from the engine that makes the brick. No extra fuel and no extra power required.

A dryer that does not have to be operated at night time.

Requires no expensive dry kiln, and no iron cars.

Cost of drying reduced to less than 4 cents per thousand.

TRIAL TESTS CAN BE MADE ON APPLICATION.

ORIGINAL
Boss
SYSTEM

JOHN C. BOSS COMPANY
Write for catalog.

ELKHART, IND.

ORIGINAL
Boss
SYSTEM

BURNING

Do you want to burn hard coal, culm, lignite, slack or screenings? There is just one way to do it, and that is by using air under pressure, which is

The BOSS System of Burning Brick

Burns all kinds of Brick and Clay Wares.

Applies to both Up-draft and Down-draft Kilns and

Will reduce your fuel cost fully 40% over the old way of burning.

Kilns last longer and give better service when equipped with the BOSS SYSTEM.
Try it.

ORIGINAL
Boss
SYSTEM

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Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

FOR SALE

FOR SALE—16,000 lath pallets in first class condition.

JAMES C. RILEY,
12 3 cm Bloomington, Ill.

FOR SALE.

Five 60-chamber 30 in. square filter presses in first-class condition. Address BOX 1—LANDS,
1 1 d Care Clay-Worker.

FOR SALE.

All machinery and power complete for a 40,000 capacity plant for the manufacture of sand-lime brick. Address BOX 12—IOWA,
12 3 cm Care Clay-Worker.

FOR SALE.

One Steele No. 3 auger brick machine, one pug mill, one end-cutting table. All in very good condition and price reasonable. If interested, address C. E. FROST,
1 1 cm Athens, Ala.

FOR SALE.

A Bargain for Some Brickmaker.
A complete plant for making 20,000 mud brick per day. Will sell at a bargain, as we have quit the business. Address EDW. E. McKNIGHT,
1 1 cm 120 St. Nicholas Ave.,
Dayton, Ohio.

FOR SALE.

Chambers' brick machine with edger. Scott 9-foot dry pan, grate bars, kiln doors and frames for 12-arch kiln. Standard steam register, steam drill and ten horsepower boiler. All in good condition. GEO. C. MORGAN,
1 1 dm Kushequa, Pa.

FOR SALE.

Best brick yard property on the Hudson River, 90 miles from New York City; 93 acres.

Unlimited supply (conceded by all experienced brick men) of very superior raw material, easily and cheaply handled. Good dockage and close to New York market; \$85,000 was refused for this property a few years ago. Can be bought for about half this price today. Address LOCK BOX 107,
1 1 d Care Clay-Worker.

FOR SALE.

A two-kiln brick and tile plant in eastern Iowa.

DE WITT BRICK & TILE CO.,
11 8 c DeWitt, Ia.

STEAM DRY PAN FOR SALE CHEAP

Practically new; only 60 days' use; 60 inches wide by 55 feet long; 3-inch steam space; pan good for 100-pound pressure; has drag chain, complete, to stir and drag the material over the pan. This pan is suitable for drying clays, shales, brick and minerals. Will sell cheap.

TAMMS SILICA CO., Tamms, Illinois.

FOR SALE.

New Centennial brick and hollow ware machine, Madden & Co. hollow ware and brick machine, transfer cars, hollow tile-cutting table, hollow block or conduit cutting table, semi-automatic cutting table, 11 ft. off-bearing table, 10 ft. pug mill, 9 ft. dry pan, clay elevator, 115 double deck dryer cars, mine friction hoist, wagon scales, 3,000 ft. 12-inch T rail. Full equipment shafting, hangers, pulleys, belting, mine cars, etc. Must be moved at once regardless of price.

BRAZIL WRECKING CO.,
11 tf d Brazil, Ind.

\$200,000 BRICK PLANT AND CLAY LANDS TO BE DISPOSED OF AT ONE-SIXTH THEIR VALUE.

This plant is located in New York state and is the only plant of its kind within a radius of 100 miles. Consists of ten down-draft kilns with 1,200,000 capacity, two dry presses, complete stiff mud outfit consisting of Freese (Mammoth) machine and cutter, dry cars, etc.; 100 acres clay land owned outright; power plant in good condition; water supply on the premises. Excellent reasons for selling and attractive terms to the right party.

C. E. BENNETT,
1 tf dm Wellsboro, Pa.

FOR SALE \$12,500

Large acreage of tested Brick Clay.

Location: Forty-five miles east of New Orleans, fronting half mile on main line of L. & N. R. R., and on tide water bayou.

Chambers Brothers Company tested on one of their End-cut Auger Brick Machines, 9-foot continuous strata, including top soil, reporting that the clay tested produced good building brick, with deep red color, and that on this material their machine would give its full rated capacity.

A body of good brick clay in that alluvial and sandy section amounts to a practical monopoly. Address MONT EYRIE ORCHARDS,
Blount Springs, Ala.

FOR SALE.

250 horsepower Corliss engine, 1½-yard steam shovel, Chambers brick machine and clay granulator. All in first-class condition. C. CHASE,
1 2 d Russell, Ill.

BRICK MACHINERY FOR SALE.

190-ft. section Jeffrey No. 110 chain pan conveyor, two 7-ft. and one 9-ft. Penfield dry pans, Penfield No. 20-A plunger brick machine, Penfield sewer pipe press, Raymond Columbia steam repress, 13 Carnell hand represses, 237 double six-deck brick cars (33-in. gauge) for Sharer dryer, 7 transfer cars, 4 turntables, portable track, 100-lights Colt's acetylene gas machine, two 80-h. p. Fitchburg boilers, pulleys, shafting, etc.

THE POWHATAN CLAY MFG. CO.
11 4 d Richmond, Va.

FOR SALE.

REBUILT ENGINES AND BOILERS.

Engines—Corliss.

18x42 Lane & Bodley, 18x36 Ohio Heavy Duty, 16x42 Allis, 14x36 Sioux City, 12x30 Lane & Bodley, 12x30 Hamilton.

Engines—Automatic.

14¼x24 Buckeye, 11x16x12 Buffalo compound, 13½x15 Taylor, 13x16 Atlas, 13x12 Harrisburg-Ideal, 13x12 Phoenix, 12x14 Green, 12x12 Armington & Sims, 11x16 Atlas, 8x14 Noyes.

Engines—Throttling.

18x24 Atlas, 14x18 Sinker-Davis, 14x14 Lewis vertical, 12x16 Reed, 12x14 Brownell, 10x16 Bass, 10x12 Atlas, 9x14 Lane & Bodley, 8x10 Erie, 6x8 Industrial.

Boilers—Stationary.

72x18, 66x16 high pressure, 72x18 standard, 72x16, 66x18, 60x16, 60x14, 54x14, 48x14, 44x14, 44x12, 42x12, 36x16, etc.

Boilers—Fire Box.

100, 80, 60, 50, 40, 35, 25, 20, 16, 12, 10 and 8 horsepower, etc.

Boilers—Vertical.

50, 40, 35, 30, 25, 20, 16, 12, 10, 8, 5 and 3 horsepower, etc.

Heaters.

All sizes, open and closed.

Pumps.

All sizes, single and duplex.

Electrical.

30 k. w. generator, direct connected to 8x10 Skinner engine; 20 k. w. generator, direct connected to 8x10 Economic engine; 18 k. w. belted generator.

Miscellaneous.

Saw mills, lath mills, edgers, cut-off saws, resaws, blowers, exhaust fans, tanks, etc. Write for list. Also a full assortment of new machinery. Sole manufacturers of the celebrated "Leader" injectors and jet pumps. Send for circular.

THE RANDLE MACHINERY CO.,
1733 Powers St. Cincinnati, Ohio.

(Continued on next page.)

Classified Advertisements.

FOR SALE

FOR SALE—Dodge drive pulley, five-foot diameter, 33-inch face, iron center, wood-face split. Several others at bargain prices.

ATLANTIC MFG. CO.,
12 2 d Wilmington, Del.

FOR SALE.

One three-kiln tile plant in Ohio. Everything new and most modernly equipped. Good clay and excellent market. Bad health reason for selling. Address
BOX 6—B. T. CO.,
6 tf d Care Clay-Worker.

FOR SALE.

A first class tile factory to be removed. Reset it and it is ready to run. Factory is complete and a going concern. Can make tile from four to thirty inches in diameter. Capacity, \$100,000 per annum output. Not necessary to build or operate to present capacity. Profits are prodigious, Central and Southern Illinois and many other localities good. Particulars from
EDGAR M. HEAFER TILE CO.,
11 4 cm Bloomington, Ill.

FOR SALE.

Brick plant, 123 acres of clay and shale, some fire clay and coal. Capacity, 44,000. Canton, Ohio, in center of paving brick district. One of the best propositions in the territory. Railroad siding. Will sell plant as it stands. Hollow block building, two houses, machinery and equipment. Splendid opportunity for paving and face brick manufacturer. For terms of sale, address,
T. TURNBULL, JR.,
835 Western Ave., N. S.,
11 3 cm Pittsburgh, Pa.

FOR SALE.

1 Berg 4-mold dry press.
1 Frey-Sheckler combined brick machine, No. 23.
1 American No. 25 Automatic cutter.
2 Raymond 9-foot pug mills.
1 Bevel gear winding drum.
3 Wood side-dump clay cars.
1 No. 777 Raymond auger machine.
3 Victor represses.
2 Piano-wire screens.
THE FORT SCOTT BRICK AND TILE COMPANY,
12 tf d Fort Scott, Kansas.

WANTED

WANTED.

12,000, more or less, wooden pallets, size 34 in. by 10 in. Must be in good condition. ADAMS BRICK CO.,
1 tf d Indianapolis, Ind.

WANTED—DRYER CARS.

We are in the market for 300 second-hand, single-decked brick cars. Address,
ELDORADO BRICK CO.,
1 1 d Eldorado, Ill.

WANTED.

First-class brick salesman for middle west. Give references. State age and salary expected.

BOX 1—WORTH,
1 1 d Care Clay-Worker.

WANTED—Position as superintendent or manager by one skilled in every detail of brick manufacture. The best of references. Address

BOX 11—L. I. H.,
11 tf d Care Clay-Worker.

WANTED—Position as superintendent or head burner of a continuous kiln or any periodic kiln. Can use any kind of fuel, also glazing. References. Address

A. K.,
20 W. Wash. St.,
1 1 cm Norwalk, Ohio.

WANTED.

To sell an interest to party or parties competent to take full charge and management of a large street paving plant and two coal mines, both mines equipped with compressed air machinery. Mine and ship our own coal. Address
A. B. CHARLES,
12 3 c Care Clay-Worker.

WANTED.

Addresses of manufacturers of presses with automatic feed, for production on a large scale of small Tesserae for mosaic floor covering. Purchase and sole representation for Germany desired. Offers under J. R. 14876 will be forwarded by RUDOLF MOSSE, Berlin, S. W. Germany.
1 1 d

WANTED—WORKING PARTNER IN BRICK PLANT.

One who can purchase an interest and practically competent to take charge, at a good salary, in a stiff mud and dry press plant with machinery capacity of 20,000 per day, but handicapped by reason of limited kiln capacity. At present burning exclusively fire brick and have refused more orders this year than have been filled. Purchase money to be invested in increase of plant and output. Will entertain sale of entire plant, but would much prefer a desirable associate. The plant is exceptionally well located in the very center of the industrial district of Los Angeles City. References required and given. Address
BOX 12—LOS,
12 2 cm Care Clay-Worker.

WANTED.

A clay pulverizer. Must be in good condition. Give name of manufacturer; state capacity of machine, how long in use, and quote lowest spot cash price. Address
BOX 10-K,
10 tf d Care Clay-Worker.

TO LEASE.

Stiff mud brick plant fully equipped, good location, plenty of water, red clay, sand and fire clay. Can make all kinds of front brick. Freight rate in Illinois, Iowa and Missouri. Must be a practical front brick maker. Will lease for royalty or per cent of profit. Give references, age, nationality and experience. Address,
BOX 1—PRODUCTS,
1 1 d Care Clay-Worker.

WANTED.

Superintendent at present in charge of a large paving and face brick company desires change, and would like to connect with a large progressive concern where services of a live wire as manager will be appreciated. Only those needing services of high grade man need answer. Would invest small amount as guarantee of good faith. Gilt edge references. Address
BOX 12—ST. LOUIS,
1 1 d Care Clay-Worker.

AN OPPORTUNITY.

To get in touch with a manager who wishes to change companies. Graduate ceramic engineer, ten years' experience in paving and facing brick, fireproofing and hollow ware. Expert on producer-gas-fired continuous kilns. Finished designer, erector, systematizer, salesman. Can make a proposition pay. Will invest as a guarantee of good faith and capability. Address,
BOX 1—H. K. C.,
1 1 cm Care Clay-Worker.

A Burning Question!

HAVE YOU TROUBLE
With Hot and Cold Spots When
Burning Up Draft Kilns?

I have a very simple and inexpensive method of securing a uniform burn throughout the entire kiln. Equally good as a fuel saver. It will pay you well to write for information.

ROBERT TWELLS,
WALNUT HILLS, ILL.

Classified Advertisements—Continued.

MISCELLANEOUS

CASH FOR YOUR PLANT OR BUSINESS.

No matter where located. If you want to buy, sell or exchange any kind of real estate or business anywhere, at any price, address

FRANK P. CLEVELAND,
965 Adams Express Bldg.,

Chicago, Ill.

AN OPPORTUNITY.

A well equipped front brick plant in a good southern city desires to increase its business. A satisfactory party with \$10,000 to invest will receive a good position. Particulars furnished on application. Address

BOX 12—LON,
Care Clay-Worker.

GET INTO THE ROOFING TILE BUSINESS.

It is the coming business and here is an opportunity for it at less than half price, with almost complete outfit and an abundance of clays that make the best of this product. It is worth your investigation. Address

A. H. MURRAY,
Cloverport, Ky.

TO LEASE.

A dry press brick plant located on the C. & O. R. R. and Kanawha river. Natural gas and plenty of clay which will make fancy brick, coke oven tile, shingle tile, etc. Clay brought to crusher by aerial twin rope tramway, operated by gravity. Address,

BOX 1—W. A. B.,
Care Clay-Worker.

See additional ads under Table of Contents.

WANTED.

Position as superintendent or burner on building brick plant. Thorough in all branches.

M. C. WILLIAMS,
701 N. Gibson,
Princeton, Ind.

RED SHALE BRICK PLANTS
for
SALE, LEASE or to OPERATE
on
ROYALTY BASIS.

The four shale brick plants of the Montello Brick Company, Reading, Pa. Product: Vitrified street paving block, sewer and building brick; are offered for sale, lease or to operate on royalty basis, either in a group or separately. Easy terms of sale, or sliding scale of rental, or royalty upon production, with proper security, will be considered. Proposals invited. Address

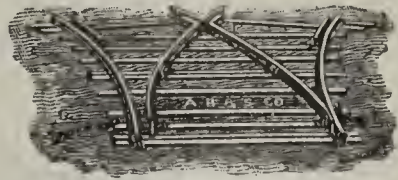
MONTELLO BRICK CO., Reading, Pa.
H. L. Boas, Secretary.
W. W. Light, Treasurer.



Newton Portable Wheelbarrow System.

Brick Plants equipped with this system are insured with the advantage of doing away with pitching and catching brick in and out of kiln. Send for circular and prices.

A. C. NEWTON,
Pat. Aug. 9, 1909. CRESCENT, N. Y.



SWITCHES FOR SALE.

Right and left-hand one, two and three-way switches of various gauges, radius and weight rails at special prices. THE ATLAS CAR & MFG. CO., Cleveland, Ohio.

See additional ads under Table of Contents.

WESTERN AND PACIFIC COAST
CLAYWORKERS ATTENTION

Clayworks engineering. Plans for common, face and paving brick, sewer pipe and pottery plants; for dryers; for up-draft, down-draft, continuous and other kilns. Clay deposits examined and tested. Machinery installed and operations supervised. Clayworkers' appliances, such as Engelhard pyrometers, Bristol recorders, draft gauges, watchman's clocks and others.

GEIJSBEEK ENGINEERING COMPANY,
Blake-McFall Bldg. Portland, Oregon.

PATENTS

secured in the United States and foreign countries. TRADE MARKS registered. Investigations, opinions and advice in regard to patentability and infringement.

WATSON & BOYDEN

Patent Attorneys

918 F St., Washington, D. C.

EXPERIENCED BRICKMAKER WANTED

There is an excellent opportunity in the State of Georgia for an experienced brickmaker to become part owner in an already well-established plant, with a capacity of 40,000 brick per day. There is an unlimited amount of the finest brick clay land, a full quota of brick kilns, and all necessary machinery for successfully operating the plant. This is a very promising opening for the right man, who can take some financial interest at the start.

In answering please give full experience, and state amount of capital you would have at your disposal. Refer to File 9894, and write

M. V. RICHARDS,

Land and Industrial Agent Southern Railway, Room 1369, Washington, D. C.

Locations for all kinds of manufacturing plants, where power is cheap and labor plentiful, can be found in the states of Va., N. C., S. C., Tenn., Ky., Southern Ill. and Ind., Miss., Ala., Ga., and Fla., along the lines of the Southern Ry.

YOU CAN'T FADE THEM

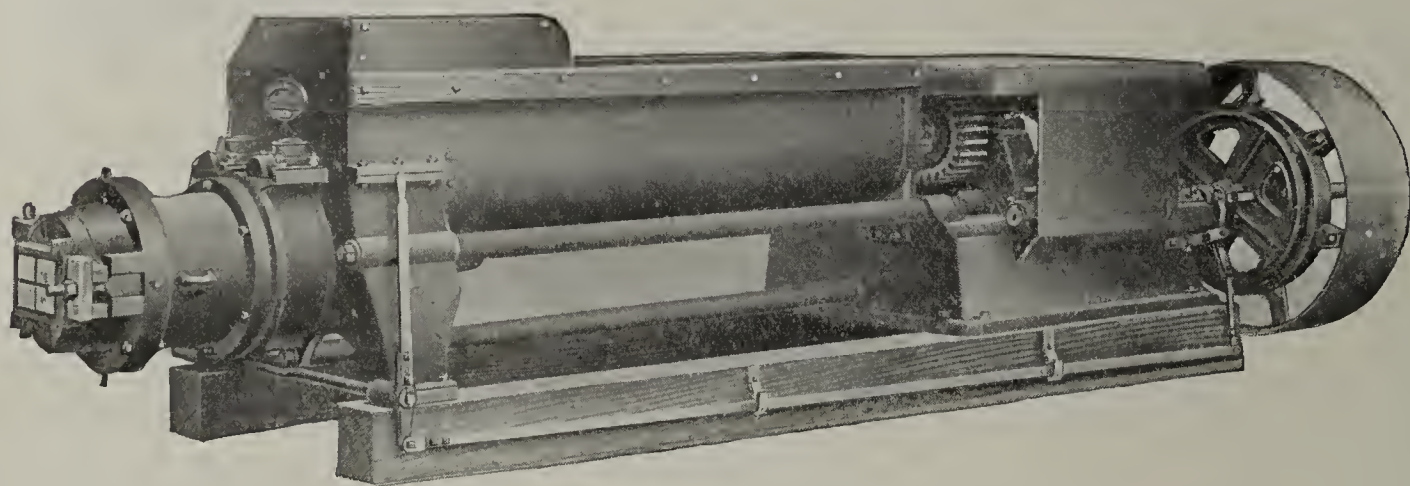
RICKETSON'S MINERAL PAINT WORKS, MILWAUKEE, WIS.

RICKETSON'S PURE MINERAL Colors

The "Red Brick" brand. Brilliant in tint; easy to mix, go farther than any other and

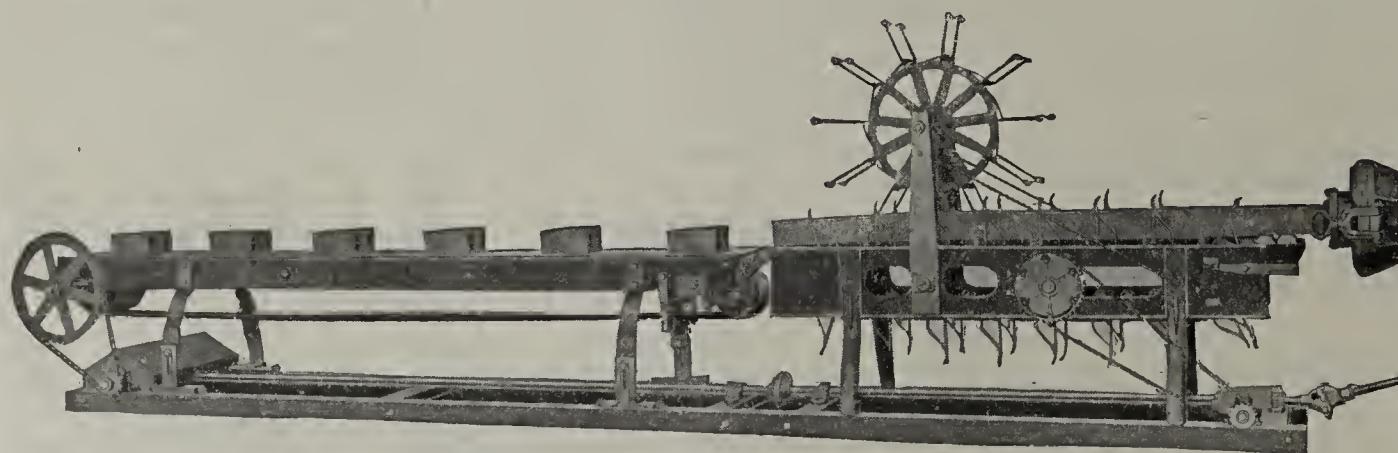
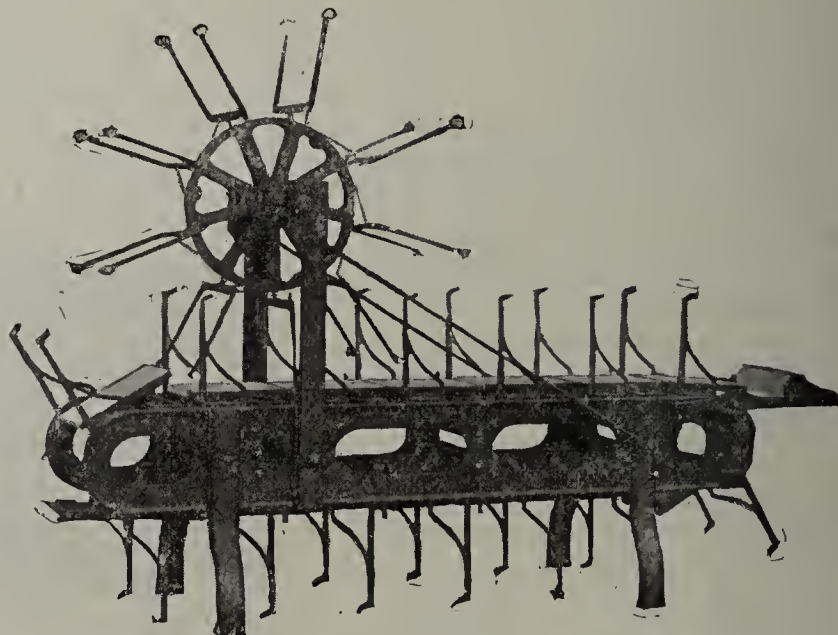
none like them for Brick, Mortar, Cement, etc. Red, Brown, Purple and Black.

MODERN IDEAS FOR THE SUCCESSFUL



Special Premier Fire Proofing Machine, equipped with special set of nozzles and augers for large sizes and also one for small sizes. The most up-to-date machine for this purpose on the market.

Standard Bensing Automatic Tile Table, fitted with platens for cutting hollow blocks and fire proofing from 4 in. x 9 in. to 10 in. x 12 in. Can be furnished to cut any length from 12¼ in. to 14 in. long.

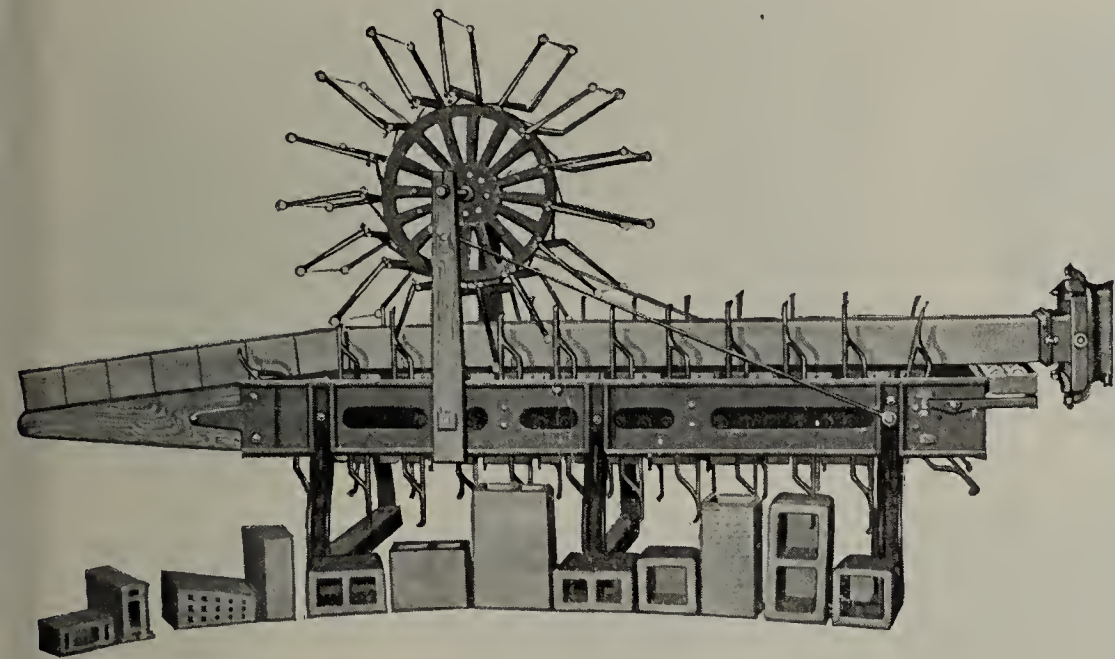


Standard Bensing Automatic End Cut Brick Table with friction driving device and belt delivery. The only really successful arrangement for cutting light weight hollow brick.

The J. D. FATE COMPANY

A. E. Davidson, Western Representative
Manufacturers Equipment Co.

MANUFACTURE OF FIRE PROOFING WARE

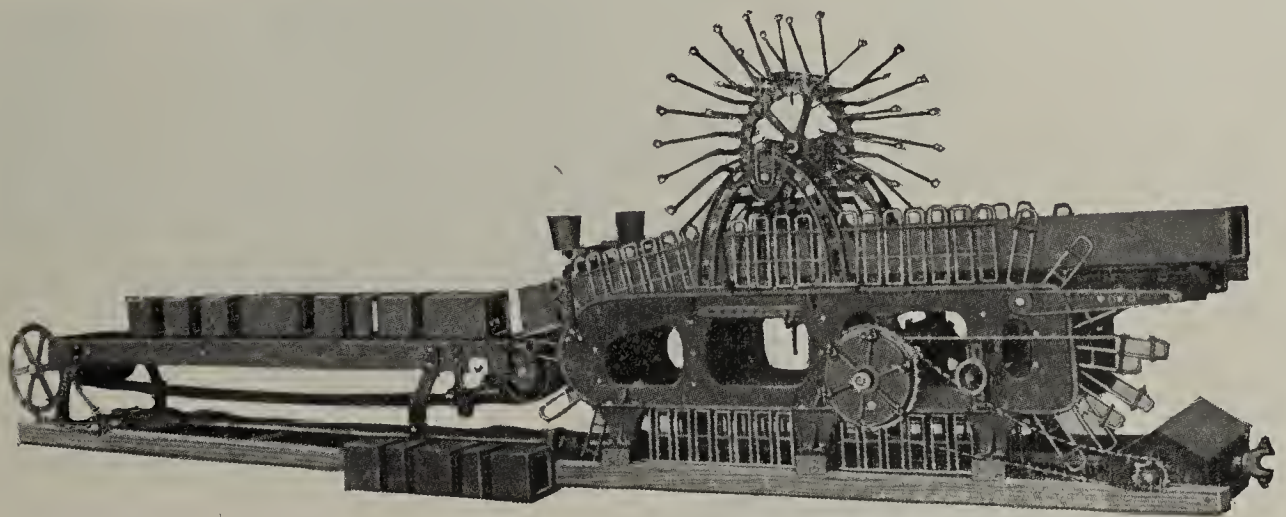


Special

Bensing Automatic Table with roller delivery for large, hollow blocks. Will handle blocks as large as 9 inches high and 18 inches wide, and from 9 inches to 18 inches long.

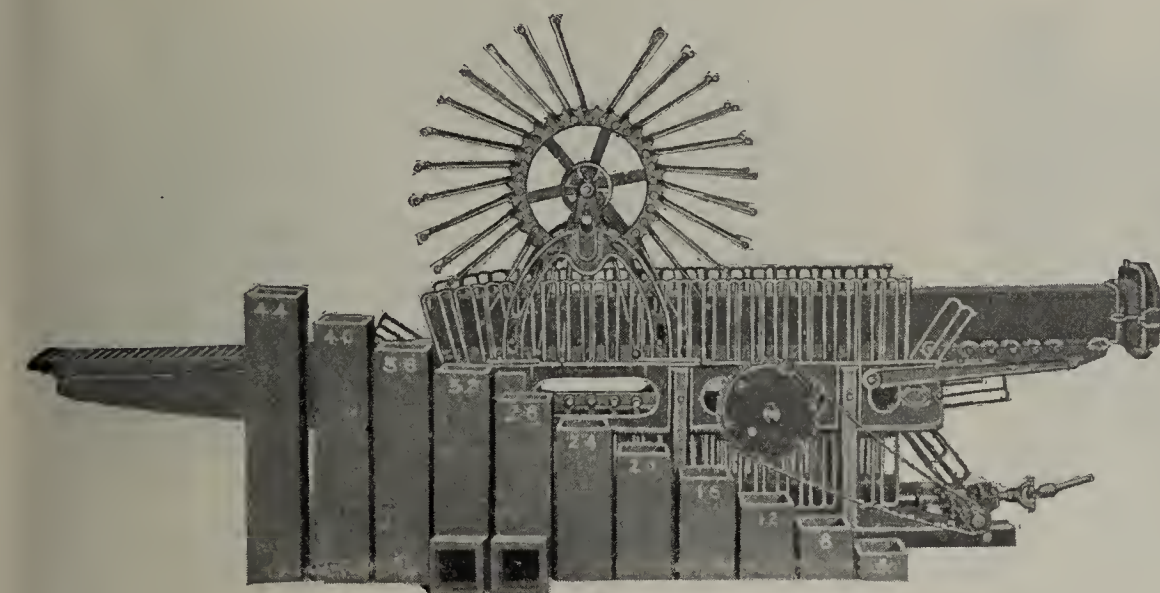
Special

Bensing Automatic Table for cutting face blocks and fire proofing. Cuts in multiple lengths and will handle ware 11 inches high by 12 inches wide. Furnished with either roller rack or belt delivery.



Special

Bensing Automatic Table with roller delivery and friction driving device for hollow blocks and drain tile. Cuts in multiple lengths of $4\frac{1}{2}$ inches and will handle blocks up to 11 inches high and 13 inches wide.

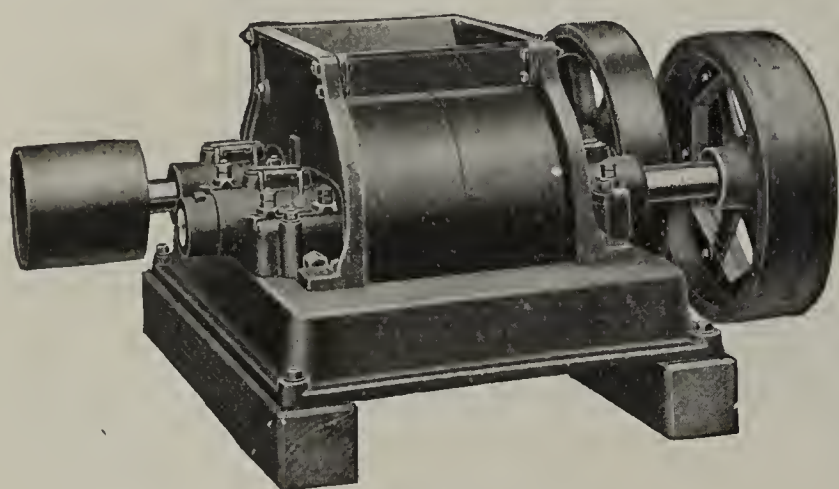


Plymouth, Richland Co., Ohio

04 Blake-McFall Building, Portland, Oregon

ayton, Ohio, Sales Agent

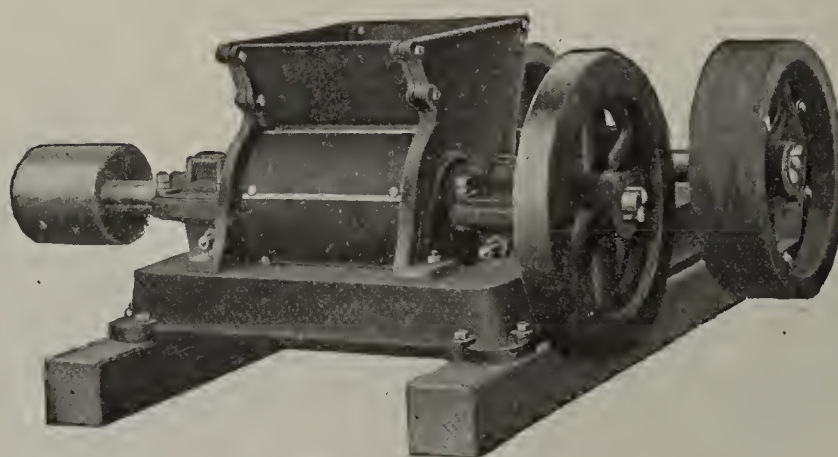
A PART OF OUR SPLENDID LINE



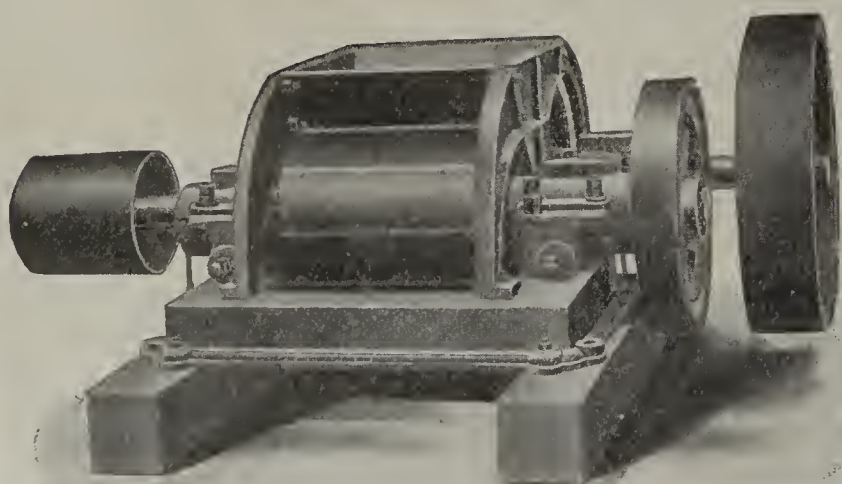
Number Two Disintegrator.



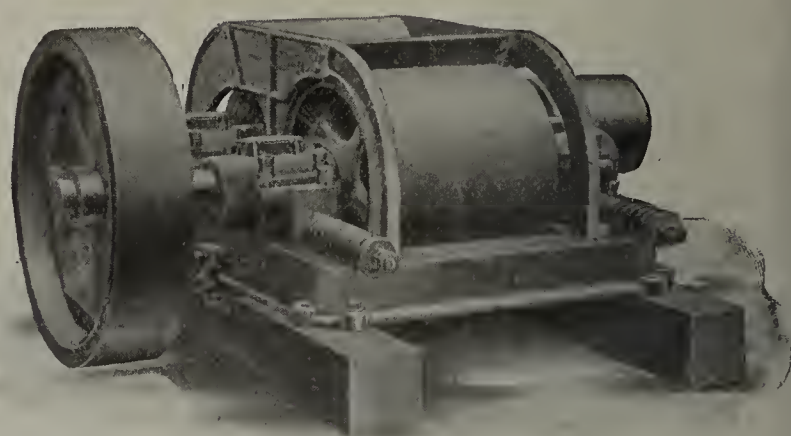
Interior View Number Two Disintegrator.



Number One Distinegrator.



Number Three Disintegrator, Front View.

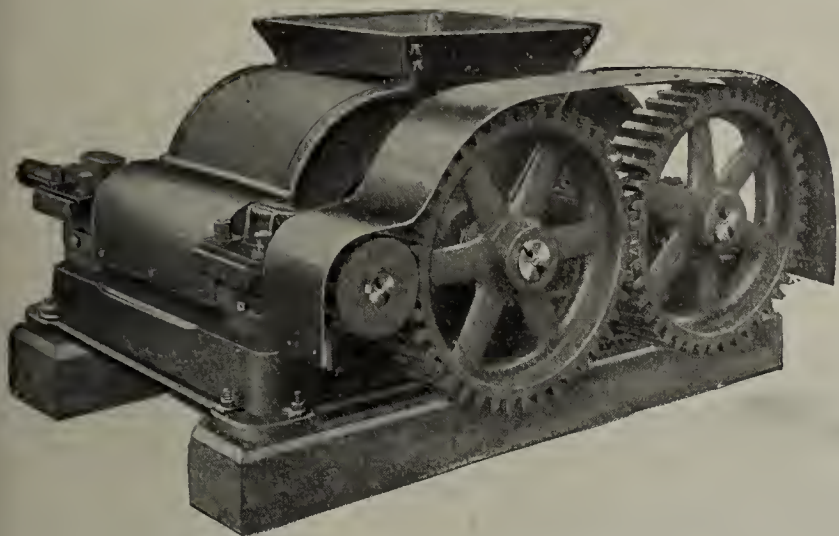


Number Three Disintegrator, Rear View.

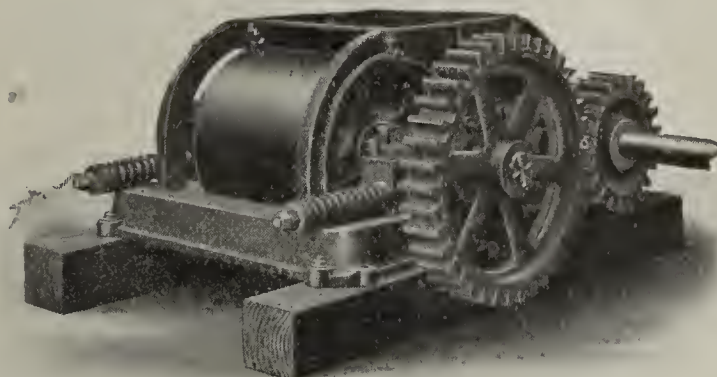
The J. D. FATE COMPANY

A. E. Davidson, Western Representative
Manufacturers Equipment Co.

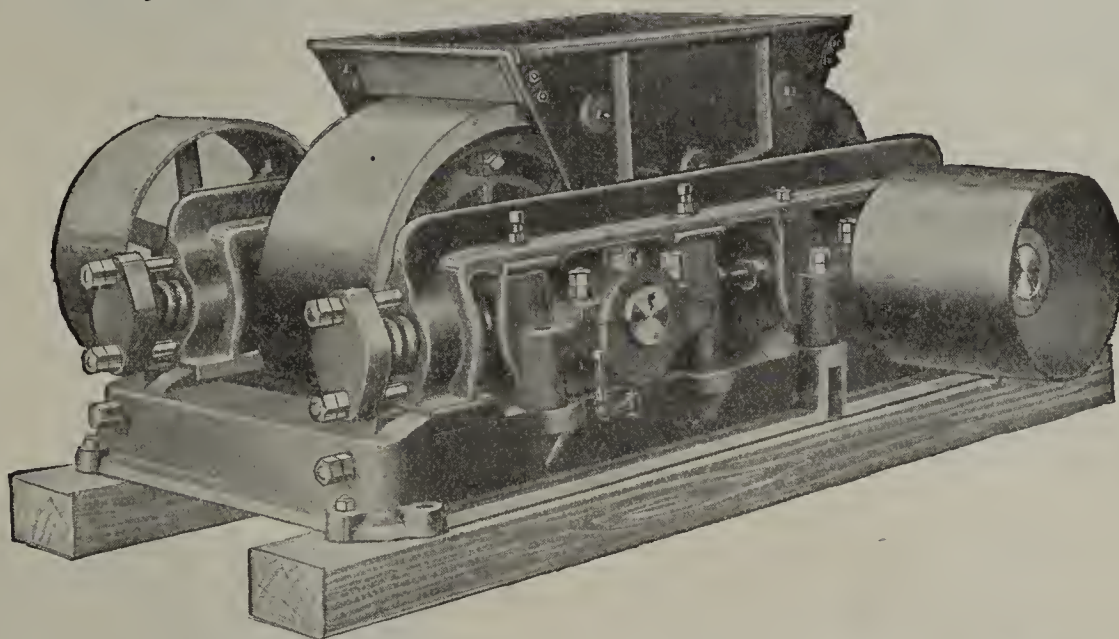
OF CRUSHERS AND DISINTEGRATORS



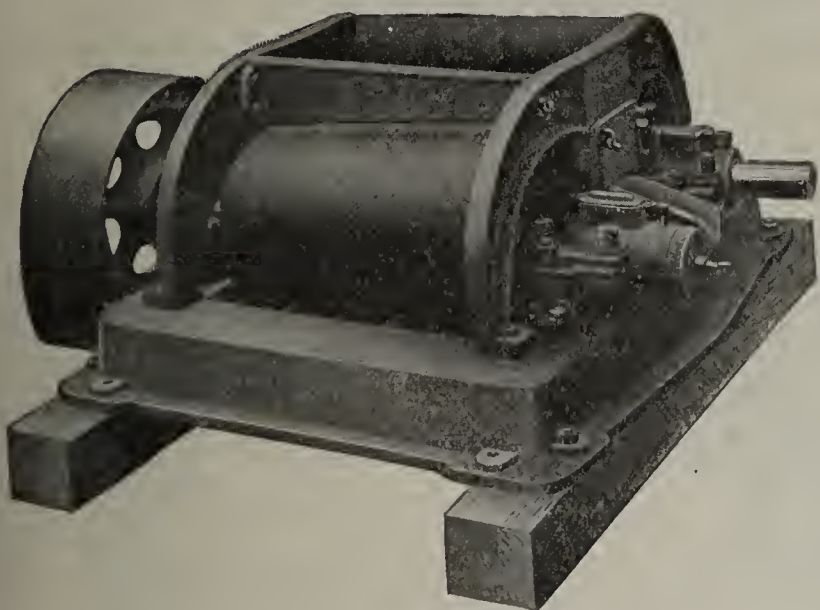
Number Two Clay Crusher.



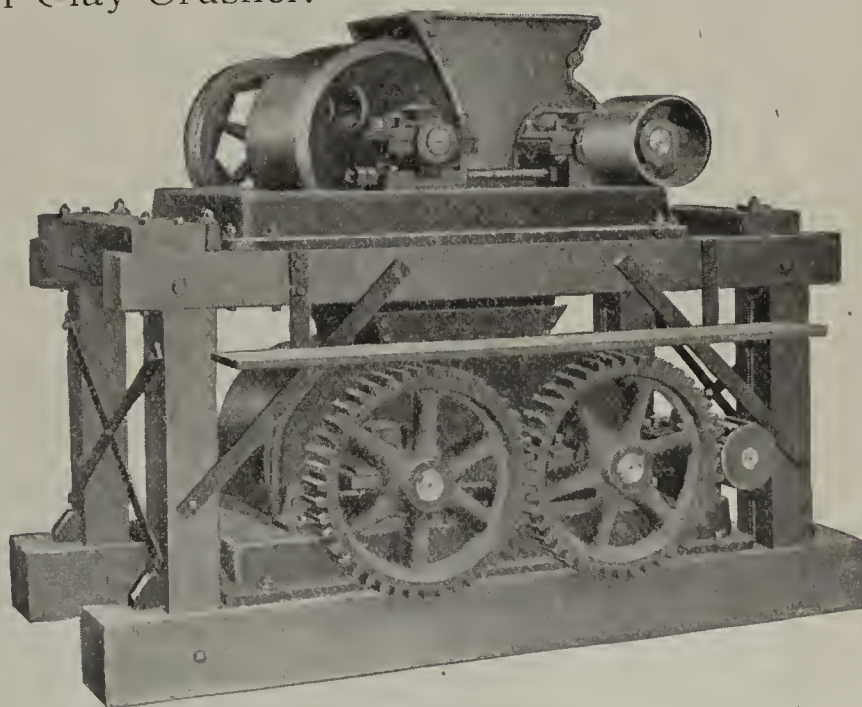
Number Three Clay Crusher.



Justice Number Four Clay Crusher.



Conical Roll Clay Crusher.



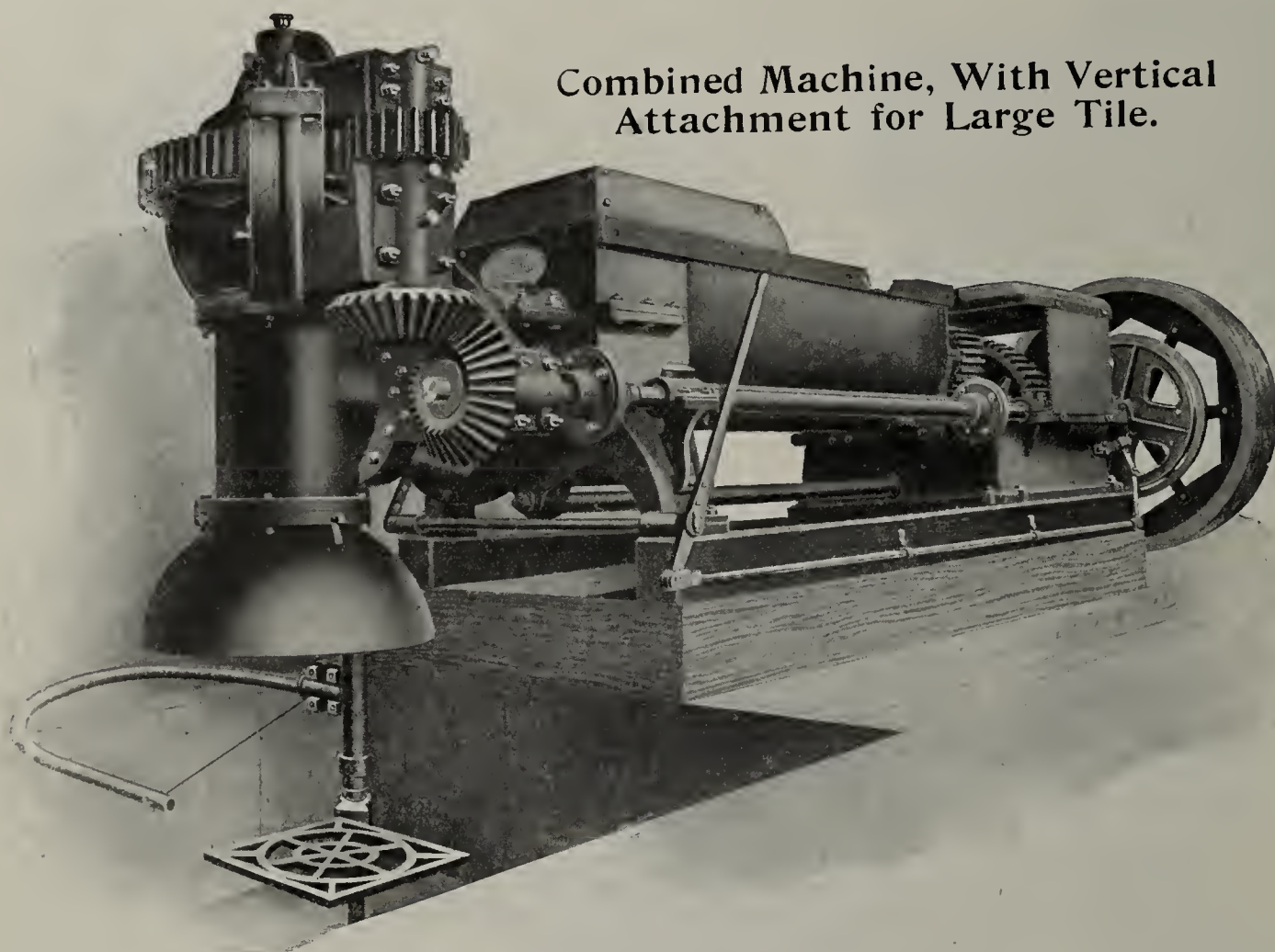
Combined Disintegrator and Clay Crusher.

Plymouth, Richland Co., Ohio

604 Blake-McFall Building, Portland, Oregon

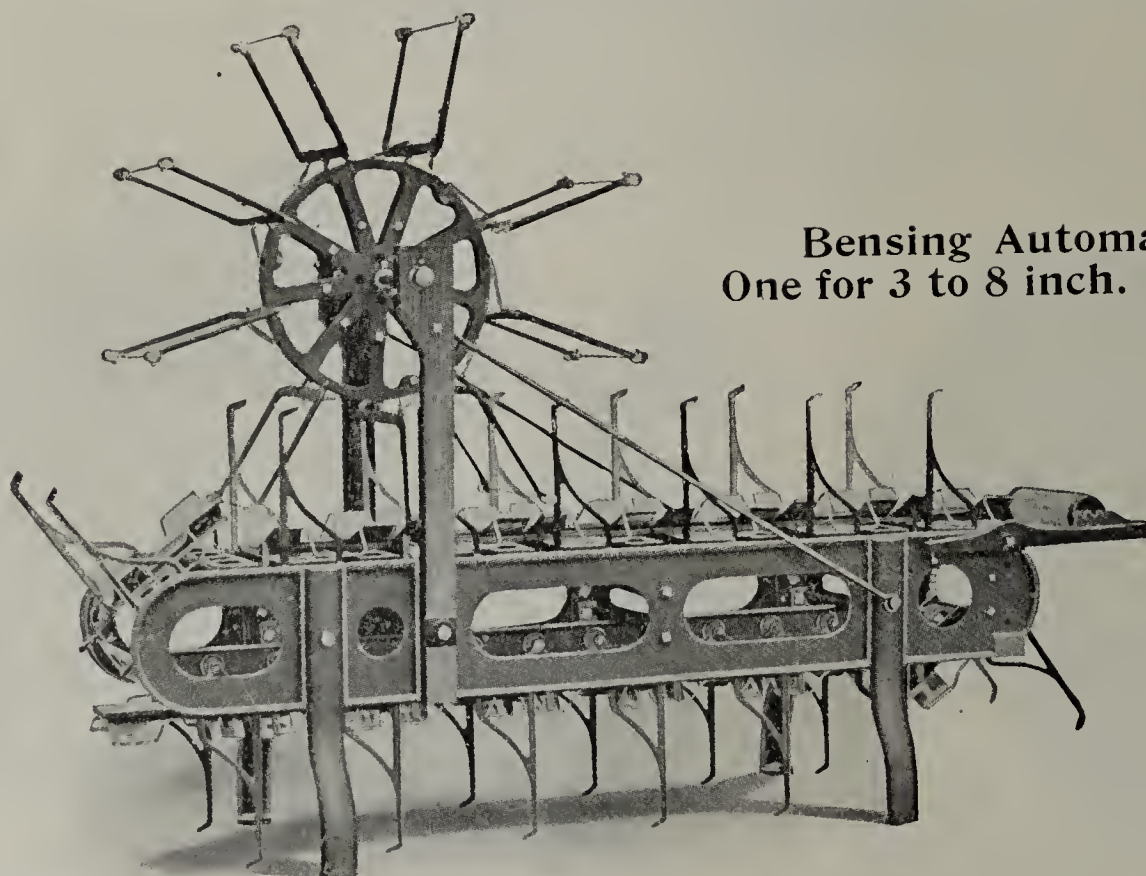
Dayton, Ohio, Sales Agent

SOME INTERESTING IDEAS FOR



Combined Machine, With Vertical Attachment for Large Tile.

The only successful way of making large tile up to 24 and 30 inches. Made in several sizes to suit different needs.



Bensing Automatic Tile Table.
One for 3 to 8 inch. One for 8 to 12 inch.

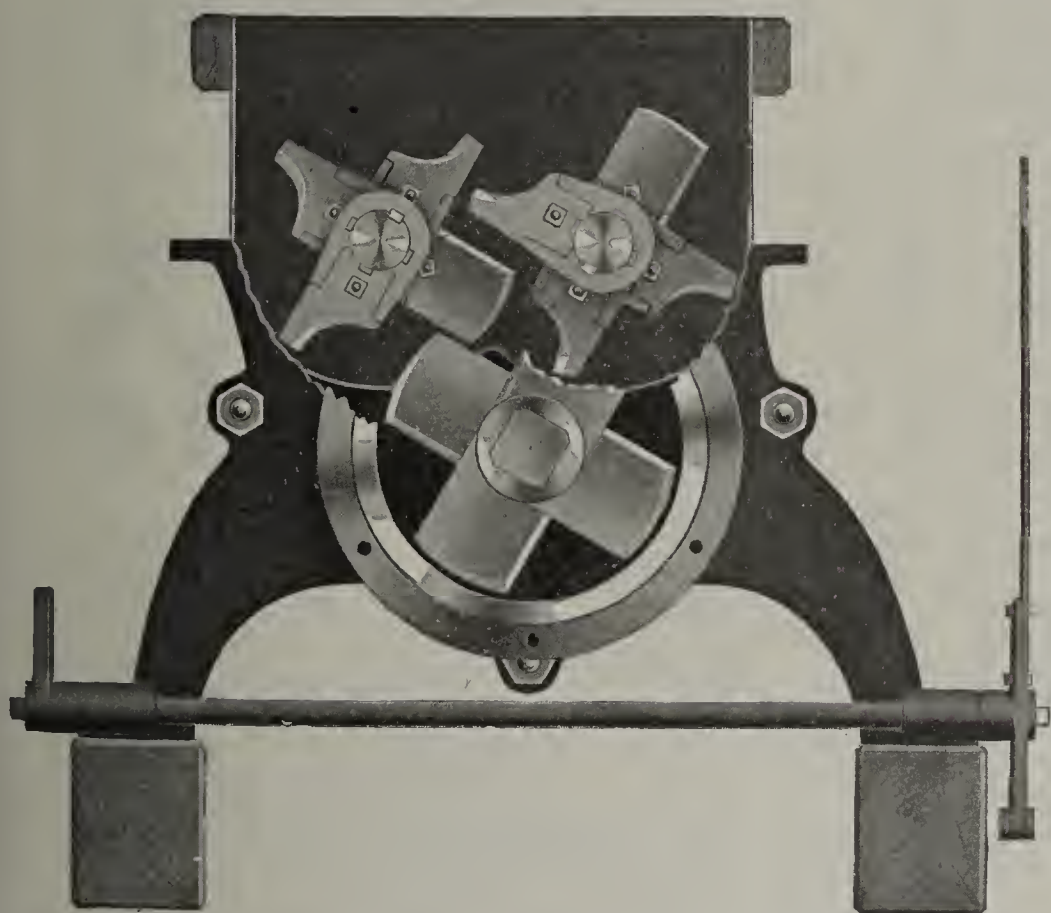
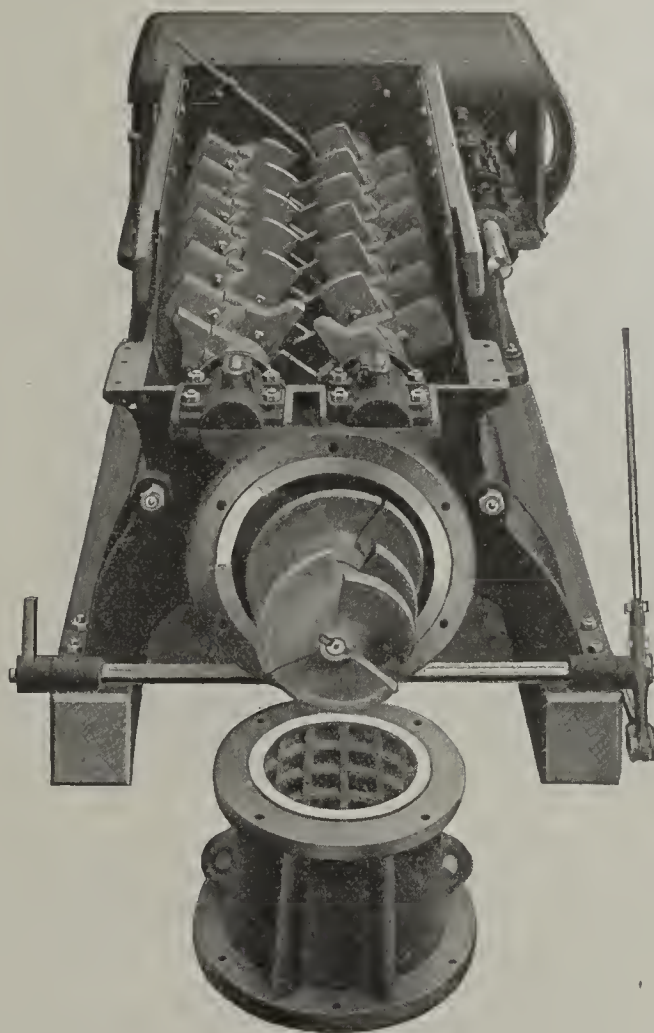
Entirely automatic and gives a true, straight cut. Capacity unlimited.

The J. D. FATE COMPANY

A. E. Davidson, Western Representative
Manufacturers Equipment Co.

THE UP-TO-DATE TILE MANUFACTURER

Interior view of combined machine showing arrangement of the double pugging shafts and knives. The most effective method of tempering clay, and effects a large saving on original installation.



Cross section view of combined machine, showing the force feed from the pug shell to auger chamber. Prevents bridging and clogging of clay at this point.

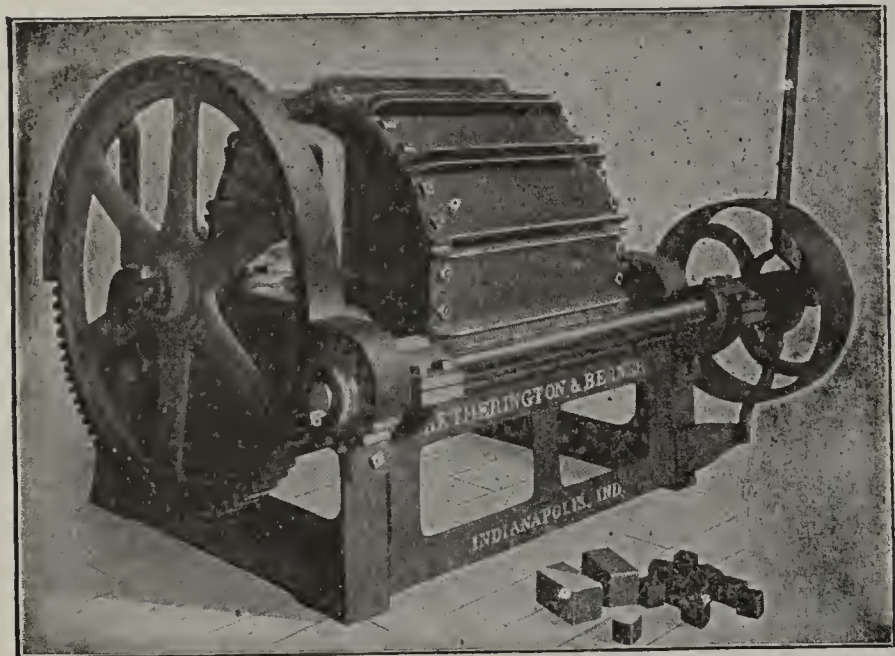
Plymouth, Richland Co., Ohio

604 Blake-McFall Building, Portland, Oregon

Dayton, Ohio, Sales Agent

The STANDARD RATTLER FOR TESTING PAVING BRICK.

Every municipality and every manufacturer of paving brick should have a Standard Rattler and thus be able to make frequent tests of brick and block.



This Rattler is designed in accordance with the requirements of the National Brick Manufacturers' Association's specifications, and is skilfully constructed of the very best materials for the purpose, insuring the greatest efficiency and durability. It meets every requirement.

Easy to Operate, Easy to Fill, Easy to Empty, and in fact *The Standard Rattler*. For prices, etc., write

Hetherington & Berner,
Indianapolis, Ind.

Books for Brickmakers

These Books Will be Mailed, Postage Prepaid, to Any Address
in the United States or Canada,
on Receipt of Price.

BRICKMAKERS' MANUAL	Morrison & Reep	\$3.00
CLAY GLAZES AND ENAMELS.....	Henry R. Griffen, C. E.	5.00
CLAYS; THEIR OCCURRENCE, PROPERTIES AND USES	Henrich Ries	5.00
BRICKLAYING	Owen B. Maginnis	2.00
VITRIFIED PAVING BRICK	H. A. Wheeler, E. M.	2.00
TABLES OF ANALYSES OF CLAYS.....	Alfred Crossley	2.00
BRICKLAYING SYSTEM	Frank B. Gilbreath	3.00
KILN RECORDS	W. D. Richardson	1.00
PRACTICAL FARM DRAINAGE	C. G. Elliott	1.50
ENGINEERING FOR LAND DRAINAGE	C. G. Elliott	1.50
TILE UNDERDRAINAGE	J. J. W. Billingsley	.25

Sold By

T. A. RANDALL & CO.
INDIANAPOLIS, IND.

The —
ROESSLER-HASSLACHER
CHEMICAL COMPANY,
100 William Street,
NEW YORK.

As a Preventative of Scums Use
CARBONATE OF BARYTES
R. & H. PRECIPITATED.
Oxide Tin,
Oxide Cobalt,
Red Oxide Iron,
Green Oxide Chrome,
White Oxide Antimony,
Black Oxide Manganese, and
all Chemicals used by the Clay Trades.

Mention THE CLAY-WORKER

WHEN WRITING TO ADVERTISERS,

Mention THE CLAY-WORKER.



HELICOID SCREW CONVEYOR is heavier stronger and better made than any other. Requires fewer repairs—no lapped and riveted joints to come apart—flight all one piece. We are the only people who actually roll a continuous flight conveyor by either the hot or cold rolling process. All other steel conveyors have sectional flights. Our No. 34 Catalogue explains the difference. Elevating, Conveying and Power-Transmitting Machinery.

H. W. Caldwell & Son Co., 17th St. & Western Ave. **Chicago**
Fulton Bldg., Hudson Terminal, No. 50 Church St., New York.

Chicago Retort & Fire Brick Co.

"AJAX"
Fire Brick for
Building Kilns

GENERAL OFFICE:

837-839 Commercial National Bank Bldg.,
CHICAGO, ILL.

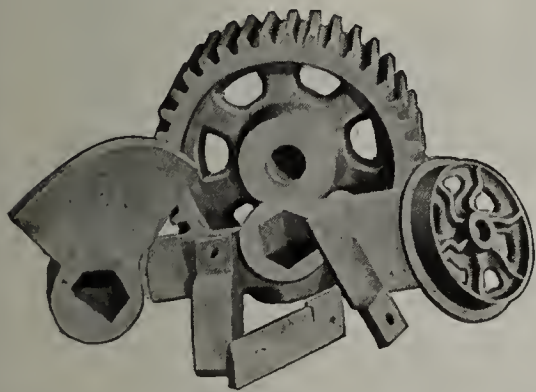
'Phone
Randolph 3601.

KILN FLOOR TILE

THE RECOGNIZED STANDARD OVER 50 YEARS.

ANY **FIRE BRICK** ANY
SIZE SHAPE

Write Us Now **Evens & Howard Fire Brick Co.**
St. Louis, Mo.



Chilled Brick Machine Castings

All wearing surfaces hardened.
Save time, prevent frequent
shut downs.

Let us refer you to other users.

The Wallace Machine and Foundry Co.
LAFAYETTE, IND.

\$2.00 THE CLAY-WORKER **\$2.00**
ONE YEAR, (IN ADVANCE)

The Department of Clayworking and Ceramics

Established by the Legislature
in 1902 at the

New Jersey State College,

RUTGERS COLLEGE.

NEW BRUNSWICK, N. J.

Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

C. W. PARMELEE, B. Sc., Director.
W. H. S. DEMAREST, D.D.

Kilns Driers Processes

JULIUS J. KOCH

Consulting Engineer

for

Clayworking Industries

3325 Caroline St. St. Louis, Mo.

If...

**You Want
to Sell
or Buy...**

Second-hand Claywork-
ing Machinery, Tile Mills,
or anything pertaining
thereto.

**If...
You Want
a Man**

for any position or a posi-
tion in any connection
with the Clayworking
Trades use the

**For Sale
and Want
Columns
of...**

**The...
Clay-Worker.**

RATES

For all transient advertisements, such
as "For Sale," "Wanted," etc., the rate
is 25 cents a line per insertion. Aver-
age of seven words to line. Head line
counts as two lines.

The Best, Quickest, Cheapest
Method of Securing Results.

Anchor Brand Colors

For Mortar Cement and Brick.

BROWN, BLACK, RED AND BUFF.

Strongest and Most Durable.

Manufactured by

C. K. WILLIAMS & CO.

EASTON, PA., U. S. A.

Correspondence solicited.

Chattanooga Paint Co.,

Chattanooga, Tenn.

Manufacturers of

Red Oxides for Brick-makers' Use.

**Eclipse
Mortar Colors,**

Red, Brown, Buff, Black.

Clinton Hematite Red

The highest grade of
Red Oxide of Iron for

BRICK COLORING

Also all shades of
MORTAR COLORS

Get the genuine, with the
"Little Yellow Side-Label"

Clinton Metallic Paint Co.,

CLINTON, N. Y.

GABRIEL & SCHALL

P. O. Box 1712. 205 Pearl Street.

NEW YORK.

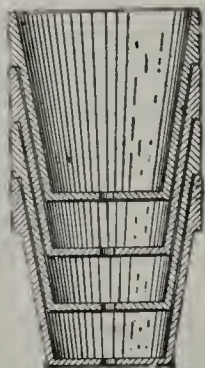
Sole Importers in the United States of the

Precipitated **G & S** Carbonate
of Barytes

The only preventative for scum and discoloration on Facing Brick and Terra Cotta, neutralizing the Sulphate of Lime in the Clay and Water.

Circulars and Particulars on Application.

Mention The Clay-Worker
When Writing to Advertisers.



Make Money

WITH THE ONLY SUCCESSFUL

Flower Pot Machine

(PATENTED.)

No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "

Write for Circular and prices.

The Rockwood Mfg. Co.,

1801 English Ave.

INDIANAPOLIS, IND.



Something New in Brick Kilns and Brick Dryers

Patented April 14, 1903, and September 8, 1903.

ANY KILN OF THE MORRISON OR WINGARD TYPE CAN EASILY BE
CHANGED INTO THE DENNIS DOUBLE DOWN DRAFT KILN.

County and State Rights For Sale.

The kiln walls are battered, furnaces are built "within the walls," avoiding expense of outside furnaces and the loss of heat by radiation, while the battered side walls and double arches form a perfect brace, each holding the other in position. In proportion to capacity, these kilns can be built for less money, burned with less fuel, and water-smoked and burned in less time than any other kiln upon the market, except continuous kilns, the heat throughout burning, is under perfect control, and these kilns will burn with perfectly satisfactory results, soft mud, stiff mud, dry pressed, or paving brick, burning practically all hard. I have kilns built under this patent of capacities ranging from 100,000 to 500,000 brick, and should be pleased to furnish names of users to prospective buyers.

Plans for round and square down-draft kilns. Also plans for drying off round kilns by taking the heat from a burning kiln to a green one without the use of a fan. Wood burning kilns changed into coal burners and to down-draft kilns or up-draft kilns arched over like down-draft kilns.

Write for printed booklet and testimonials.



Double Up and Down Draft Kiln.

ADDRESS

F. W. Dennis

188 Bermuda St.,
NORFOLK, VA.

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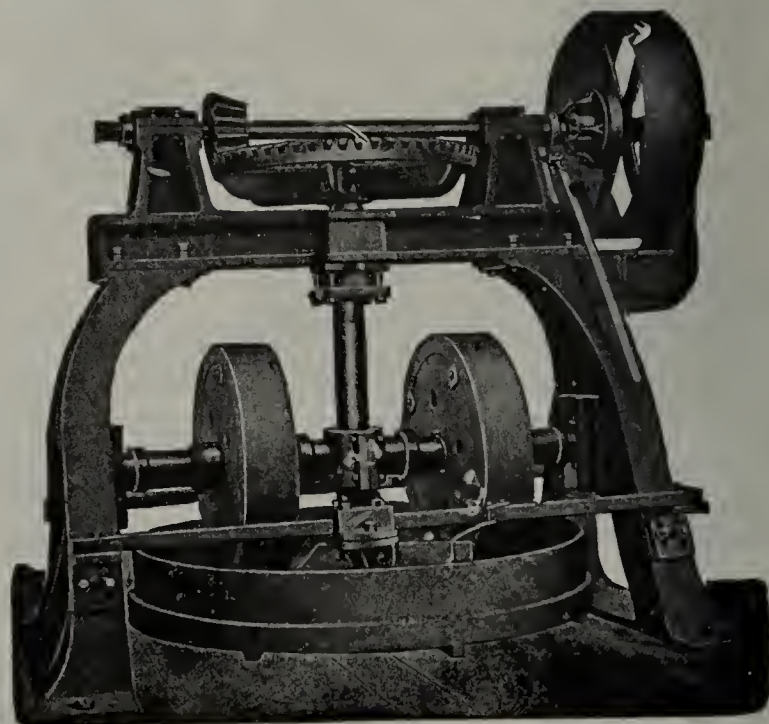
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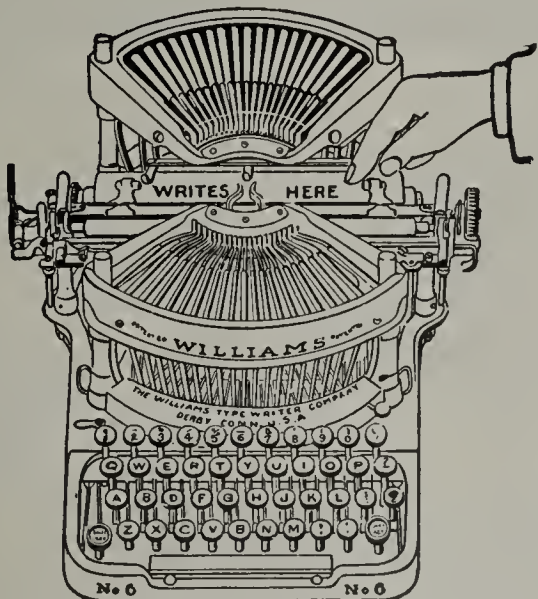
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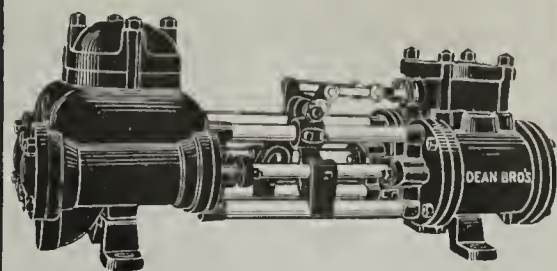
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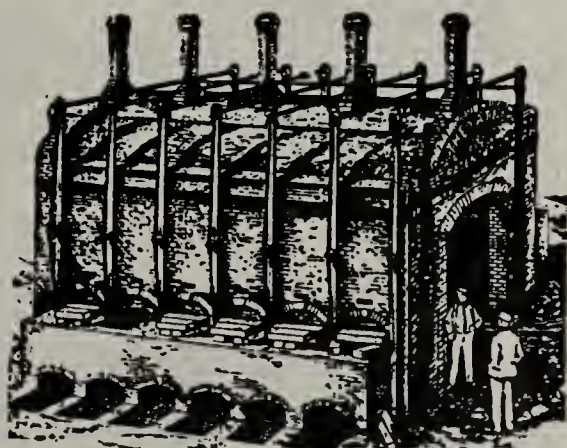
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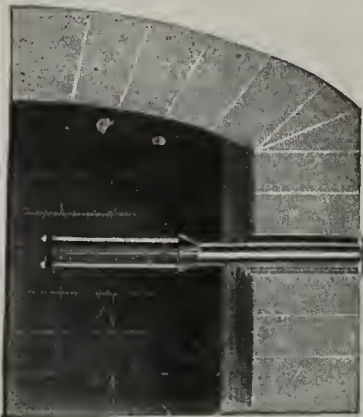
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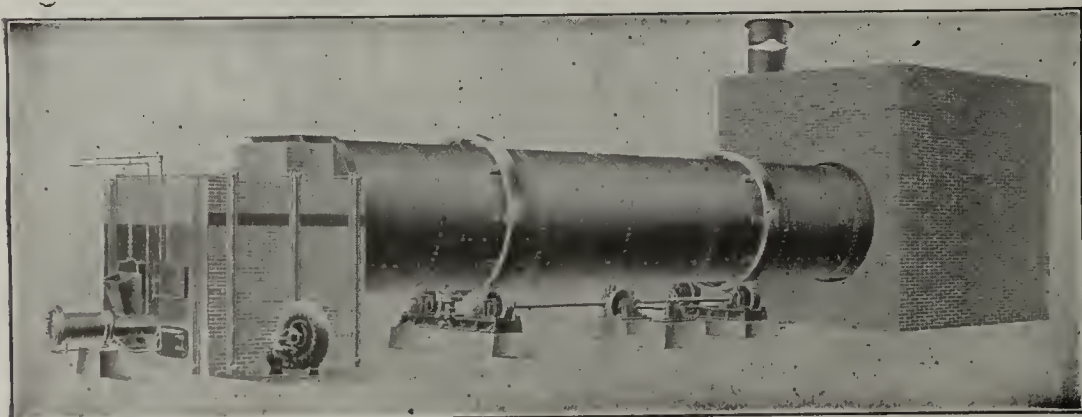
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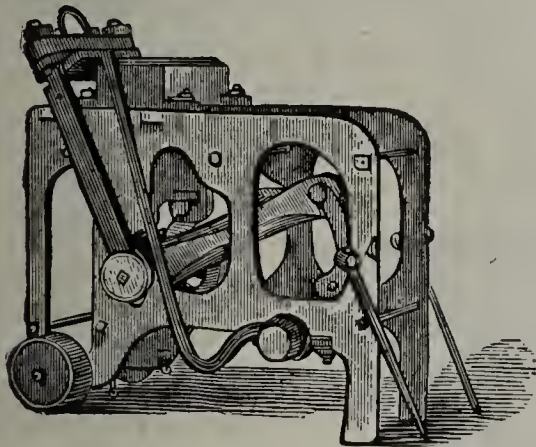
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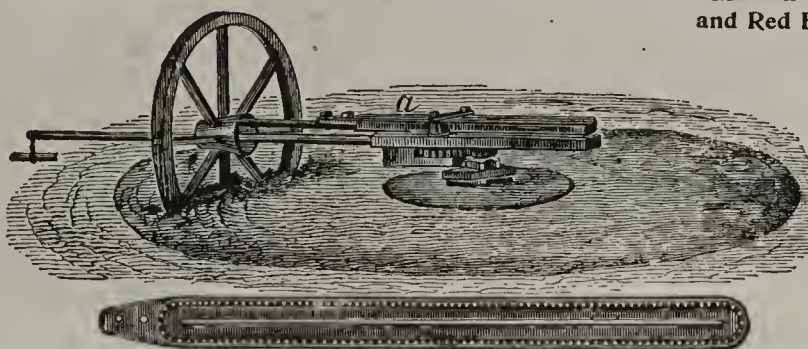


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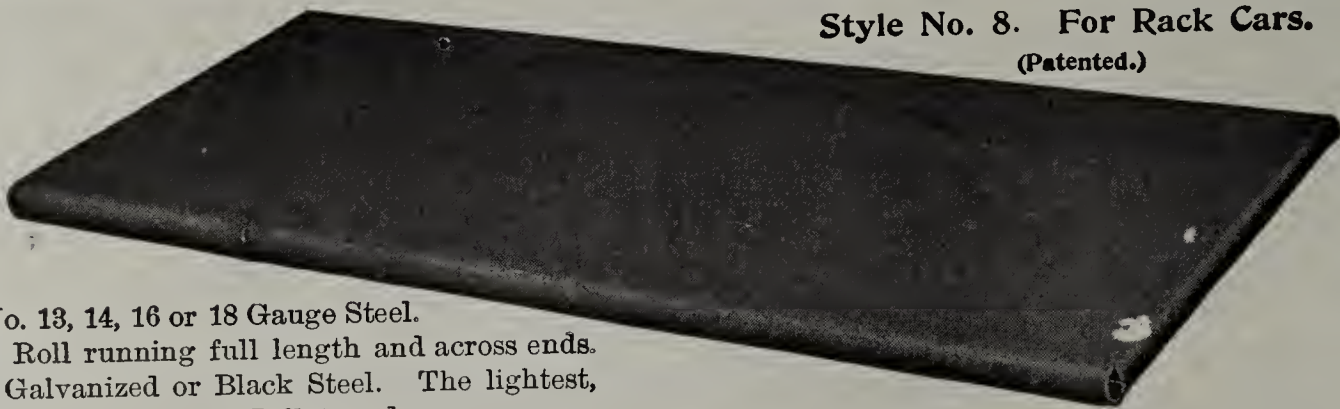
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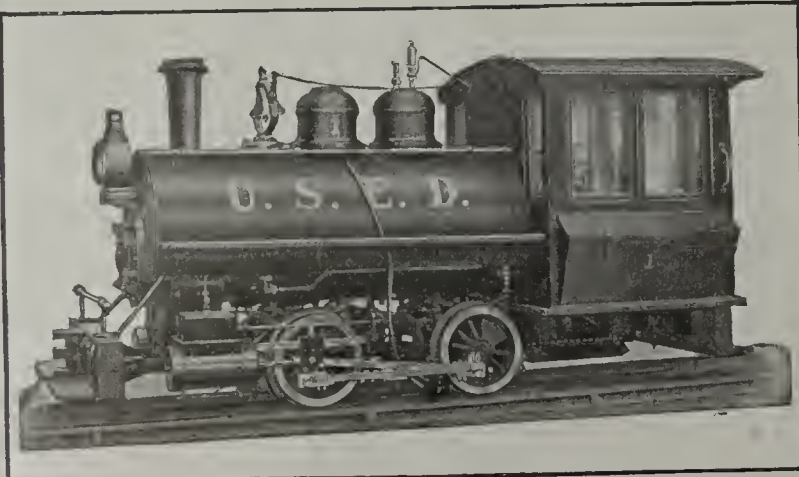
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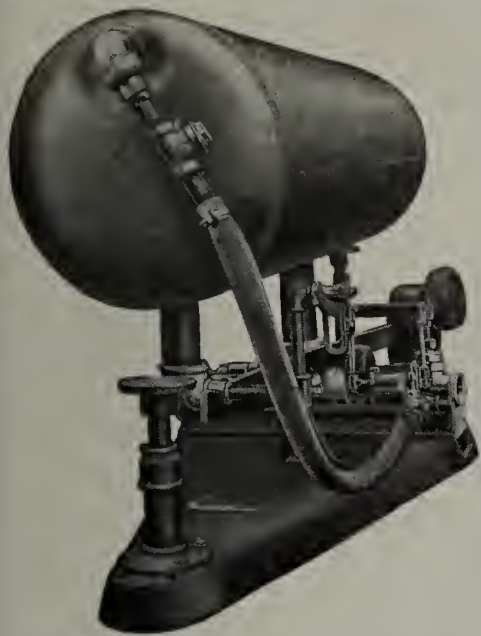
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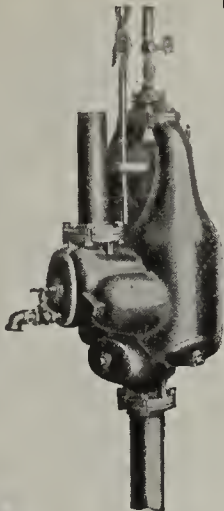
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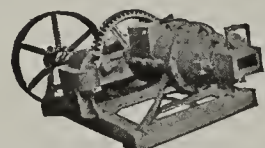
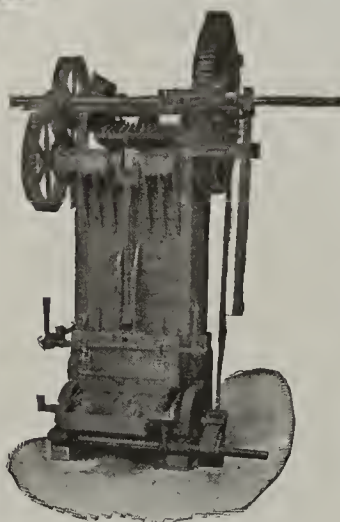
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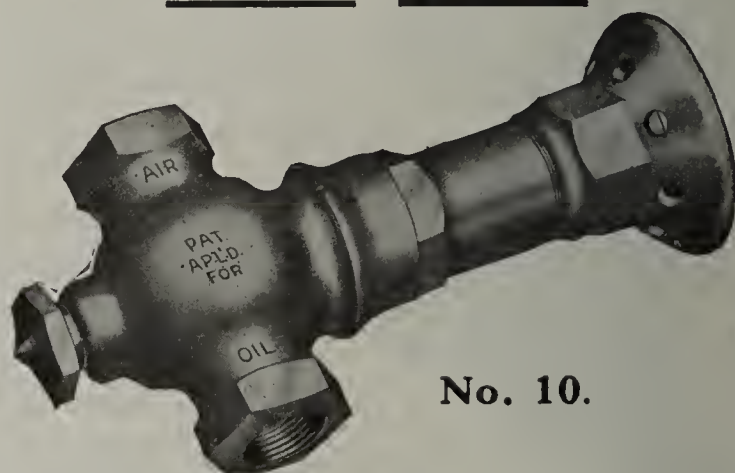


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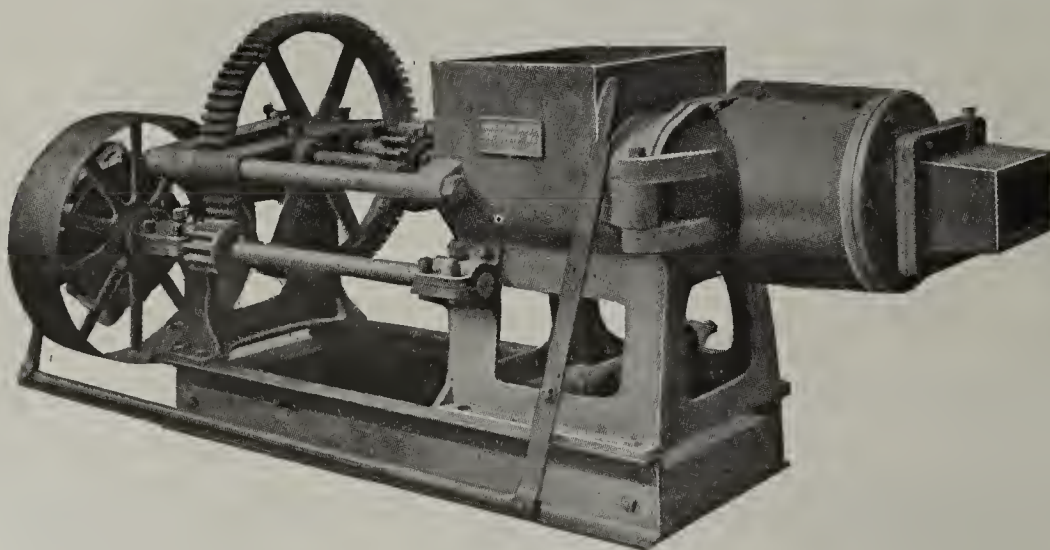
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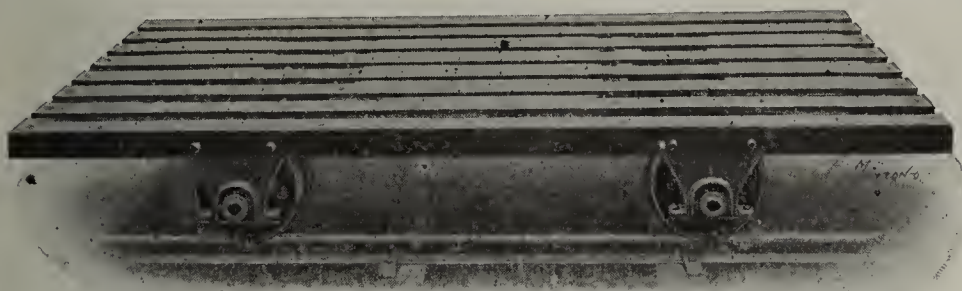
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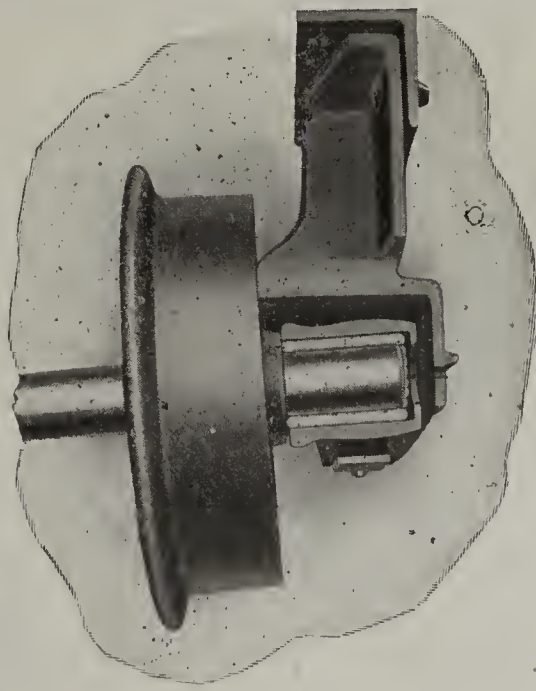


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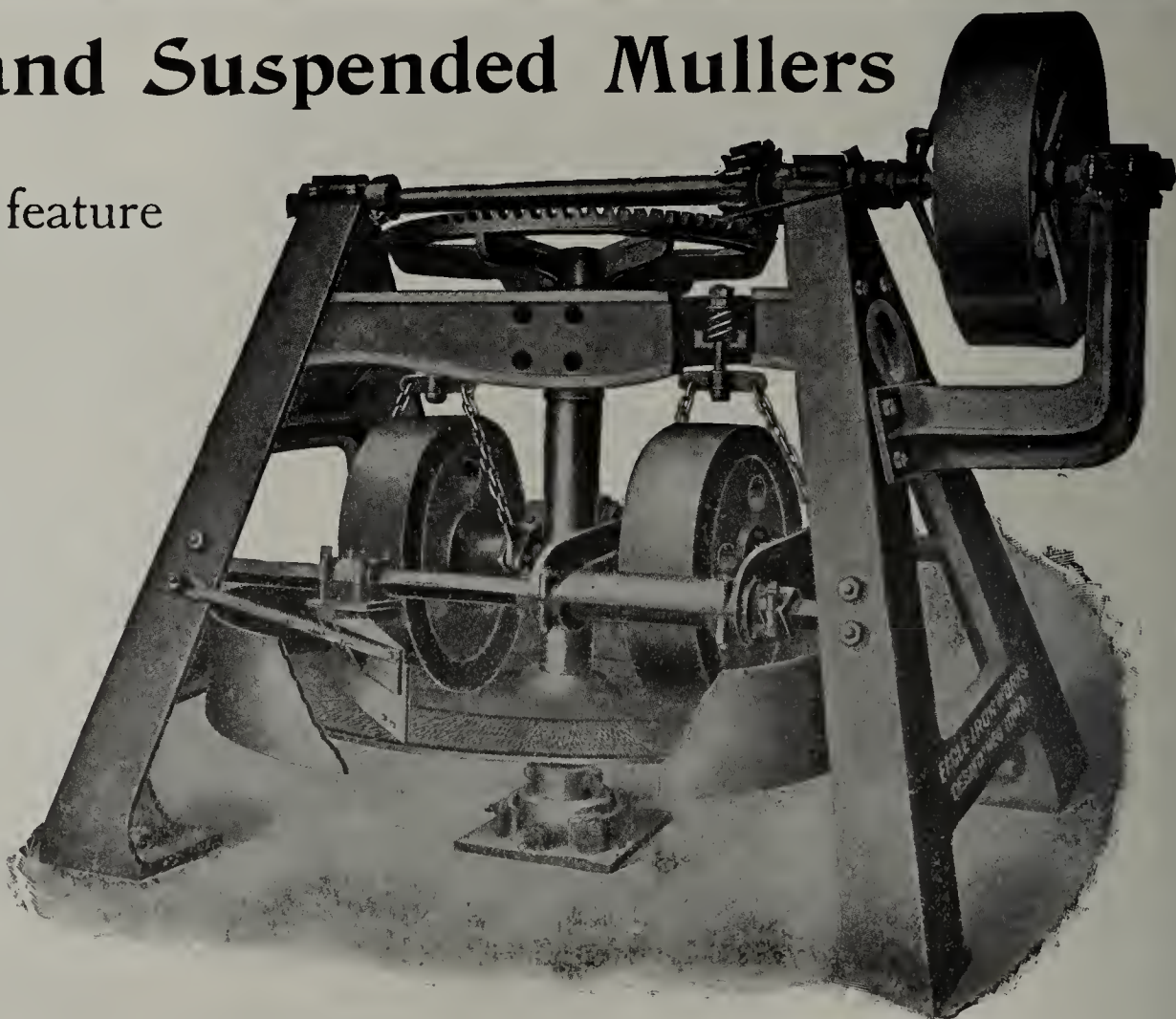
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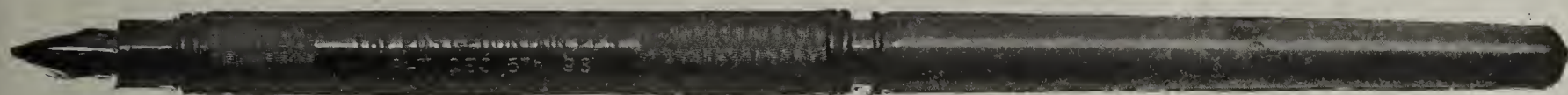
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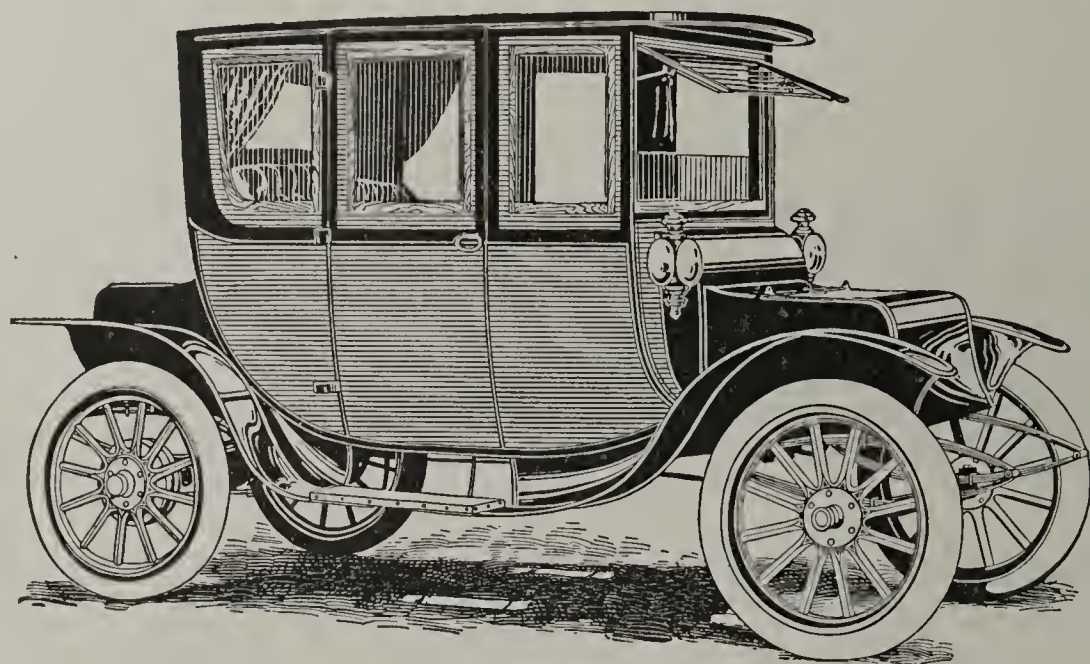
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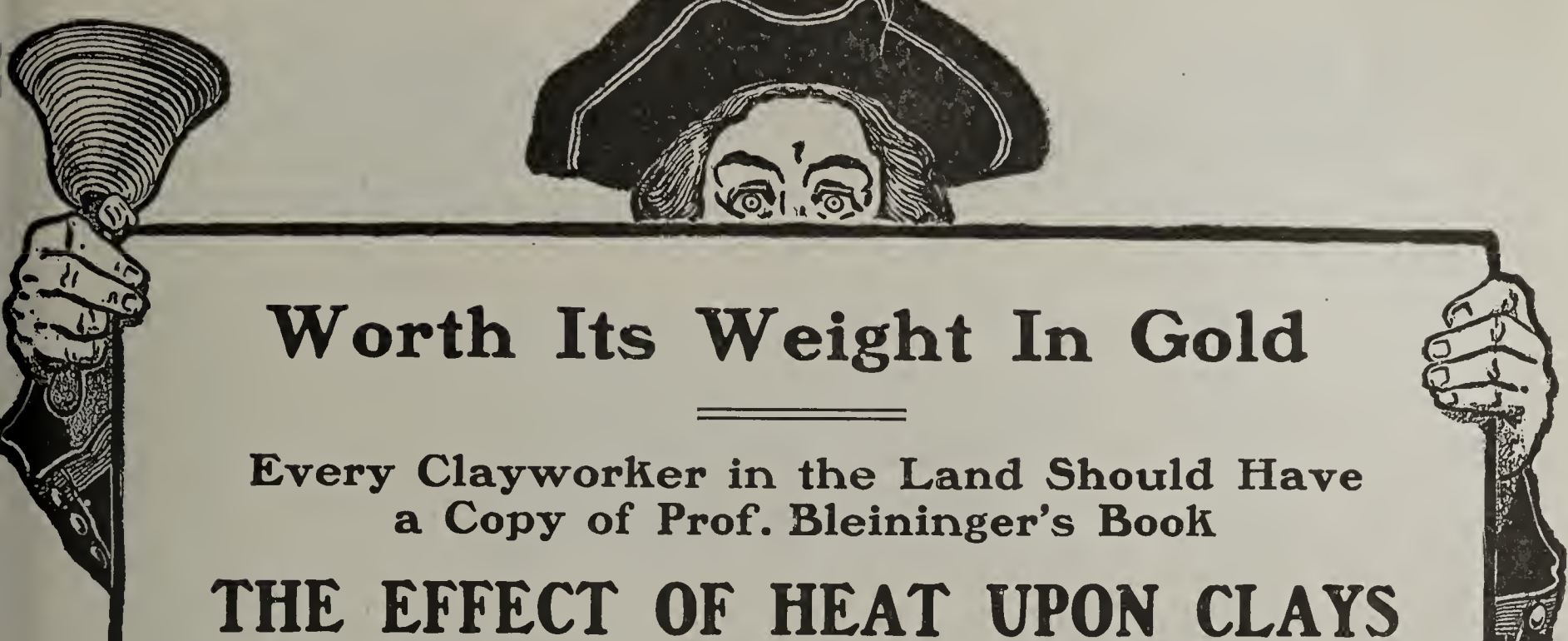
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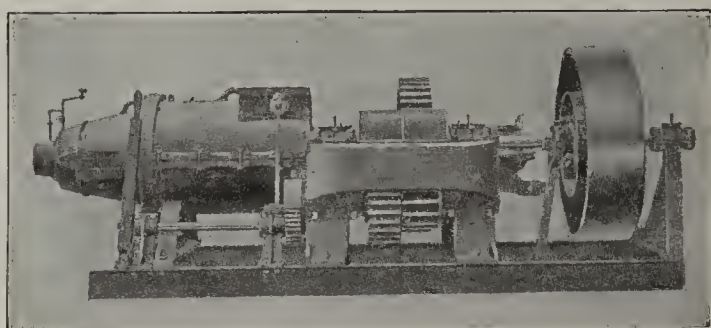
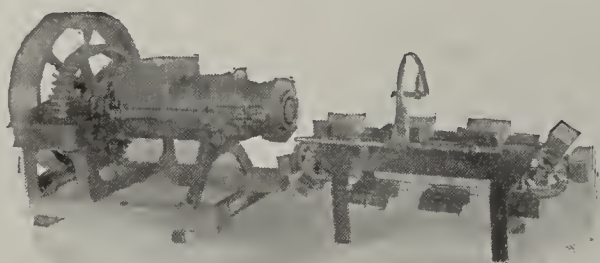
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Indianapolis, Ind.

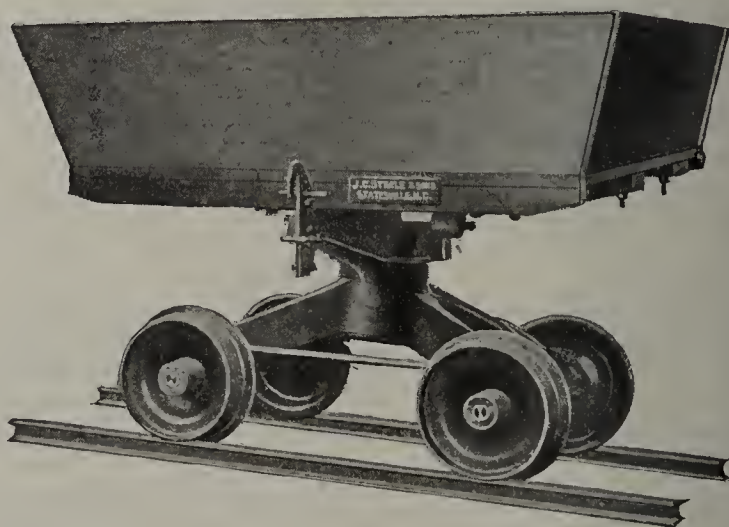
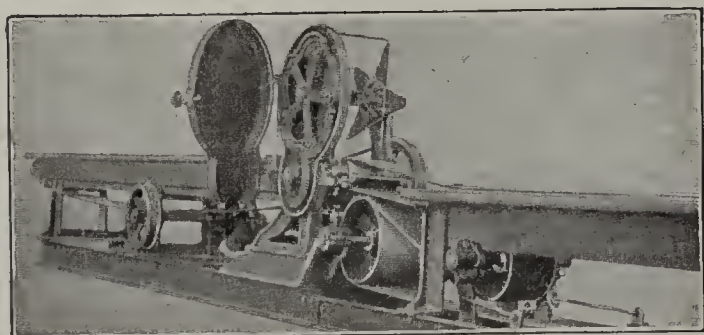




FIVE SIZES Brick Machines. Also End and Side-Cut Cutters, Pug Mills, Disintegrators, Granulators, Hoisting Drums, Clay Cars, Brick Trucks, Tile Machines, Kiln Doors and Grate Bars.

Also

STEELE BRICK DRYING SYSTEM.



Write for new catalog.

J. C. STEELE & SONS :: Statesville, N. C.

N. B. M. A. HEADQUARTERS, MARCH 4 to 12, 1912



The Congress Hotel and Annex

Formerly Known as the Auditorium Annex

Located on Michigan Boulevard—
Chicago's most aristocratic thoroughfare—overlooking Grant Park
and the broad expanse of beautiful
Lake Michigan x x Two minutes
from the city's activities x x x x

RATES: { Rooms, one person, bath detached, \$2.00 and up; with private bath \$3.50 and up
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SUITES—Prices on Application

N. M. KAUFMAN,
President.

Adv. No. 1

MAX L. TEICH, } Managing
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The twenty-sixth annual convention of the National Brick Manufacturers' Association will be held at the Congress Hotel and Annex, March 4 to 12, 1912. The convention sessions will be held in the Annex and ample and convenient accommodations will also be afforded the allied organizations which will hold meetings during that time. Delegates and those accompanying them are requested to apply for reservations direct to the hotel, stating date of intended arrival and character of accommodations wanted.

Handle Your Clay With One Man and a THEW SHOVEL

For many years we have been furnishing full circle swing steam shovels to the brick manufacturers of the country. We are the pioneers in this field and have created the demand for this type of shovel. We have studied the peculiar requirements of the clay-working industries and have designed shovels to meet these requirements. We offer today a complete line of shovels for this purpose, machines recognized everywhere as the standard of excellence.

THEW Shovels are not like others. They possess features of design not found in other shovels, features that are valuable as to convenience and economy of operation. Several hundred are now operating in brickyards and every one is giving satisfaction.

WE REFER YOU TO ANY OWNER OF A THEW SHOVEL ANYWHERE



Type No. 0 Thew Shovel—Mounted Upon Traction or Car Wheels.

STANDARD SIZES

Type 0,	15 Tons,	$\frac{5}{8}$ yard dipper;	capacity 100 M brick for ordinary clays.
Type A-1,	20 Tons,	$\frac{7}{8}$ yard dipper;	capacity 150 M brick for ordinary clays.
Type 1,	30 Tons,	$1\frac{1}{8}$ yard dipper;	capacity 200 M brick for ordinary clays.
Type 2,	35 Tons,	$\frac{3}{4}$ yard dipper;	capacity 125 M brick for ordinary shales.
Type 4,	50 Tons,	$1\frac{1}{4}$ yard dipper;	capacity 200 M brick for difficult shales.

The above rated outputs are for one man operation and may be doubled by using a fireman and extra laborer on ground.

THE THEW AUTOMATIC SHOVEL CO., Lorain, Ohio

THE THEW SHOVEL FOR BRICKYARDS

Valuable Information for Brickmakers.

Cost of Operating No. 0 Thew Steam Shovel for Three Seasons.

Cost per working day for season.	1909	1910	1911	Average
Wages of engineer.....	\$2.69	\$3.45	\$3.66	\$3.30
Wages of fireman.....	2.11	2.00	2.16	2.09
Wages one laborer.....	1.68	2.00	2.18	1.96
Oil and waste.....	.12	.08	.08	.09
Coal at \$5.65. per ton.....	1.53	1.81	1.65	1.67
Water.....	.08	.10	.08	.09
Repairs.....	....	.33	.54	.30
Total cost..	<u>\$8.21</u>	<u>\$9.77</u>	<u>\$10.35</u>	<u>\$9.50</u>
Lbs. coal consumed daily.....	565	643	597	598
Gals. water consumed daily.....	486	639	489	536
Cu. yds. clay used daily.....	197	320	273	265
No. brick made daily.....	90,000	144,000	124,000	120,000
Cost loading clay per M.....	.09	.07	.084	.082
Cost loading clay per yd.....	.04	.03	.038	.037
Cost shovel repairs per yd.....	None	.0009	.0019	.001

If we were only making 60 M brick per day the fireman could be dispensed with, but the shovel supplies clay for three machines, averaging 48 M brick per day for each machine and the clay bank being only four to five feet deep it requires the three men but not hard work for any of them.

Our coal is weighed every day by the steam shovel fireman and the daily record is on file in our office. The water is measured by an individual meter so that this item is absolutely correct.

The cost of putting clay on the cars at the yard where we did not have shovel was nine cents per yard. We are always glad to recommend your shovel to anyone who inquires about it, and we consider it one of the best investments we have ever made.

Grand Forks, N. D.

THE RED RIVER VALLEY BRICK CO.

THE ABOVE RESULT WAS SECURED WITH UNFAVORABLE LABOR AND FUEL COST.

THEW ELECTRIC SHOVELS

The application of electric power for shovel operation is constantly becoming more frequent. **THEW** shovels so equipped have been in use by brick manufacturers for many years with perfect satisfaction. The electric shovel offers definite advantages. No fireman is required even for large outputs. The question of water supply is avoided together with that of fuel transportation. In cold weather there is no danger of freezing. In hot weather there is no boiler to add to the discomfort of the operator. The banking of fires at night, the delay in getting up steam in the morning and at times the necessity for a watchman are avoided.

ARE YOU INTERESTED?

WRITE FOR INFORMATION.

THE THEW AUTOMATIC SHOVEL CO., Lorain, Ohio

PENNSYLVANIA LINES TO NEW YORK

Through trains now run into Pennsylvania Station, 7th Ave. and 32nd St., in the heart of the hotel, shopping and mid-town business section, and **ONLY ONE BLOCK FROM BROADWAY.**

The Service to **CHICAGO** is unexcelled from all eastern and southern points.

Also the direct route to **WASHINGTON, BALTIMORE, PHILADELPHIA, PITTSBURGH, ST. LOUIS, CLEVELAND CINCINNATI, INDIANAPOLIS, AND LOUISVILLE.**

The Equipment and service of the Pennsylvania is of the highest standard—ALL STEEL trains, perfect road-bed, smooth running.

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G. P. A., Pittsburgh.

W. W. RICHARDSON,
G. P. A., Pittsburgh.

SAMUEL MOODY,
P. T. M., Pittsburgh.

FOR SALE

30 YEARS EXPERIENCE

We have thirty years valuable EXPERIENCE to sell.

EXPERIENCE manipulating all kinds of clays under all conditions.

Engineering EXPERIENCE designing, building and operating clay working plants and remodeling old plants.

EXPERIENCE making, drying and burning the various clay products. EXPERIENCE testing and developing clay properties.

EXPERIENCE designing, constructing and operating different kinds of kilns.

EXPERIENCE designing, building and operating every kind of artificial dryer for clay products, Direct Heat, Radiated Heat, Waste Heat, Steam Blower, Radiated Steam, Steam Pipe Rack, Waste Heat Pipe Rack, Vacuum and Combination Dryers.

Are you in the market for any of the above? Do you expect to buy machinery?

Let us draw your specifications for you and see that you get a square deal.

It will pay you. We are familiar with all clayworking machinery in general use today and know the strong and weak points. We are also acquainted with the various manufacturers and their methods, and are ABSOLUTELY INDEPENDENT of all manufacturing concerns and will protect our clients' interests without fear or favor.

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Brickologists and Clay Specialists.

We Manufacture a Complete Line of BRICK MACHINERY

And Make a Specialty of Equipping Yards.

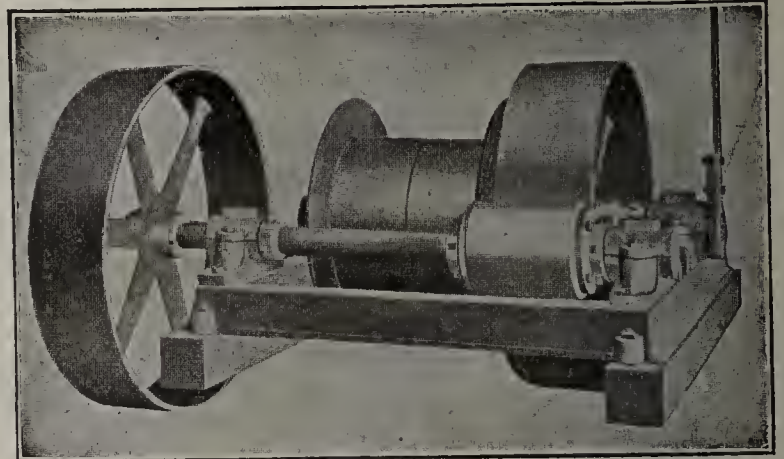
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The best built one made.

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Stock size of wheel, 20 inches diameter.

(If wanted, 18 inches.)



Our Direct Driven Self-Contained Winding Drum is a Labor-Saver.

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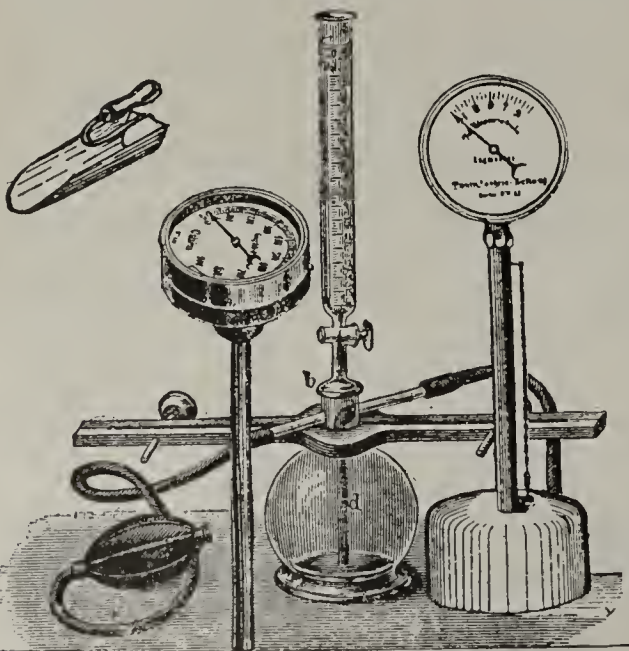
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CONTINUOUS KILNS

Have surpassed all others. Superiority in economy and in quality of products burned. Suitable for all grades of clay products. Cheapest in construction. Easiest to understand and most agreeable to operate.



Recognize the small shovel above. These instruments being used with the Hoehe system exclusively. The results are: Consumption of coal per thousand brick 250 lbs. or less.



Recognize the size of the shovel. This is the instrument customary to other continuous kiln men. Results: Consumption of coal per thousand brick, 600 lbs. or more.

Others can build a continuous kiln, BUT I CAN BOTH BUILD IT and RUN IT, and I can prove it. Write for catalogue.

RICHARD B. HOEHNE

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CONSTANCE, GERMANY.

Constructor of Brick, Tile and Lime Works for Coal or Gas Firing, and Kilns with or without Dryer.

Buhrer's Shortened Kilns are the most suitable for burning ordinary and enameled goods, lime and cement.

In the Buhrer Chamber Dryer bricks and tiles made by the plastic process from clays of normal character may be dried, the former in one to one day and a half, and the latter in 4 to 5 days. In the Buhrer Tunnel Dryer green bricks may be very well dried in 24 hours with the waste heat of the kiln only.

The Buhrer Fan increases the output of existing kilns from 50 to 100 per cent of first-class goods, with great economy of fuel.

Buhrer changes existing kilns in accordance with his system for quick burning.

Clay Testing is done in a thorough way. Write for illustrated pamphlet.

ABOUT 1,000 KILNS HAVE BEEN CONSTRUCTED ALREADY.

"In Europe 1337 MILLION BRICK are yearly dried and burnt in Buhrer System Kilns and Dryers worked by 315 Buhrer Fans."

LIME, CEMENT, BRICKS AND ALL KINDS OF TILES BURNED IN A BUHRER KILN PRODUCING 100 LB. LIME WITH 12 TO 13 LB. COAL AND 100 LB. CEMENT WITH 17 TO 24 LB. COAL.

Vils, Tyrol, October 30.

Dear Sir—Many thanks for the good results obtained by adopting your Fan at my works. Preferring your system to any other I have seen in Germany and Austria, I built a Buhrer Kiln of 8 chambers, with a Dryer of 14 chambers, and thus increased the daily output from 6,000 to 18,000 bricks. Last year I added 8 chambers to the Buhrer Kiln in which I am burning lime, cement, bricks and all kinds of tiles, using 12 to 13 lb. of coal for burning 100 lb. lime and 17 to 24 lb. of coal for 100 lb. of cement. Successful burning depends on good draught, and for a good draught all through the year and at any desired strength the Buhrer Fan can be relied on. When working with the chimney I burnt 8 chambers a week. Now I am burning with one Buhrer Fan 18 chambers weekly, and this Fan produces the draught for a Hoffmann Kiln of 12 chambers, a Buhrer Kiln of 16 chambers, a Dryer of 14 chambers, and a cleaning machine in the cement works. Anyone interested is welcome to inspect my works.

Mr. Jacob Buhrer, Constance.

(Signed) GEORG SCHRETTTER.

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Burns 1,000 Fire-Bricks
With 5 Cwt. of Slack

and also largest Blocks.



50%

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SAVING
GUARANTEED**

HAS IT EVER OCCURRED TO YOU
THAT ALL WORKS POSSESSING GENUINE
HOFFMANN KILNS PAY HANDSOME DIVIDENDS?

The same applies to Hoffmann Continuous Tile, Pottery, Lime and Cement Kilns.

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CONSTRUCTION CO.,
FINSBURY PAVEMENT HOUSE,
LONDON, E. C., ENGLAND

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Revolving Shovels for Clay Excavation

Progressive clayworkers recognize revolving steam shovels as practically indispensable for their requirements. With them a pronounced favorite, because of its quick action, wonderful efficiency and low maintenance cost, is

The Marion Model 28, with 5/8-Yd. Dipper

It is operated entirely by one man. Swinging in complete circles in both directions, it will dig and

deliver material at any point within its radius. It will do better work and more of it at far less cost than where common hand labor is employed. It is an ideal shovel for brickyard work where only a medium capacity is required.

While regularly mounted on traction wheels, the Model 28 can readily be fitted for operating on rails.

For larger capacities and heavier work we build bigger revolving shovels as well as a complete line of standard shovels equipped with dippers ranging from 3/4 to 6 cu. yds. in size.

Ask for Circulars 28, 35, 40 and 250.



Digging Clay in Plant of Woodland Clay Co., Woodland, Ill.

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ECONOMY

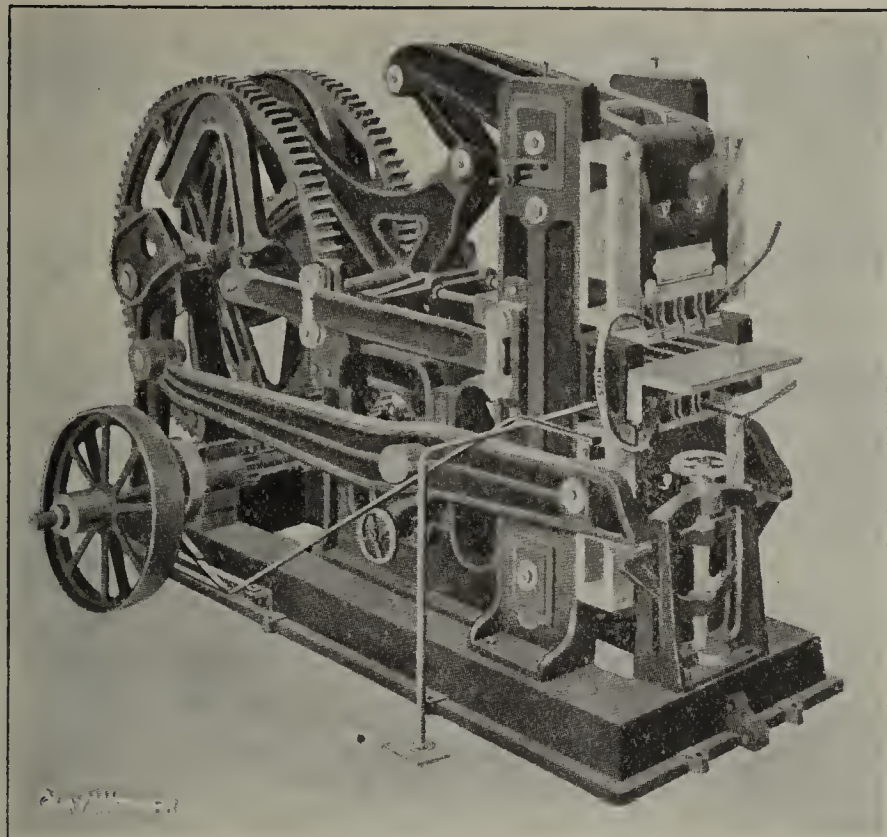
True economy is the sure road to wealth today, just as it has ever been. This is generally conceded, but it is not always certain what constitutes true economy. In the clay line it is oftentimes real economy to replace small capacity machinery with larger in order to meet the demands of a rapidly growing trade. Really it is false economy not to do so, for one must spend money to make money. He is wise who recognizes this truth and promptly replaces outgrown machinery with that equal to his needs. Then, after you have done the wise thing in enlarging and refitting your plant, don't let the outgrown machinery go to the scrap pile. It may prove a boon to some manufacturer starting a small capacity plant for which it will be ample. There are many such and they may be reached through an ad in the For Sale columns of The Clay-Worker. Be wise, not wasteful, and instead of letting your outgrown machinery rust out, advertise it in 'The Clay-Worker (see forms of ads under heading "For Sale, Wanted, Etc.," in this issue) and convert it into

CASH

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THE CLAY-WORKER,
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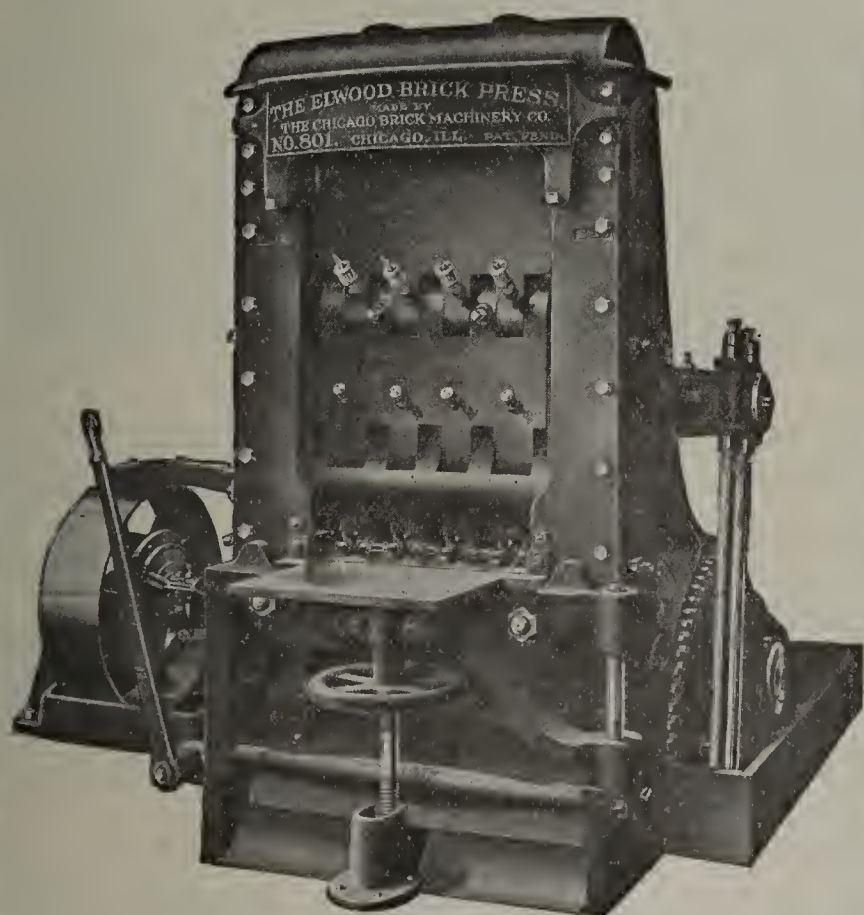
The Mold is the heart of a brick machine and our press is fitted with a specially designed mold box which produces bricks with sharp, straight edges and corners. The Mold Box being assembled before placing it in the machine makes it possible to change molds in the shortest possible time.

Our press has many other special features which are fully explained in our catalog which we want to send to interested parties.

The Fernholtz Brick Machinery Co.

Boyle and Vandeventer Aves.

ST. LOUIS, MO.



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ALWAYS MAKES GOOD.**

**WE ALSO HANDLE EVERYTHING
USED ON A BRICKYARD.**

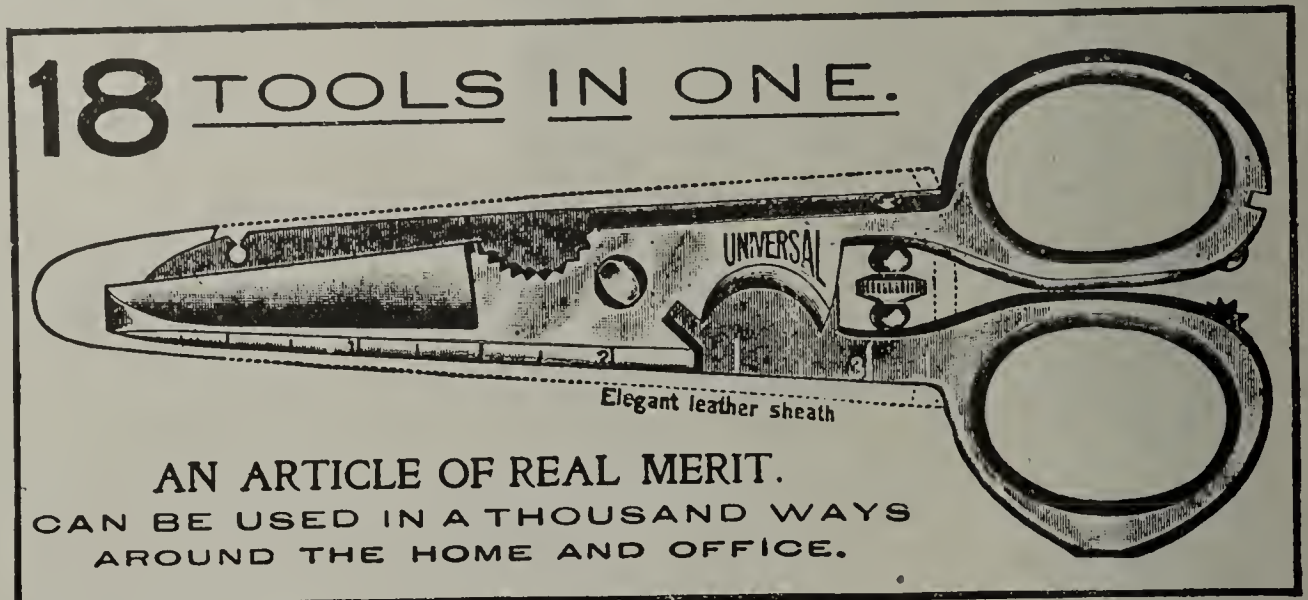
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Sold Also by
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The
Handiest
Combination
Ever
Invented



This remarkable combination is one that everyone whether young or old will find useful in a hundred ways every day. It is in no sense a toy or trinket, but a practical combination of several useful tools all in one that one needs oftentimes when there is nothing else suitable within reach. Carried in the VEST POCKET or kept in the DESK, it is always within reach and ready for immediate use as occasion arises.

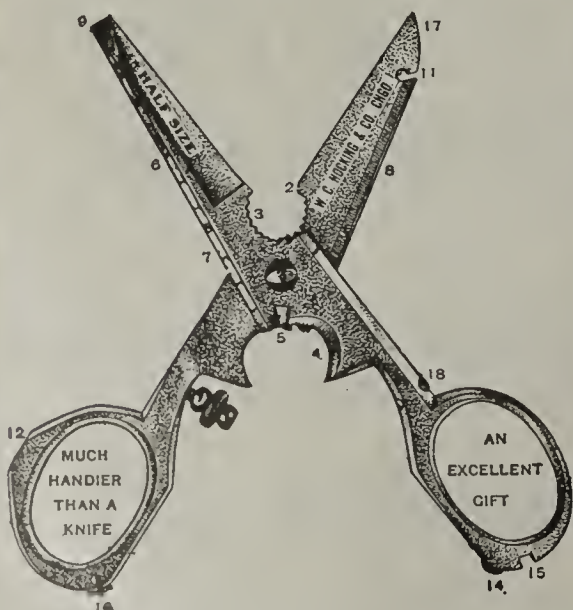
To smokers it will prove a boon, as it is a perfect Cigar Clip. As a Screwdriver, as a Light Hammer, as a Nail Clip and File, as a Wire Cutter and for innumerable uses that either Scissors or Knife may be put to it is a perfect gem.

It is, in brief, a little tool chest all in one compact device, and the novelty of the combination and the excellence of the kit both in material and construction makes it a marvel of convenience.

Once seen and used, you will not willingly be without it. Scissors are no more feminine than is a Jack Knife, and this C.-W. Vest Pocket Kit is really the more useful of the two. The inventor has out-Edisoned Edison in this clever combination which is offered FREE with every new subscription to The Clay-Worker.

Clay-Worker and V. P. Kit, \$2.00.

C.-W. Vest Pocket alone, \$1.00.



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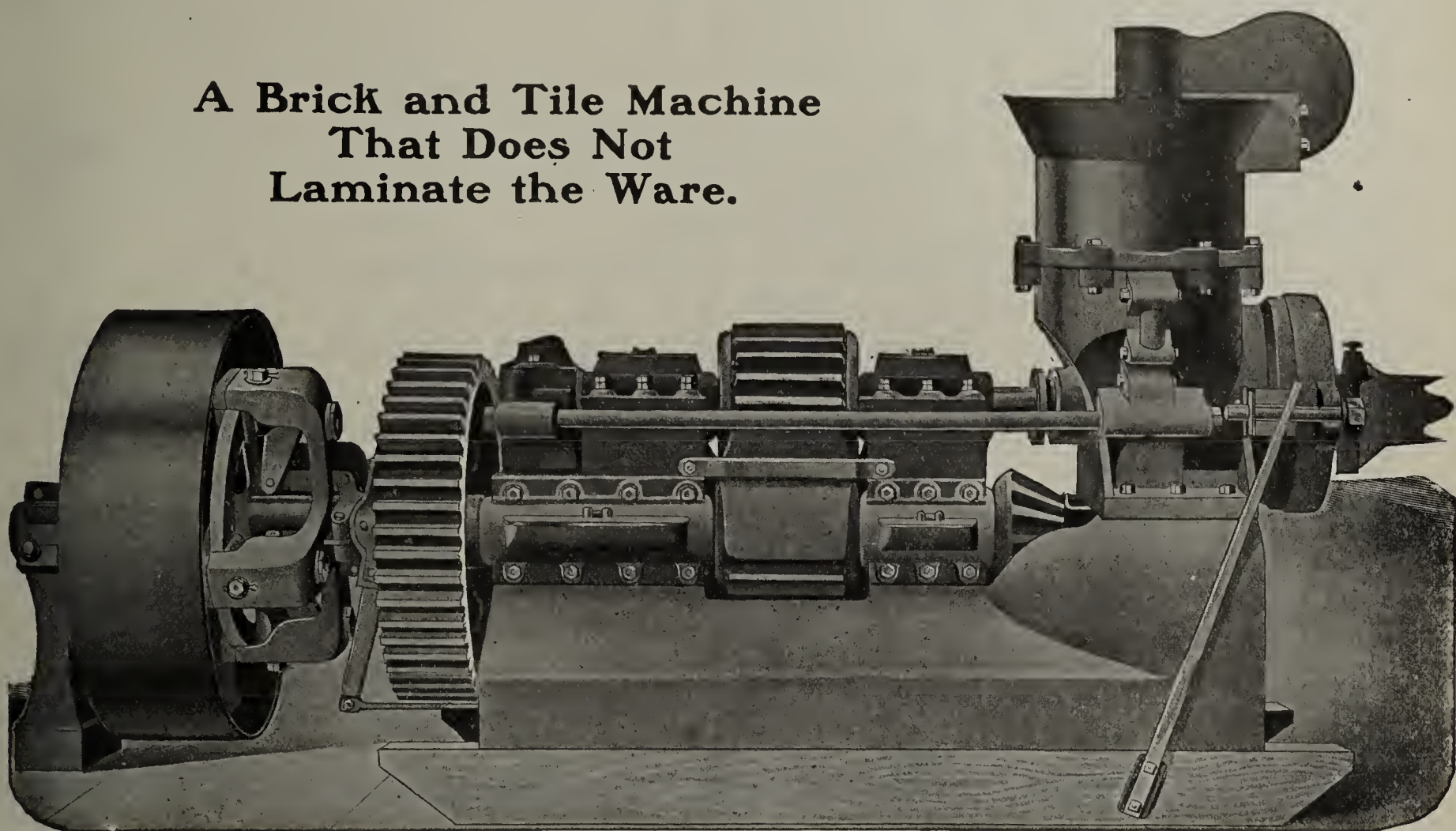
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With The Wonder Machine.

A Machine of Large Capacity. Unequaled in
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That Does Not
Laminate the Ware.



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We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans, Disintegrators, Pug Mills, Granulators and Corrugated and Smooth Roll Crushers.

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Time and Trouble

By making your choice of magazines for coming year and ordering them all at once through THE CLAY-WORKER.

Knowledge is Power

The best way for clayworkers to get trade knowledge is through the columns of the best clay journal, THE CLAY-WORKER. The up-to-date, successful manufacturer usually keeps posted on current events through the current magazines. The home should be provided, and usually is, with journals devoted to domestic interests and to the welfare and pleasure of the women and children. All of these whether literary or technical, we offer at prices that will net a saving of 25% to 50% on your magazine purchases for the ensuing year.

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DES MOINES, IOWA.....	Emery & Baker
BIRMINGHAM, ALA.....	Vail-King Supply Co.

Mention THE CLAY-WORKER.

Notice to Manufacturers of Hollow Tile and "Stiff Mud" Products.



Denison Tile Walls.

One unit lays up the different desirable thicknesses of walls.

As cheap as common brick.—

Lays up at half the cost.—

Requires 100 tons per square foot to crush.—

Warm in winter.—

Cool in summer.—

Dry always.—

Sound Proof—Vermin and Germ Proof.—

Needs no furring, etc.



A new departure in building constructions is on. Hollow Tile taking the place of common brick and frame construction in load bearing walls. City after city is changing its building code to permit the use of hollow tile load bearing wall construction. As fast as the live manufacturers investigate, they take hold of the opportunity. It is but little short of a revolution in building construction.

Fifty million common brick displaced by tile in Cleveland in 1911.

Start it in your locality.

DENISON TILE

best to do it with. We have never yet failed to convince a manufacturer of this fact.

Only about 15 cts. per ton royalty with exclusive territory. Business built upon patented Denison Tile cannot be torn down by competition.

All we ask is that you investigate.

Write to

The Ohio Clay Company,

1337 Schofield Bldg., Cleveland, O.

The Richardson=Lovejoy Engineering Company

Columbus, Ohio

FACTORY ARCHITECTS CERAMIC ENGINEERS

Geological Examinations of Properties.

Clay testing.

Investigations of Manufacturing Propositions.

Plants designed.

Appraisals of plants.

Construction superintended.

Operations directed.

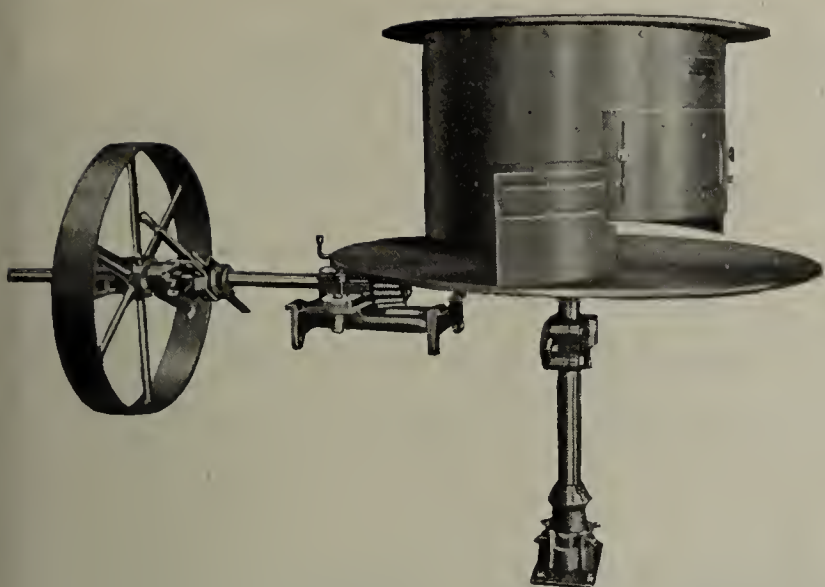
Plans for dryers, Furnaces, Kilns.

Especial attention given to problems in Fuel
Economy.

Old plants remodeled and put on an Economic Basis.

New Lines of Products developed.

PAMPHLET
“CERAMIC ENGINEERING”
FREE.



COLUMBUS CLAY FEEDER

Increase the capacity of your
Machinery and Improve the qual-
ity of your product by

UNIFORM FEEDING

(CATALOG)

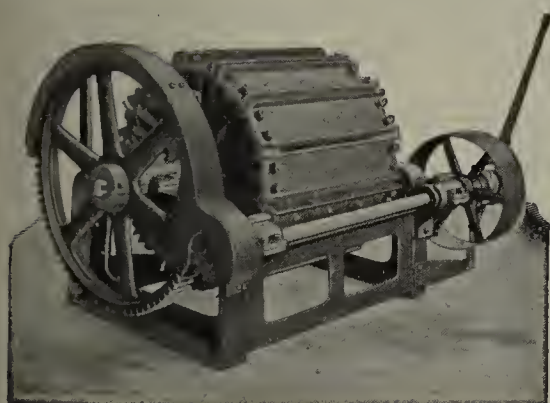
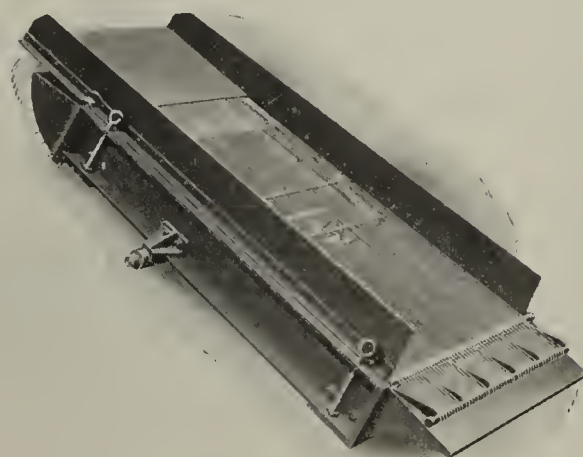
Columbus Piano Wire Screen

(PATENTED)

6 Sizes—Any Desired Mesh. Center Spacing Bar.
2 Gauges of Wire. Vibrator.

ASK THE USER!

(CATALOG)



The Standard Paving Brick Rattler

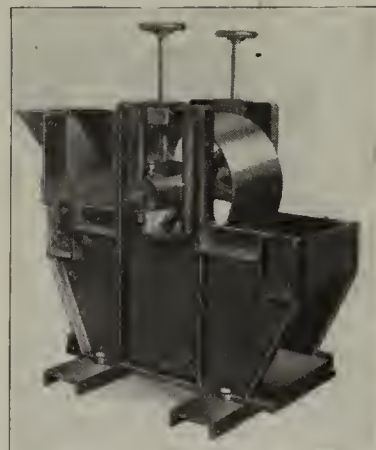
Built in exact accordance with the revised
specifications of the National Paving Brick Manu-
facturers' Association.

WRITE FOR PAMPHLET "Standard Tests of Paving Brick."

Improved Elevating and Conveying Equipment

Belting, Pulleys, Hangers, Shafting, Etc.

Write For CATALOG and PRICES.



Thermometers, Pyrometers, Draft Gauges.

The Ceramic Supply & Construction Co.

Columbus, Ohio

Mention THE CLAY-WORKER.

The Justice Clay Crusher will Overcome Your Crushing Troubles

When planning your improvements for 1912, don't forget to abandon that antiquated makeshift of a dryer that you have been using for years, and install the modern system



The Justice Radiated Heat Dryer.

From the first minute of its use you realize a higher percent of profit on your output, caused by a better product at less expense—possible only with this Dryer.

Its merits are summed up in the following:

Highest efficiency from fuel consumed.

Greatest economy in labor.

Minimum amount of building material.

Simplicity in construction details.

No sulphur gases in contact with drying ware.

Drying conditions under full control.

No expensive repairs required.

Successful results always certain.

Write for Bulletin No. 1. It fully describes this Dryer.

The Manufacturers Equipment Company

Sales Agent for: The J. D. Fate Company's Complete Line of Clay Working Equipment
The Elwood Dry Press The Joplin Rock Crusher

Dayton, Ohio, U. S. A.

Give "Meco" Clay Cutting Wires a Trial. They mean Better Service at Less Expense

BOOKS FOR CLAYWORKERS.

These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

The Brickmakers' Manual, by R. B. Morrison and J. A. Reep. Price \$3.00.

An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryers, kilns, etc.

Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

Clays; Their Occurrence, Properties and Uses, by Heinrich Ries. Price \$5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's Earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

Bricklaying, by Owen B. Maginnis. Price \$2.00.

This book contains extensive explanations of the most improved modern methods of bricklaying, and is the current practice and experience of the best authorities, making an invaluable work of reference for architects, engineers, contractors, builders and mechanics.

Engineering for Land Drainage, by C. G. Elliott. Price \$1.50.

Giving instructions for laying out and constructing drains for the improvement of agricultural lands intended for the use of those who are charged with the responsibility of making plans for and executing drainage improvement.

Vitrified Paving Brick, by H. A. Wheeler, E. M. Second Edition. Price \$2.00.

A review of present practice of the manufacture, testing and uses of Vitrified Paving Brick.

Tables of Analyses of Clays, by Alfred Crossley. Third Edition. Price \$2.00.

Including analyses of chemically pure clays, well-known common and pressed brick clays, paving brick clays, fire clays, shales, etc., both in this country and abroad. A valuable book for those desiring to compare their clays with well-known and standard clays.

Bricklaying System, by Frank B. Gilbreth. Price \$3.00.

A book whose 330 pages are filled with rules and hints for the foreman and bricklayers, designed to increase the output of the workmen, and enable them to do difficult work in the best manner.

Kiln Records, by W. D. Richardson. Price \$1.00.

To establish a successful system of burning, observations and records should be made regularly, carefully and conscientiously, and this can be done to best advantage by the use of Mr. Richardson's Kiln Records.

Practical Farm Drainage, by C. G. Elliott. Price \$1.50.

A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

Tile Underdrainage, by J. J. W. Billingsley. Price 25 cents.

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distribution among tile users. In lots of 100, \$2.50; in lots of 1,000, \$20.00.

T. A. RANDALL & CO.,
Indianapolis, Ind., U. S. A.

HAIGH'S IMPROVED NEW SYSTEM OF CONTINUOUS KILN

Arranged to Suit All Locations.

These Kilns can be seen burning Roofing Tile, Drain Tile, Dry Pressed, Facing, Fire, Paving and Common Building Brick, and burning from 5,000 to 200,000 brick per day.

Points of Superiority:

Cheapness in construction. Easy to understand and operate. Perfectly free from any nuisance. We save more than one-half the fuel and half the labor used on other kilns.

With our new draft flue arrangement we get absolutely the highest economy. Our new waste heat arrangement, both for water-smoking in the kiln, and in drying the brick in the dryer, has no equal.

We claim the nearest to 100% No. 1 product, and want you to see them.

Read the following letter from the Wise County Brick Company:

BRIDGEPORT, TEXAS, AUGUST 5, 1911.

MR. H. HAIGH,
Catskill, N. Y.

DEAR SIR:—We have your favor of 1st inst and are handing you herewith check to balance our account, for drawings, specifications and rights for your system of continuous kiln, in this connection we desire to thank you for the many courtesies extended. Our relations with you have been very pleasant indeed, and the kiln is a fuel saver.

Business conditions have been such here that we have not been crowded with orders this year, but even under those conditions we are now adding four additional chambers to the kiln, which will then give us twenty-four chambers.

With best wishes for your continued success, we are,

Very respectfully yours,

WISE COUNTY BRICK CO.,

J. V. MONTRIEF, Secretary.

(This kiln was constructed from plans and written instructions wholly; neither myself nor any of my men have ever seen it, yet the company has operated it successfully for two years which is ample proof of the simplicity of the construction and operation of my kiln.—Hervey Haigh.)

**This Kiln can be Fired with Coal, Wood, Oil Natural
or Producer Gas.**

For further particulars and information address

H. HAIGH

Brickworks Engineer,

CATSKILL, N. Y.

Why the Wire-Cut-Lug Block is Best

and

Why It Meets Favor

Not Injured by Re-
pressing.

Admits Free Flow
of
Bonding Material.

Greatly Reduces
Percentage of
Culls and Seconds.

Less Cost to Manu-
facture than Re-
pressed Brick.

Increased Profits
Due to Increased
Yardage Per
Thousand Blocks.

Has Greater Dens-
ity than Repressed
Brick.

The Dunn Wire-Cut-Lug Brick

MADE BY THE DANVILLE BRICK CO.

Stood the Following Test.

RATTLER TEST

Blocks marked.....	"Danville"
Weight of abrasive material.....	Small shot 225 lbs. Large 75 lbs.
No. revolutions each test.....	1800
No. of bricks each test.....	8
Approx. dimensions each brick.....	8.24x4.09x3.69 in.
Average number of revolutions per minute.....	28.6
Weight of brick before test.....	81.078 lbs.
Weight of brick after test.....	72.875 lbs.
Loss in weight due to abrasion.....	8.203 lbs.
Percentage in loss due to abrasion.....	10.12 per cent.
No. of brick broken.....	none

Uniform Lugs mean
Absolutely
Uniform Interstices.

Square Edge Brick
make the Smoothest
Pavement Possible

(Rounded edges are en-
tirely unnecessary and a
distinct disadvantage in
securing a perfect sur-
face.)

Only Two Groutings
Necessary and Little
Care Needed.

Saves Time, Labor
and Cost.

Stand High Test.



THE BEST PAVEMENT IN DANVILLE, ILL.

Paved with Dunn Wire-Cut-Lug Brick.

15,000 Yards of this type of Pavement were let on the strength of its appearance and structure.

The Dunn Wire-Cut-Lug Brick Co., Conneaut, Ohio

Patented in the United States and Foreign Countries

Wire-Cut Lug Blocks

More than meet the requirements
of Engineers

DAY LETTER THE WESTERN UNION TELEGRAPH COMPANY

INCORPORATED

25,000 OFFICES IN AMERICA

CABLE SERVICE TO ALL THE WORLD

This Company TRANSMITS and DELIVERS messages only on conditions limiting its liability, which have been assented to by the sender of the following message.

Errors can be guarded against only by repeating a message back to the sending station for comparison, and the Company will not hold itself liable for errors or delays in transmission or delivery of Unrepeated Day Letters, sent at reduced rates, beyond a sum equal to ten times the amount paid for transmission, nor in any case beyond the sum of Fifty Dollars, at which, unless otherwise stated below, this message has been valued by the sender thereof, nor in any case where the claim is not presented in writing within sixty days after the message is filed with the Company for transmission.

This is an UNREPEATED DAY LETTER, and is delivered by request of the sender under the conditions named above.

THEO. N. VAIL, President

5 M A X 117 Collect

BELVIDERE BROOKS, General Manager

RECEIVED AT CONNEAUT, OHIO, 10-35 A. M.

Grand Rapids Mich. 9-29-11.

Dunn Wire-Cut-Lug Brick Co.,
Conneaut, Ohio.

American Society Municipal Improvements in annual convention here unanimously adopted report of general committee on standardizing paving specifications in which they presented with their approval the report of sub-committee on specifications for brick pavements and Wire-Cut-Lug Blocks are therein admitted. General committee was composed of C. C. Brown, Consulting Engineer, Indianapolis; C. H. Rust, City Engineer, Toronto, Ont; M. R. Sherred, Chief Engineer Board of Public Works, Newark, New Jersey; E. A. Fisher, City Engineer, Rochester, N. Y.; and Prof. A. N. Talbot, University of Illinois, Urbana, Illinois. Sub-committee E. H. Christ, Chairman Board of Public Works, Grand Rapids, Mich.; J. B. Hittell, Engineer of Streets, Chicago, Illinois; Henry Maetzel, City Engineer, Columbus, Ohio and Prof. Talbot.

F. B. Dunn

The Dunn Wire-Cut-Lug Brick Co.

Conneaut, Ohio

Patented in the United States and Foreign Countries



Carload of Dunn Wire-Cut-Lug Brick in the Green State on the Road from Cutter to Dryer—Note the Uniformity of the Work done by the Dunn Cutter and the Perfect Manner in which the Lugs are Formed.

Corry Brick and Tile Company, Corry, Pa.

Sterling Brick Company, Olean, N. Y.

Reynoldsville Brick and Tile Co., Reynoldsville, Pa.

United Brick Company, Conneaut, O.

Kushequa Brick Company, Kushequa, Pa.

Danville Brick Company, Danville, Ill.

Patterson Clay Product Company, Clearfield, Pa.

These plants now using the Dunn System successfully and selling all they can make of the wire-cut-lug block at increased profits.

The Dunn Wire-Cut-Lug Brick Co.
Conneaut, Ohio

Patented in the United States and Foreign Countries

Over 400 Cities Endorse Wire-Cut-Lug Blocks

At the present time the authorities of most of the important cities of the country include in their specifications for brick paving the admission of wire-cut-lug block. Many city engineers have expressed their definite preference for wire-cut-lug block over repressed block.

For state highway work the following states have admitted wire-cut-lug block: NEW YORK, KANSAS, OHIO and PENNSYLVANIA; and on county work: Cuyahoga County, Ohio, and Alleghany County, Pennsylvania, two sections where brick-paved country highways are common.

LIST OF CITIES WHICH INCLUDE WIRE-CUT-LUG BLOCK IN THEIR SPECIFICATIONS:

Alabama Birmingham Decatur Gadsden New Decatur	Aurora Bloomington Columbus Crawfordsville Elkhart Fort Wayne Huntington Indianapolis Ligonier Logansport Madison Mishawaka New Albany Noblesville Plymouth Portland Princeton Seymour South Bend Terre Haute Winchester	Waltham Watertown Worcester	Jersey City Millville Passaic Phillipsburgh Plainfield Rahway Salem Washington	Hubbard Kent Lakewood Lima Lockland Lorain Marietta Miamisburgh Millersburg Newark New London Painesville Piqua Salem Sandusky Springfield Steubenville Struthers Toledo Warren Washington C. H. Willoughby	Oil City Philadelphia Pottsville Rankin Reading Rochester Royersford Sayre Scranton St. Clair Sharpsville Shenandoah South Bethlehem Washington Westchester Wilkesbarre Wilkinsburg Williamsport Wilmerding Youngwood
Arkansas Helena Little Rock Mena Paragould	British Columbia Nanaimo Nelson Victoria	Michigan Adrian Battle Creek Big Rapids Escanaba Grand Rapids Hancock Hillsdale Holland Jackson Kalamazoo Lansing Monroe Pontiac Port Huron St. Joseph Wyandotte	New York Canajoharie Canandaigua Catskill Dunkirk Elmira Fishkill Landing Fonda Fort Plain Frankfort Fulton Geneeo Geneva Gloversville Hamburg Herkimer Hornell Kingston Lackawanna Lyons Middletown New York Niagara Falls North Tonawanda Norwich Olean Oneida Oneonta Plattsburg Port Jervis Rochester Rome Salamanca Sharon Springs Syracuse Troy Watertown Watervliet	Oklahoma El Reno Enid Lehigh Shawnee Tulsa	Quebec Hull
California Colton Eureka Fresno Long Beach Los Angeles Marysville Riverside Visalia	Iowa Ames Battle Creek Boone Burlington Chariton Corning Clarinda Creston Davenport Des Moines Eagle Grove Glenwood Grinnell Ottumwa Red Oak Sioux City Villisca Waterloo Webster City	Minnesota Albert Lea Crookston Duluth Mankato Moorhead New Ulm Red Wing Winona	Ontario Brantford Collingwood Cornwall Guelph Kingston Lindsey Niagara Falls Toronto	South Carolina Greenville Greenwood	South Dakota Aberdeen Pierre Yankton
Colorado Boulder Denver	Connecticut Bridgeport Meriden Norwalk Norwich Stamford	Mississippi Vicksburg	Oregon Baker Dallas City Eugene	Tennessee Bristol Knoxville Memphis	Texas Austin Bryan Corsicana Fort Worth Houston Palestine San Angelo Temple
Delaware Milford	Florida Lake City Ocala Palatka St. Petersburg	Missouri Aurora Boonville Brookfield Clinton Columbia De Soto Fulton Hannibal Jefferson City Independence Kansas City Lexington Maryville Mexico Moberly Nevada Richmond Sedalia St. Louis Windsor	North Carolina Durham Goldsboro Greensborough New Bern Raleigh Wilmington	Pennsylvania Allentown Bethlehem Bloomsburg Bradford Brownsville Butler Carbondale Carlisle Carrick Catsauqua Chambersburg Chester Corry Darby DuBois East Bangor Erie Franklin Gallitzin Greensburg Greenville Hanover Harrisburg Indiana Kingston Knoxville Latrobe McKeesport McKees Rocks Meadville Monongahela Mt. Oliver New Brighton New Castle Norristown	Utah Provo
Georgia Albany Athens	Illinois Amboy Beardstown Bloomington Canton Champaign Charleston Chicago Chicago Heights Danville Decatur Elgin Evanston Freeport Galena Huntley Joliet La Grange Mattoon Mt. Carmel Mount Vernon Oak Park Ottawa Paxton Pekin Pontiac Quincy Savanna	Kansas Clay Center Concordia Horton Hutchinson Independence Leavenworth Olathe Pittsburg Wichita	North Dakota Grand Forks	Virginia Danville Lynchburg Newport News Norfolk Suffolk Winchester	Vermont St. Albans
Kentucky Ashland Covington Lexington Louisville	Louisiana Lake Charles	Montana Bozeman Butte Great Falls Helena	Nova Scotia Glace Bay Sydney Truro	Washington Aberdeen Bellingham Port Townsend Spokane	West Virginia Charleston Fairmount Wheeling
Maine Portland	Maryland Baltimore Cambridge Frederick	Nebraska Grand Island Havlock Norfolk North Platte South Omaha York	Ohio Akron Barbertown Barnesville Bellefontaine Bowling Green Bucyrus Chillicothe Circleville Cleveland Conneaut Defiance East Liverpool East Palestine East Youngstown Elyria Findlay Girard	Wisconsin Appleton Beloit Green Bay Portage Racine	
Massachusetts E. Bridgewater Everett Franklin Greenfield Malden Medford New Bedford Newburyport Southridge Springfield		New Brunswick Fredericton			
		New Hampshire Laconia			
		New Jersey Bloomfield Boonton Burlington East Orange			

The right to manufacture wire-cut-lug block can be secured on reasonable terms by application to

THE DUNN WIRE-CUT-LUG BRICK COMPANY, Conneaut, Ohio

Patented in the United States and Foreign Countries.

"Mr Clayworker—This is YOUR SHOW"



Go Where the Buyers Are

The man who has some brick to sell,
And tells his story down a well,
Will never reap the golden dollars
Of he who joins the show and hollers.

The Clay Products Exposition will be the opportunity of recent years to find buyers for your product. Architects, Contractors and Builders from all parts of the United States are taking the liveliest interest in the Exposition. They all want to see what the Clay Products people have to offer, and they will arrive in the Coliseum in March to be shown. These are the people most manufacturers would like to see and talk to, and the Exposition will afford the opportunity. It becomes important that displays of clay products which are creditable to the trade are shown in an attractive way. You should see that your best selling samples are there, and that they are backed by your best selling talk. A weakness anywhere along the line would be an unfortunate mistake. This is your opportunity to get business, Mr. Clayworker, so get busy. If you think you already have a pretty fair business you can either improve its volume or quality at the Exposition, and you can also prevent some other manufacturer getting a part of it away from you.

You Cannot Afford to Stay Out—This is YOUR Show

It will benefit your interests and help in increasing your sales anyway, but it will be doubly valuable if you have your products properly displayed in a suitable exhibit space for the inspection of

100,000 PAIRS OF EYES.

Write NOW for floor plan and particulars regarding reservation of space. You cannot afford to wait until the last minute.

INTERNATIONAL CLAY PRODUCTS EXPOSITION CO.

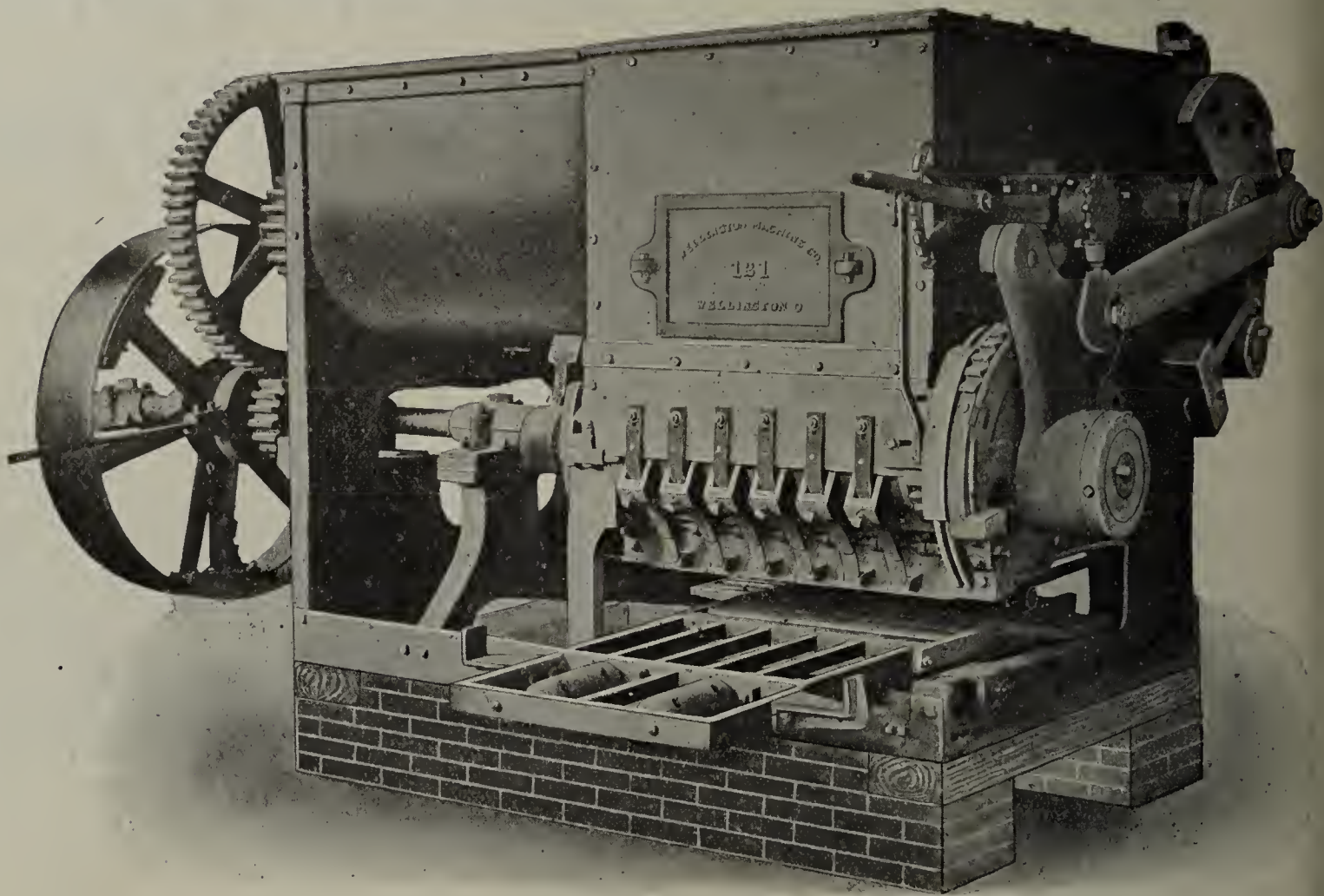
815 Chamber of Commerce Bldg., CHICAGO

AN OUTFIT THAT CAN'T BE BEAT

The Old Reliable Big No. 6 Monarch

Manufacturers of

Disintegrators,
Pug Mills,
Smooth Roll
Crushers,
Sand Dryers,
Molds, Barrows,
Trucks, Clay Cars,
Winding Drums,
Dump Carts,
Elevators,
Dump Tables,
Rack Dryer Cars,
Pallets and all kinds
of Kiln Castings



And The Wellington Mold Sander.

What a New England Customer Says

Gonic, N. H., Oct. 13, 1911.

Wellington Machine Co.,
Wellington, O.

GENTLEMEN:

We have been manufacturers of sand struck brick for over forty years and have used several makes of Sanding Machines; they were all about the same, always bothering and never doing the work right, and repairs cost from \$25.00 to \$50.00 per year. About ten years ago we accidentally ran across one of your Sanders and we are glad to say that it has been as reliable as the sun, and does the work just right. Any boy can handle it; it never breaks down and the repairs do not average \$6.00 per year.

We have two in constant use and have induced several of our local manufacturers to buy them; any of them will tell the same story.

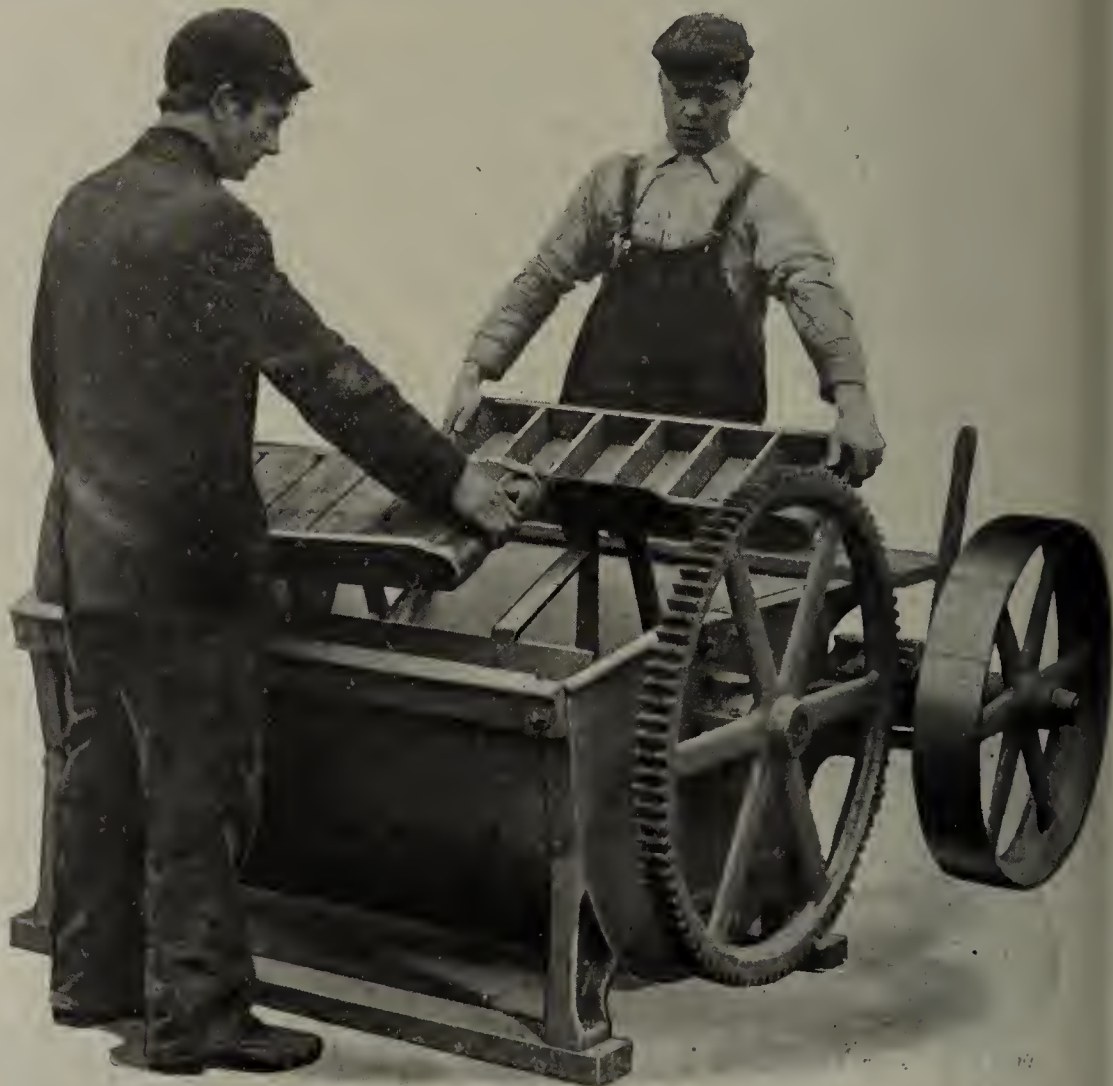
We make 56 M. per day on each machine.

Yours truly,

(Signed) BOSTON BRICK CO.,

By Robert A. Perry.

Send for 1912 Catalogue.



THE WELLINGTON MACHINE CO.

Wellington, Ohio

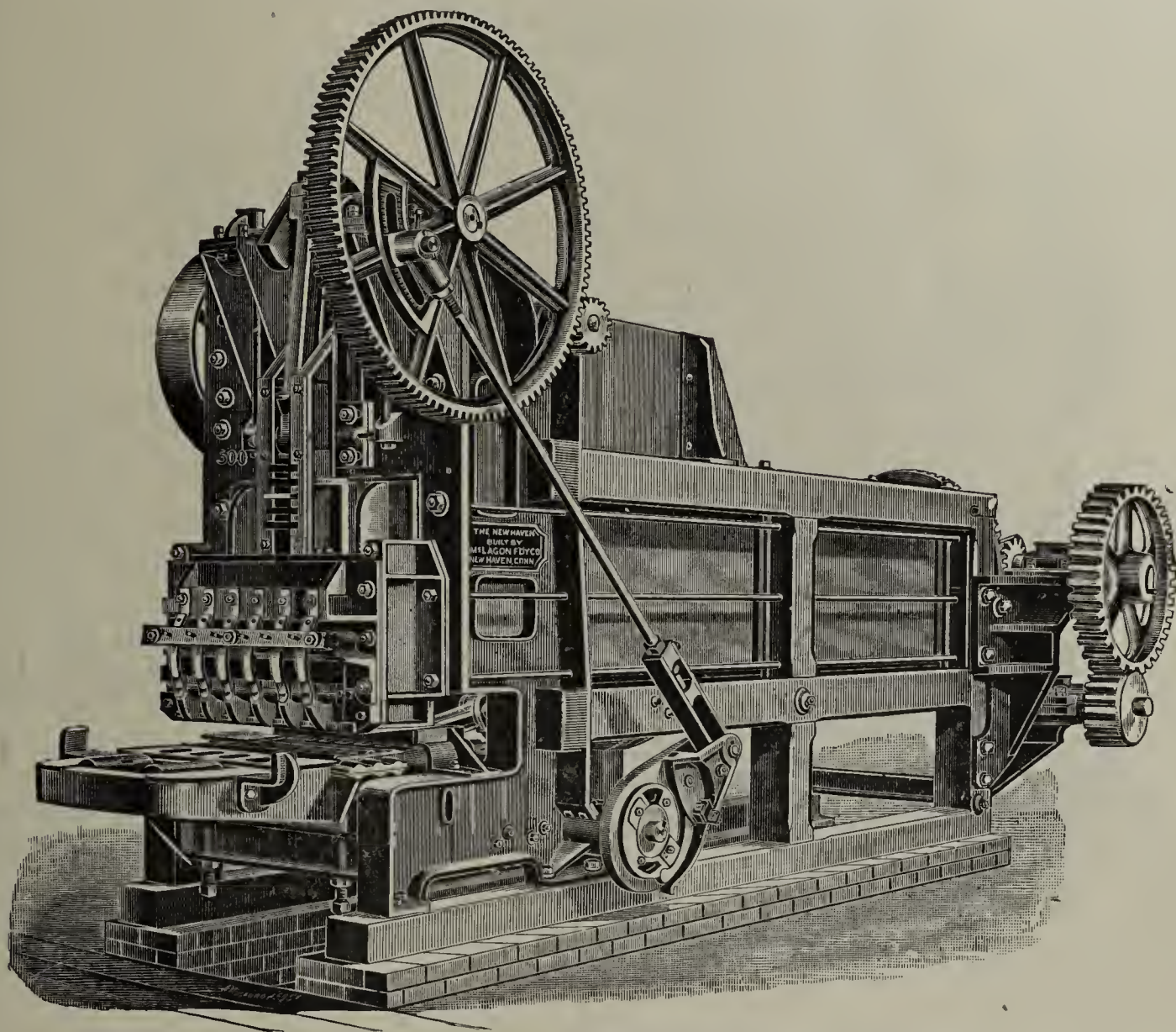
Mention THE CLAY-WORKER.

Soft Clay Brick Machines

Are the only kind we build, and it's our aim to build them well. They are the reliable kind, with great strength placed just where it is most required.

Stout shafts, long bearings, large oil holes, strong gears, steel liners and other details in proportion. They are the kind

▮ ▮ **THAT DON'T BREAK DOWN EVERY DAY.** ▮ ▮



“NEW HAVEN” HORIZONTAL BRICK MACHINE.

“New Haven” Brick Machines

Came into existence some twenty-three years ago, and they came to stay. They have staid so well and are so well liked at home that three-fourths of all the brick made in New England are the product of “**New Haven**” Machines. They excel everything and

===== **For Hard Service Are Sure to Satisfy** =====

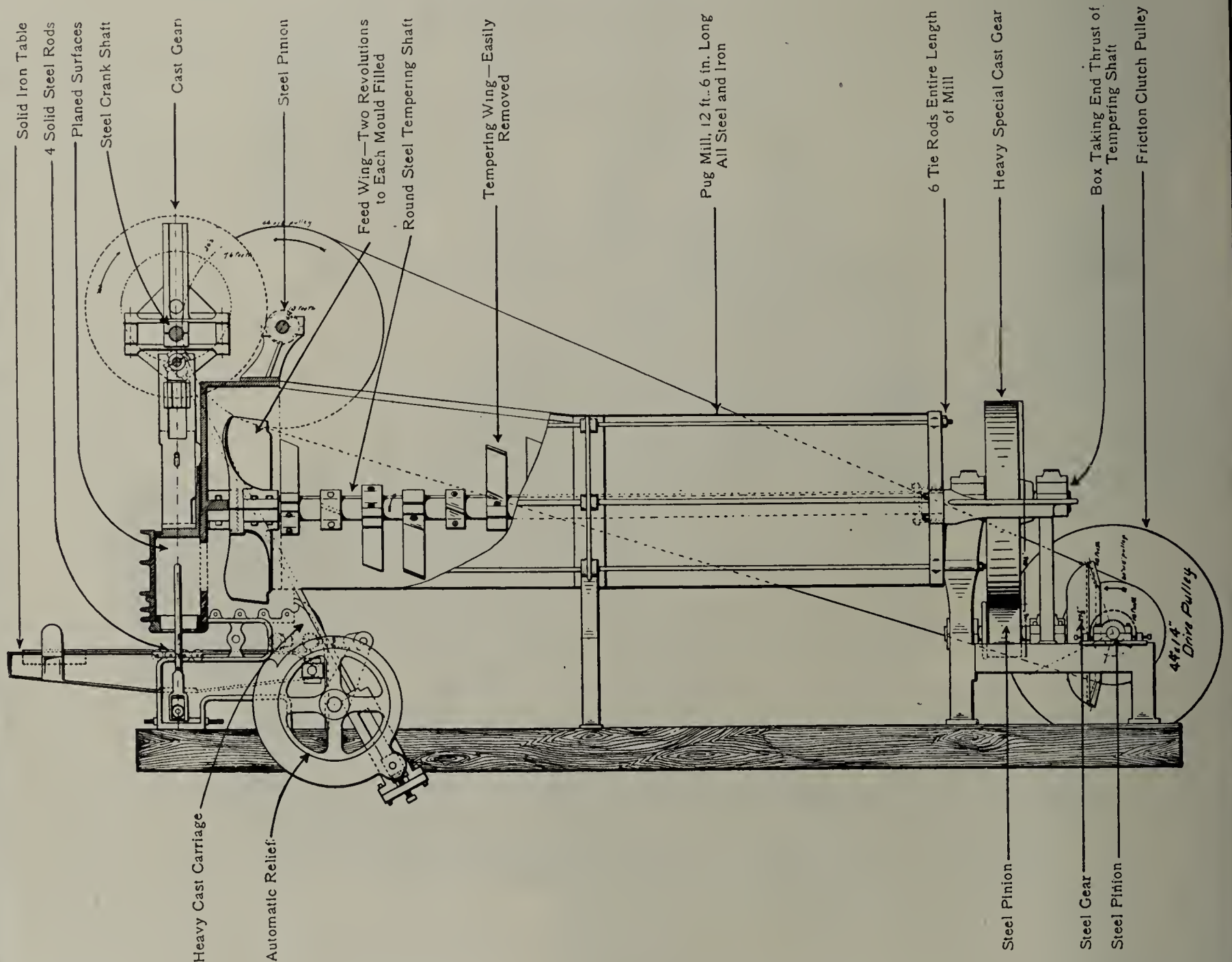
Where others fail. That is the reason all our machines are standing advertisements and why all our patrons recommend them. Such machines are worth investigating.

The EASTERN MACHINERY CO.

NEW HAVEN, CONN.

SEE THE ARROWS

They Point to Features Not Found in Any Other Sand Mould Machine.



All the good points shown go to make a Brick Machine that will give **Results**, one that you can depend upon, making a given number of brick every day with the least possible cost for Power, Labor and Maintenance.

If interested in new machinery, make a careful comparison of the good points in this machine, then try finding them in other machines. You can't do it.

Write for catalog.

C. & A. Potts & Co.

INDIANAPOLIS, IND.

CRUSHING MACHINERY

OUR SPECIALTY

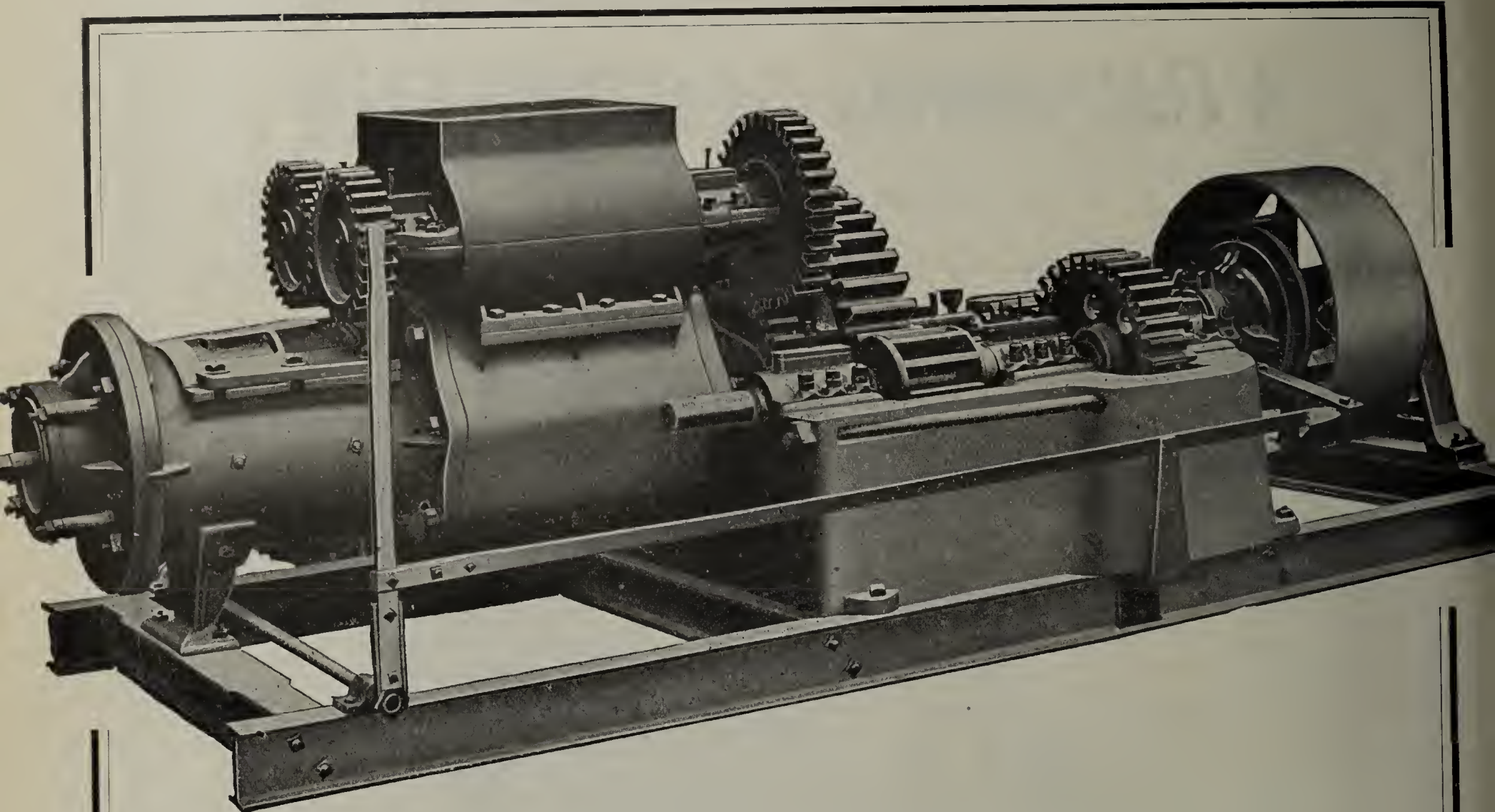
Years of experience with this line has enabled us to meet all demands and solve problems of all kinds.



Disintegrators, any capacity desired.
Compound Disintegrators and Crushers.
Smooth Roll Crushers, most improved pattern.

If you have a grinding plant which is not satisfactory, let us know your troubles, we can help you. All machines built of good material extra heavy for work intended. All rolls made from special iron thoroughly chilled.

C. & A. Potts & Co.
INDIANAPOLIS, IND.



A FEW POINTS OF SUPERIORITY IN MADDEN MACHINES:

Greater capacity in Tile, Brick or Hollow Ware than any other.

Better Quality of Ware—Dirt is compressed firmer and harder, making better material.

Fitted with our Positive Force Feed Device which insures greater capacity, steady output, with no back feeding of clay in hopper.

Great Weight and Strength where needed, the frame being cast in one piece, hopper, barrel and gears being very heavy. The shafts are of best hammered steel and main driving gears of cut steel.

Note how the entire machine is set up on Steel I Beam Frame, all bearings aligned on same frame, thus making this the strongest, most durable machine on the market, and the easiest to set up in your plant.

REMEMBER: We build these in four sizes for any capacity plant, and have a complete line of everything needed in any clayworking plant.

Let us hear your wants.

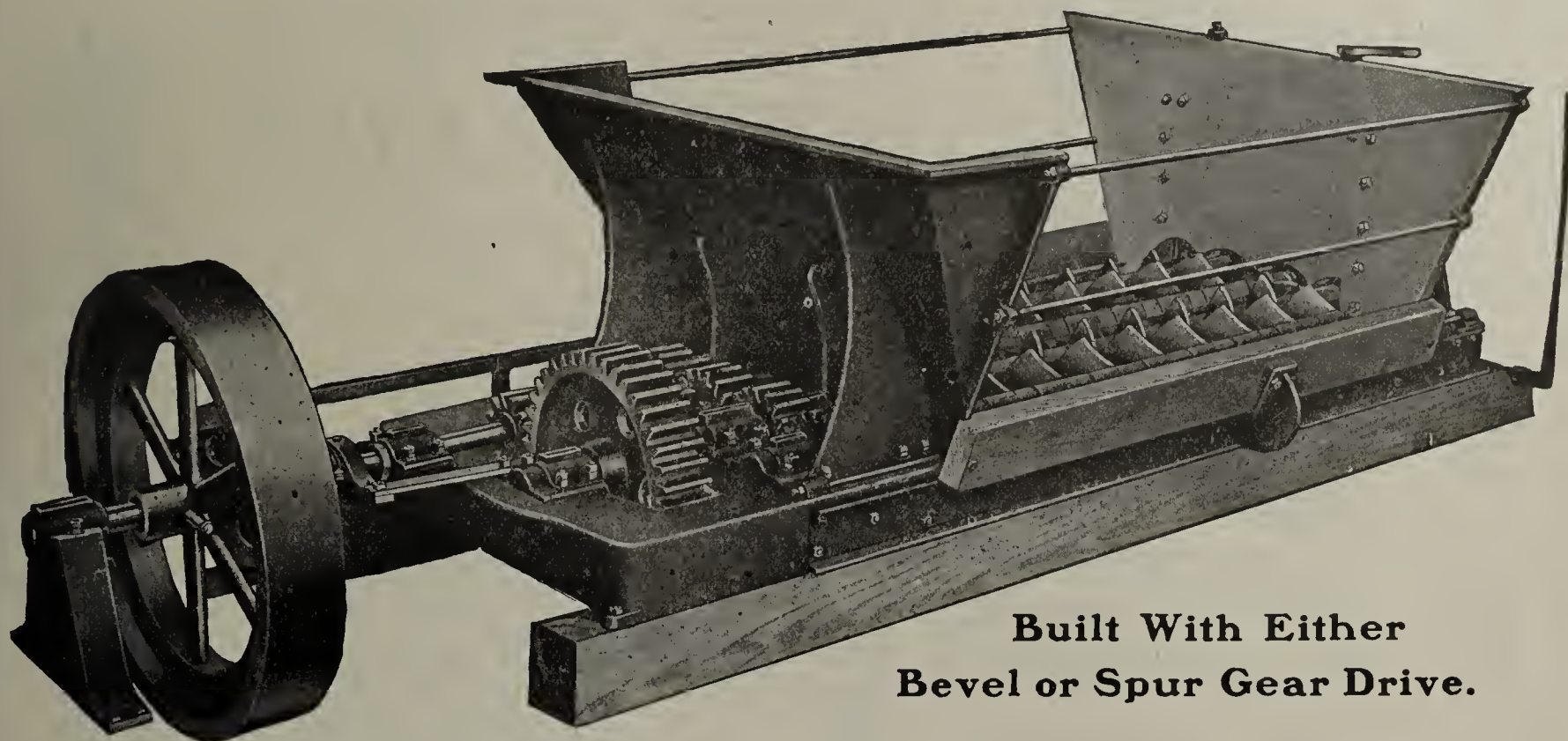
Sole Builders of
Madden Machinery.

ARBUCKLE & CO., Rushville, Ind.

Sold by Scott-Madden Iron Works Co., Keokuk, Ia.

THE ARBUCKLE GRANULATING CLAY FEEDER.

A Great Addition to the MADDEN Line.

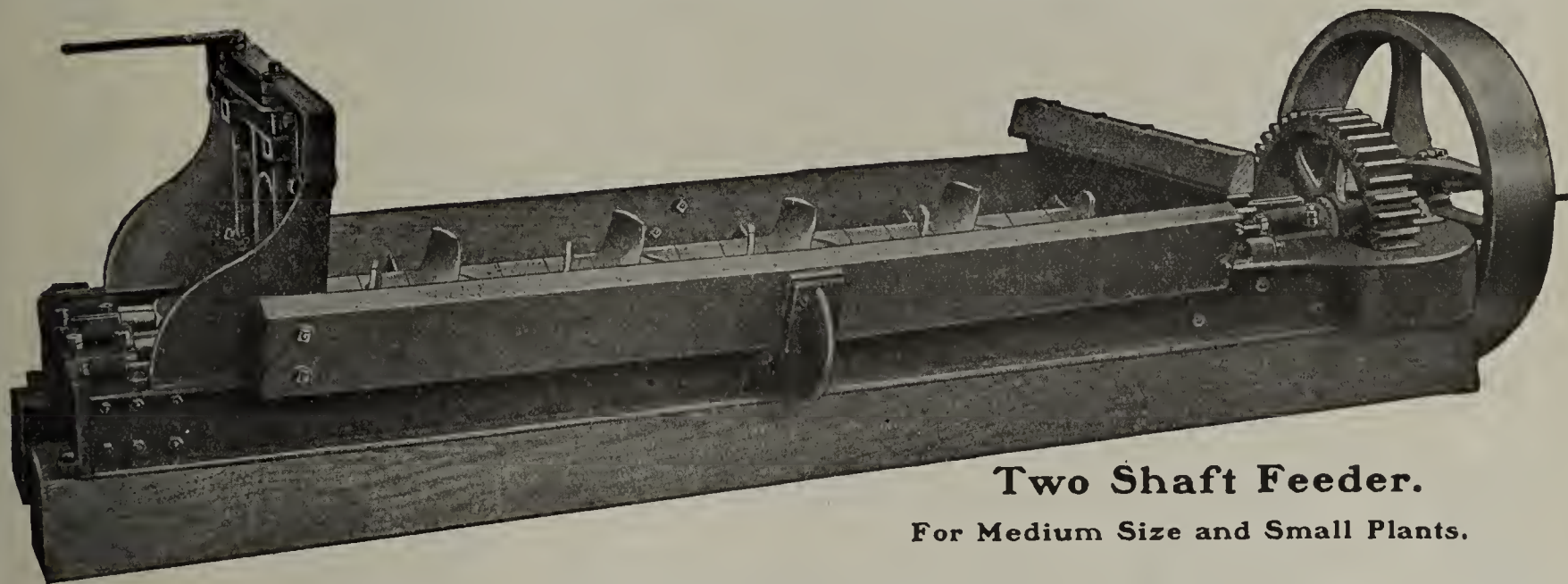


**Built With Either
Bevel or Spur Gear Drive.**

This new Granulating Feeder has several advantages over any other on the market.

The Granulating Knives will do more pugging and prepare the clay better than any other machine built.

The machine is built stronger than others. Larger shafts, stronger gears; hopper larger and more substantial. The adjustable gate in end of hopper controls the feed perfectly. A splendid machine taking the place of both Feeder and Granulator at a very reasonable price.



Two Shaft Feeder.
For Medium Size and Small Plants.

This is a great machine for the smaller plants. Will handle enough dirt for 12,000 to 15,000 four-inch tile per day, or 25,000 to 30,000 brick, and will pug the clay up in fine shape.

Note the heavy Gears, Granulating Knives. Hopper can be built up to any height, and it will feed the clay just as you want it.

It is low in price, and no plant can afford to do without one. Write for prices.

Sole Builders of
Madden Machinery

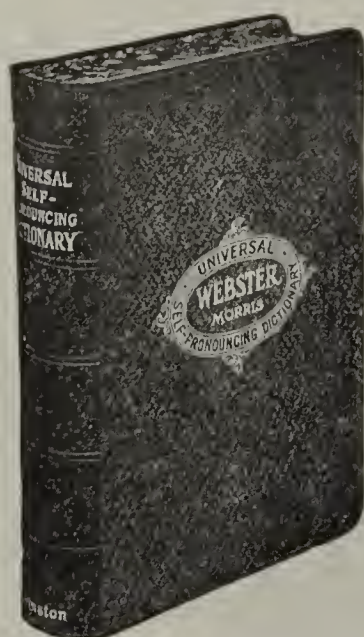
ARBUCKLE & CO., Rushville, Ind.

Sold by Scott-Madden Iron Works Co., Keokuk, Iowa.

FREE

This superb self-pronouncing Dictionary, in substantial cloth binding with The Clay-Worker for 1911, for \$2.00. Nothing nearly so valuable has ever been offered before. The flexible morocco binding, an elegant volume, will be sent for \$2.75, charges prepaid, together with The Clay-Worker for twelve months. **ORDER NOW.**

The Most Valuable Premium Ever Offered Free.



FRENCH MOROCCO BINDING
Absolutely Flexible

reinforced in all necessary parts to add to strength and durability. Title stamped in gold on side and back, marbled edges, Patent Thumb Alphabetical Index.

=THE NEW UNIVERSAL= —SELF-PRONOUNCING— DICTIONARY

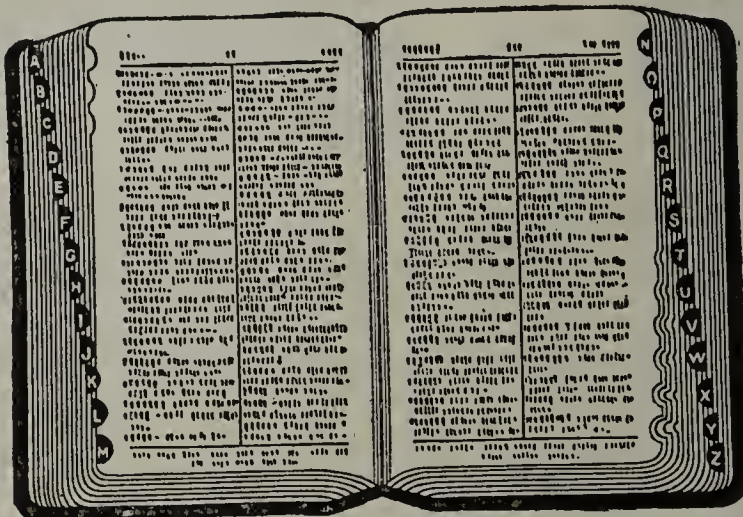
Based upon the Solid Foundation laid by
NOAH WEBSTER

and other Lexicographers, thoroughly modernized by
CHARLES MORRIS

In the Office It tells you how to divide each word into syllables; how to pronounce it, whether it begins with a capital letter or a small letter; gives abbreviations; legal and commercial terms, and names of persons and places. It will be found indispensable to employer, stenographer or clerk.

In the Home and School Its simple arrangement and clear definitions admirably fit it for this purpose. The bold type and the vast amount of general information it contains, commends it to Teacher, Parent and Child.

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from New
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Plates



This cut shows Patent Thumb Index and how Dictionary appears when open. It lies perfectly flat. Size when open 8 x 11 1/2 ins. Size when closed 5 1/2 x 8 1/2 ins. Contains over 1000 pages.

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Among the noteworthy improvements are the following:

It Contains All the Words in the English language in ordinary use, including the many new words that have recently come into use. The definitions are accurate and reliable and embrace all distinctions and shades of meaning.

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The Proper Use of Capital and Small Letters is clearly indicated. Proper nouns begin with capital letters, common nouns begin with small letters.

The Pronunciation of Each Word is shown by a clear and properly accented system of phonetic spelling.

The Synonyms and Antonyms are given with the words themselves following the definitions instead of the usual but less convenient method of placing them in a separate list in the appendix.

Each Word and Its Derivatives are separately indexed instead of the suffix words and prefix words being crowded in with the definitions, an expedient used to save space, but with a loss of clearness and utility.

Many Other Necessary Features Useful in Home, School and Office, including Rules for Pronunciation; Dictionary of Prefixes and Suffixes; of Names of Men and Women; of Mythological and Classical Names; of Forms of Address; of Popular Titles of Cities and States; of Important Persons, Places, Monuments; of Foreign Words and Phrases, Colloquialisms, Quotations and Significant Words and Phrases frequently met with in Literature; and a Dictionary of Words adopted by the Simplified Spelling Board; Maps of the World and of the United States in Colors; Flags of All Nations in Colors.

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ABSOLUTELY FLEXIBLE
The French Morocco binding is so flexible that the book may be rolled without injury to binding or sewing.

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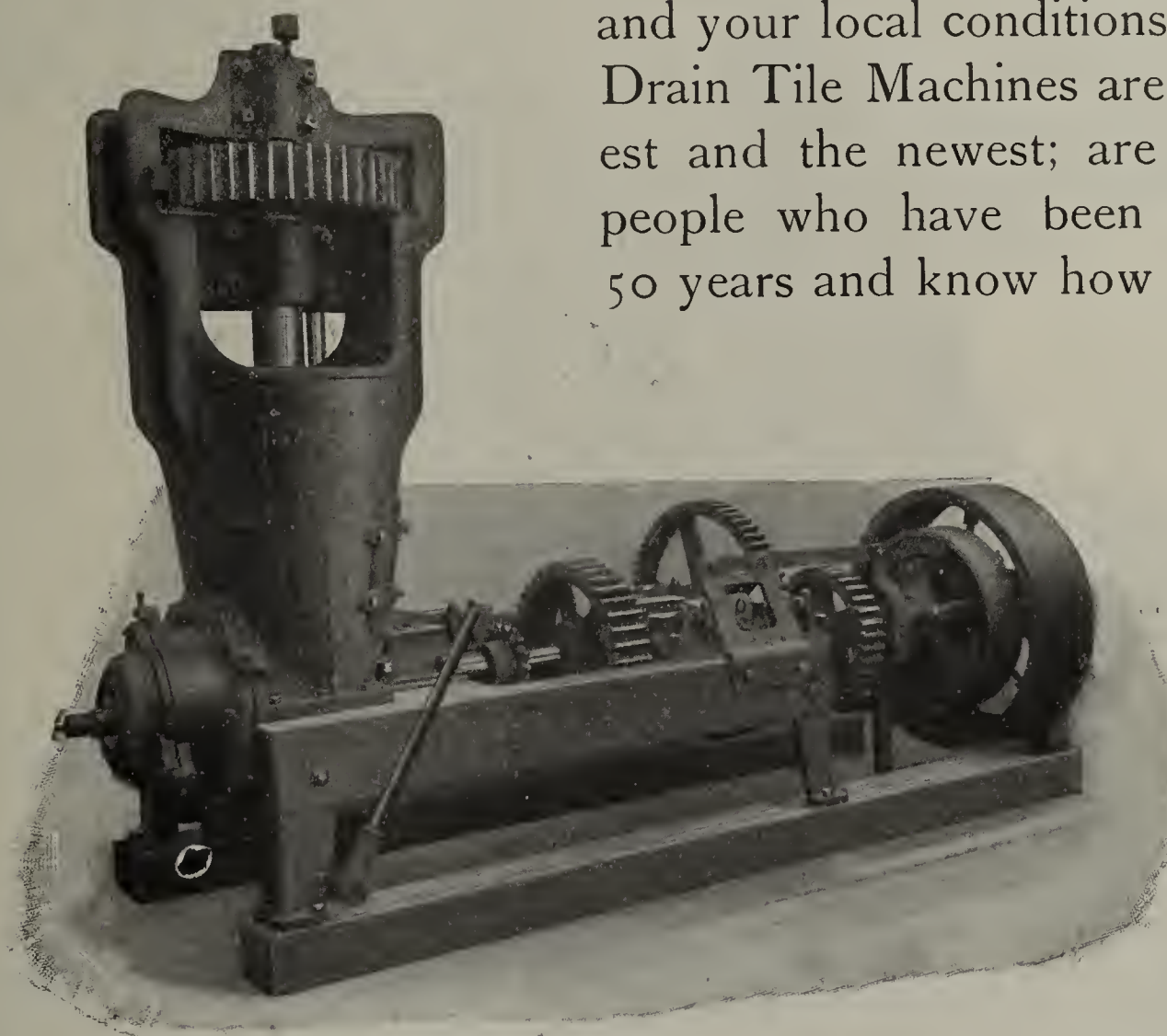
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T. A. Randall & Co. (Inc.), Publishers, Indianapolis, Ind.



DRAIN TILE MACHINES

We build and guarantee both upright and horizontal patterns in several sizes, and can furnish you with just the proper machine to suit your clay, your methods and your local conditions. Brewer Drain Tile Machines are the oldest and the newest; are built by people who have been at it for 50 years and know how to do it.



We also build Horizontal Brick Machines, Automatic Cutters, Crushers, Pug Mills, Feeders, Dry Pans, and a full line of stiff-mud machines.

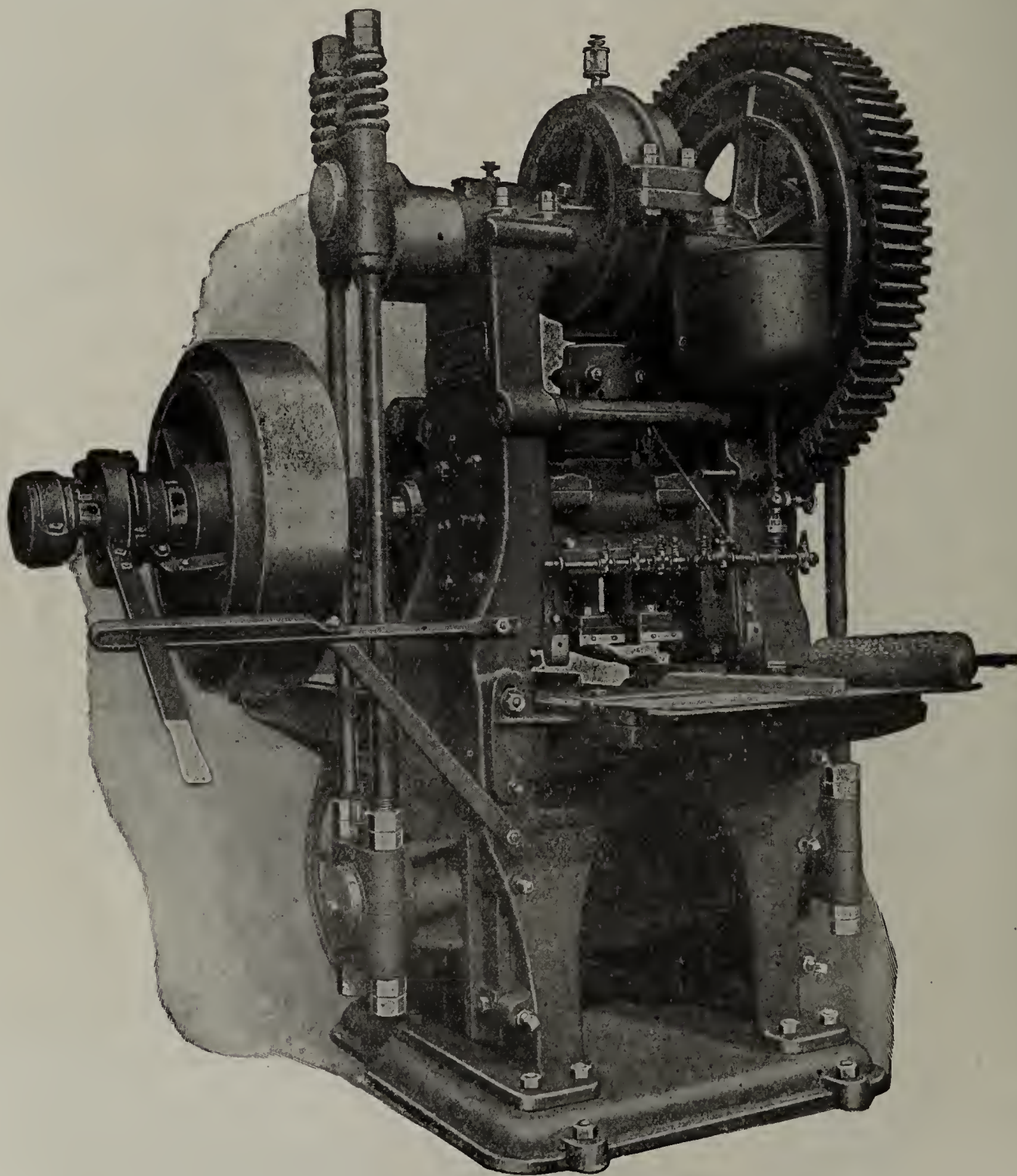
ASK FOR COMPLETE CATALOG.

H. BREWER & COMPANY, Tecumseh, Mich.



CANTON REPRESS IS THE BEST BECAUSE

It runs continuously with smooth rotary motion.
 It has no toggles or other fast-wearing and trouble-making parts.
 It has our **chilled** die box which will outwear any steel die box ever made.
 It has accessible and convenient method for changing thickness.
 It is preferred by brickmakers and we can prove it.



THE BONNOT COMPANY

909 N. Y. Life Bldg.,
 Kansas City, Mo.

CANTON, OHIO

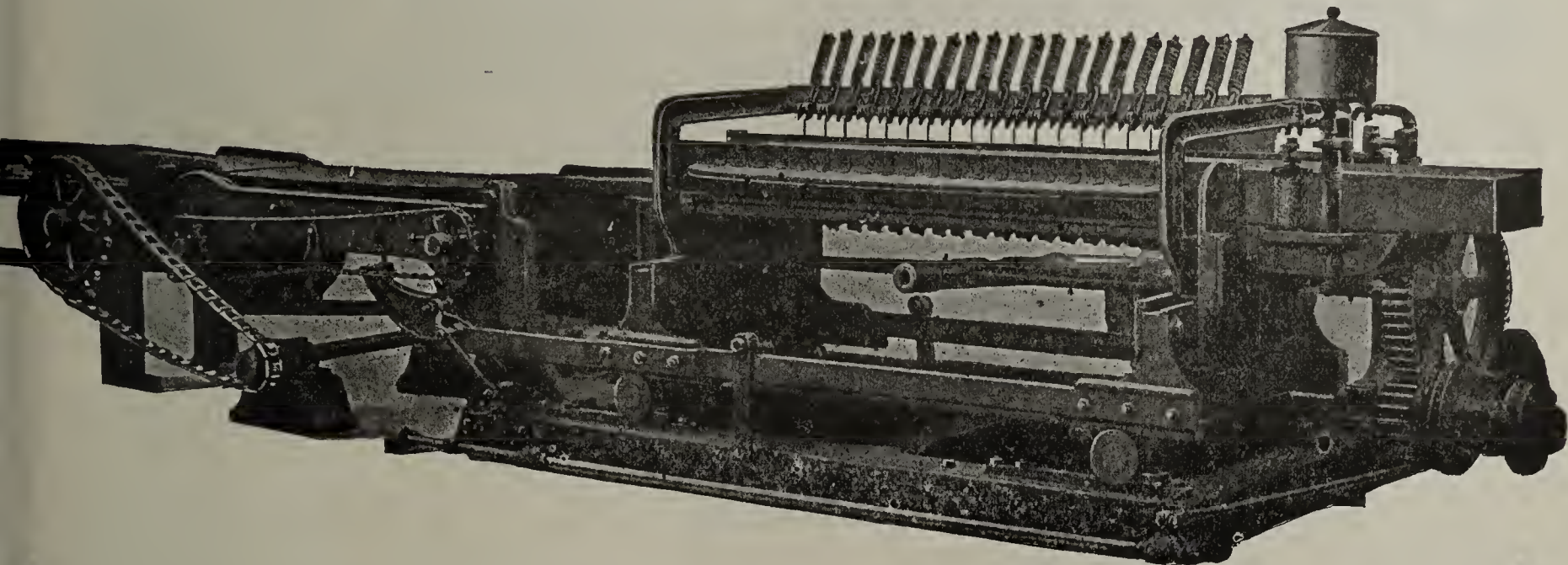
Mention THE CLAY-WORKER.



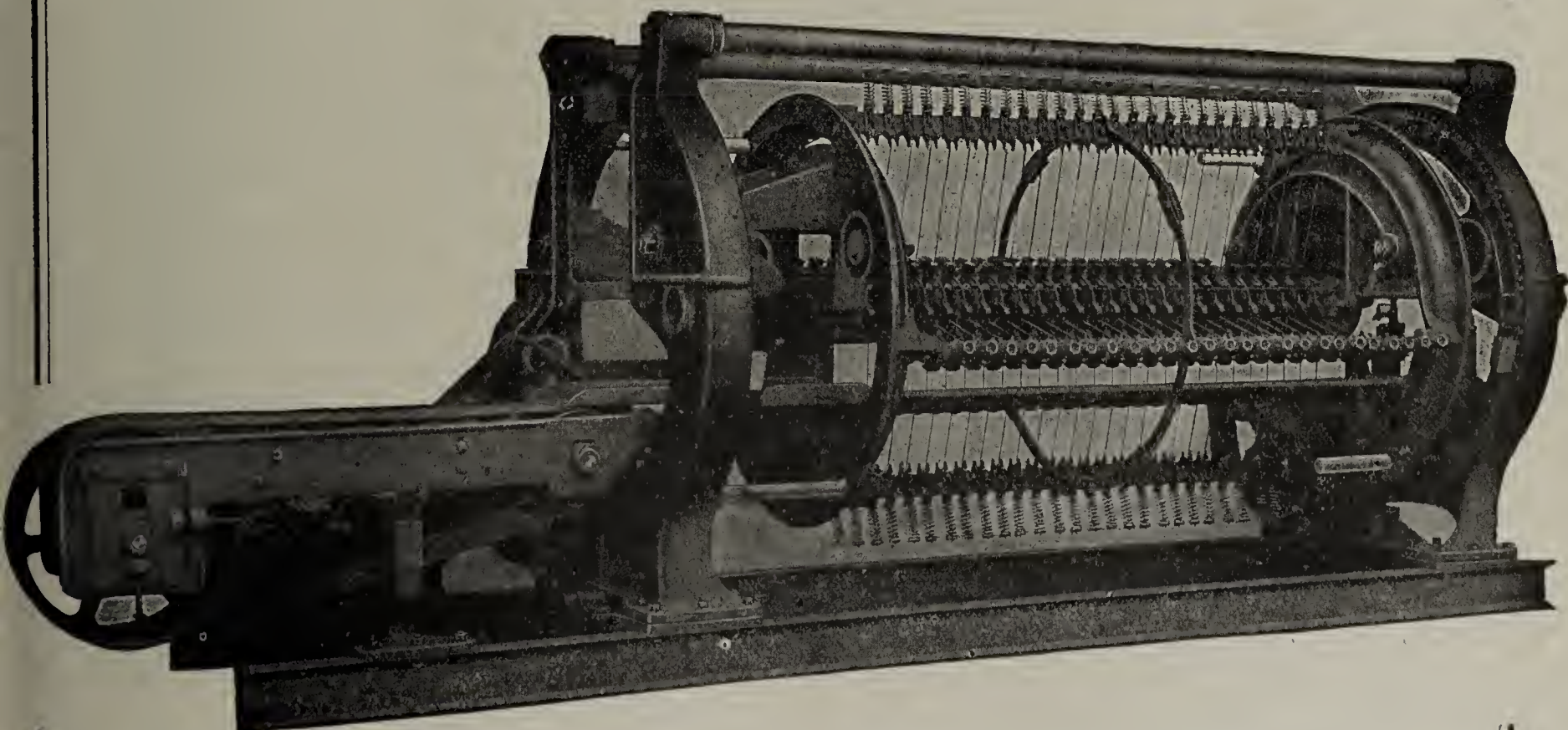


AUTOMATIC CUTTING TABLES

With fewer parts and the simplest mechanism.



Cuts brick within 18 inches of die.
No friction or other aggravations.
Capacity, 10,000 brick per hour.



Only Rotary Automatic Cutting Table, with Cutting Frame next to Die of Machine. Capacity, 100,000 Brick in 10 hours.

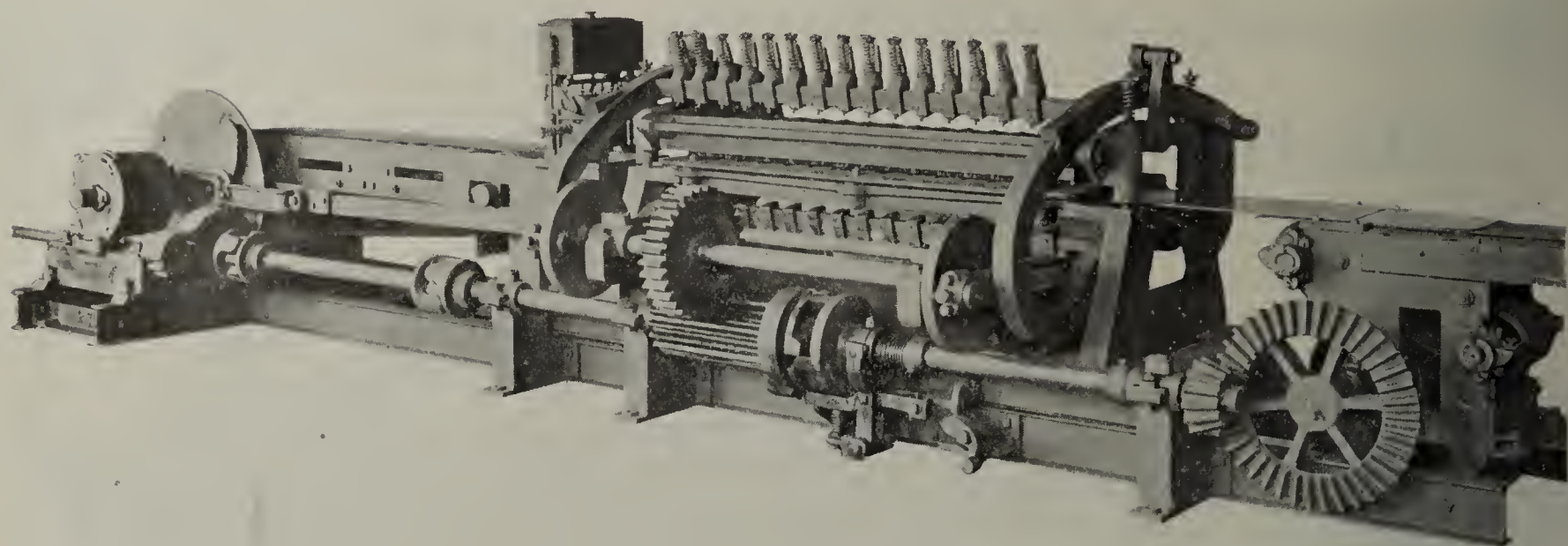
THE BONNOT COMPANY

909 N. Y. Life Bldg.,
Kansas City, Mo.

CANTON OHIO



Mention THE CLAY-WORKER.



Model T 60 Reciprocating Automatic Cutter

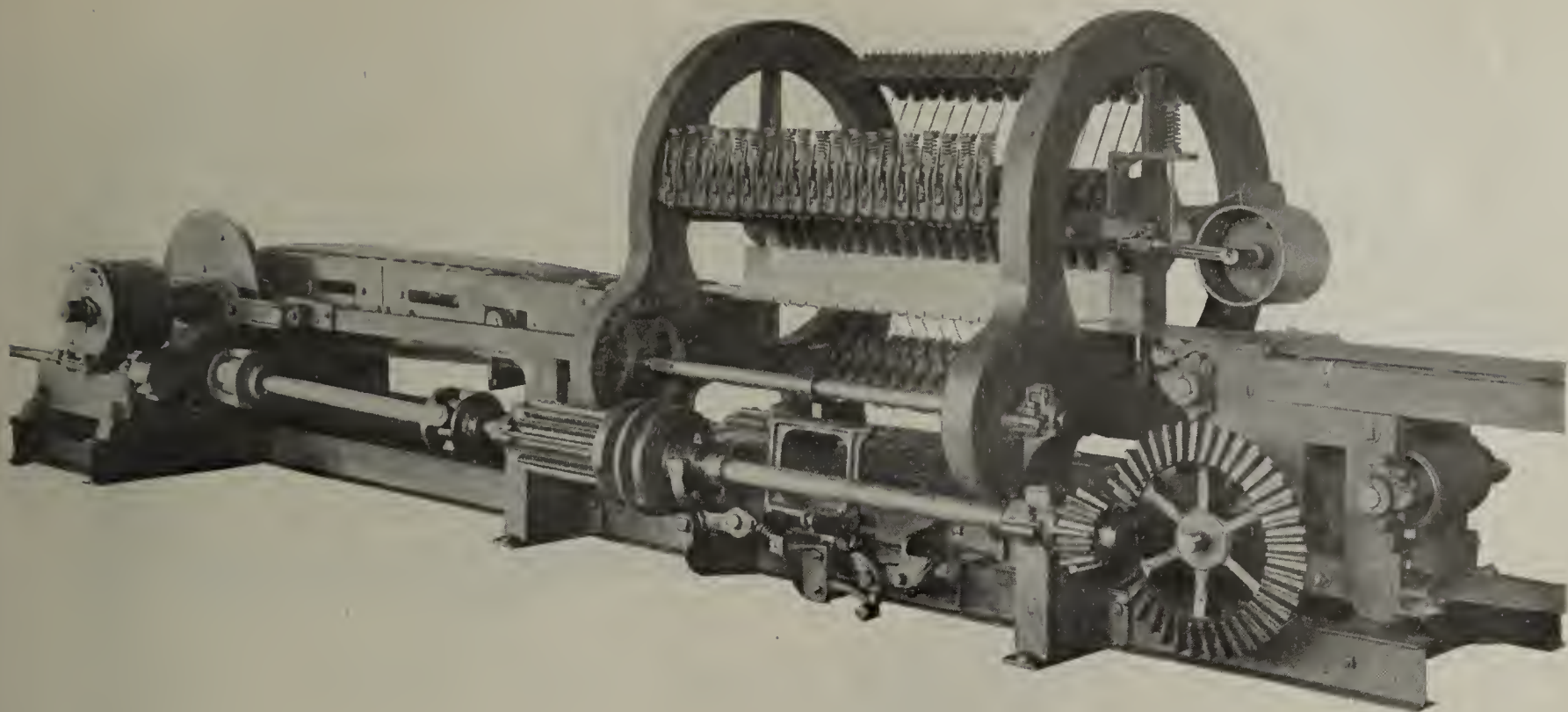
This cutter, which is of the reciprocating type, is built in two Models "T 50" and "T 60" for capacities up to 12,500 brick per hour or more. The design is extremely simple and substantial. It embodies many of the well tried features of our Rotating Automatic Cutters.

The cutting frame carries only one set of cutting wires and has a swinging movement, avoiding the wear and play common to sliding parts. It is actuated by cranks, driven by a single gear and pinion, giving a smooth, quiet starting and stopping of the cutting stroke. The frame remains stationary between cuts, affording ample time to renew broken wires.

The platens are very easily removed and replaced when the thickness of cut is to be changed. Four bolts hold the platen in place. When these are removed it can be lifted straight up, between the end castings. Only a few minutes required to make the change. An upper platen can be furnished to insure smooth upper edges on the brick. This is automatically raised to clear the clay column after the cut is completed and is returned to position in time for the next cut, avoiding any tendency for the column to become wedged. Solves the problem of making smooth edge brick on a reciprocating cutter.

Either Model is made to suit a variety of work. The "T 60" is built special to accommodate the largest sizes of fireproofing, etc. These cutters can also be especially arranged for cutting the Dunn Wire-Cut-Lug Paving Blocks.

E. M. FREESE & COMPANY, Galion, Ohio



Model C 20 Rotating Automatic Cutter

We build rotating automatic cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for hollow ware, fireproofing, radial chimney blocks, etc., up to $13\frac{1}{2}$ in. by $7\frac{1}{2}$ in.

The above illustration shows the Size 20 Cutter, which is an improved model of our well-known Size 16. It is intended for capacities up to 7,500 standard size brick per hour—18 brick are cut at each cut. At this speed the cutting reel makes only a little over two revolutions per minute, remaining stationary between cutting strokes. It is never necessary to stop the brick machine to renew broken wires, as this gives ample time.

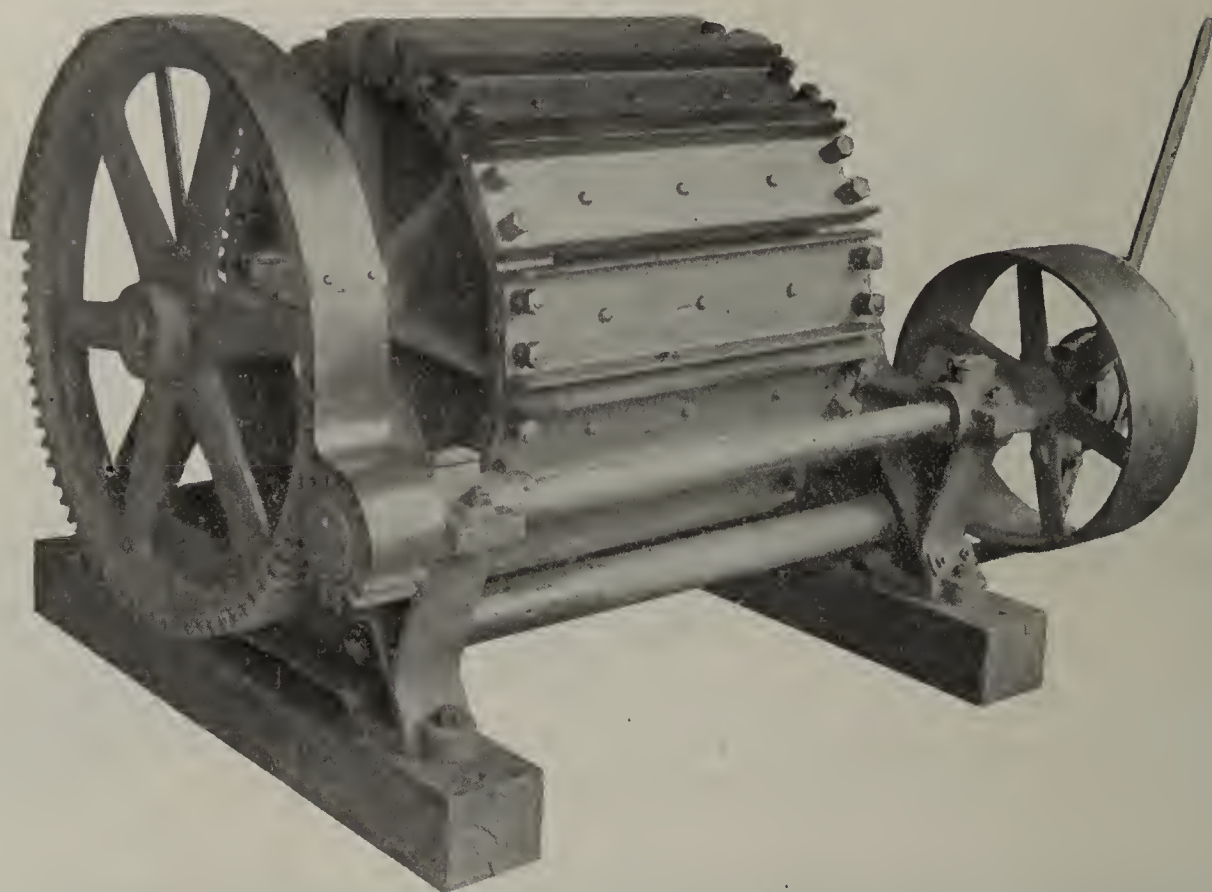
The cutting apparatus, including drive for separating belt, is entirely self-contained, being mounted upon one set of I-beam sills, assuring permanent alignment of all parts. The measuring and separating tables are built with iron or steel sides.

Cutting reel and carriage are carried on rollers requiring little or no oiling. Carriage is positively moved with the clay by an accurate cam. Clutch mechanism is the simplest possible. Wearing surfaces have renewable steel plates.

Particular attention is called to the platen construction. The platen is cast in one piece of tubular cross section and is very rigid. Surfaces covered with renewable steel plates, insuring fine slots. The angle of the cutting wires has been changed to give perfect edges on the brick. Built to give long service without skilled attention. Complete description will be furnished on request.

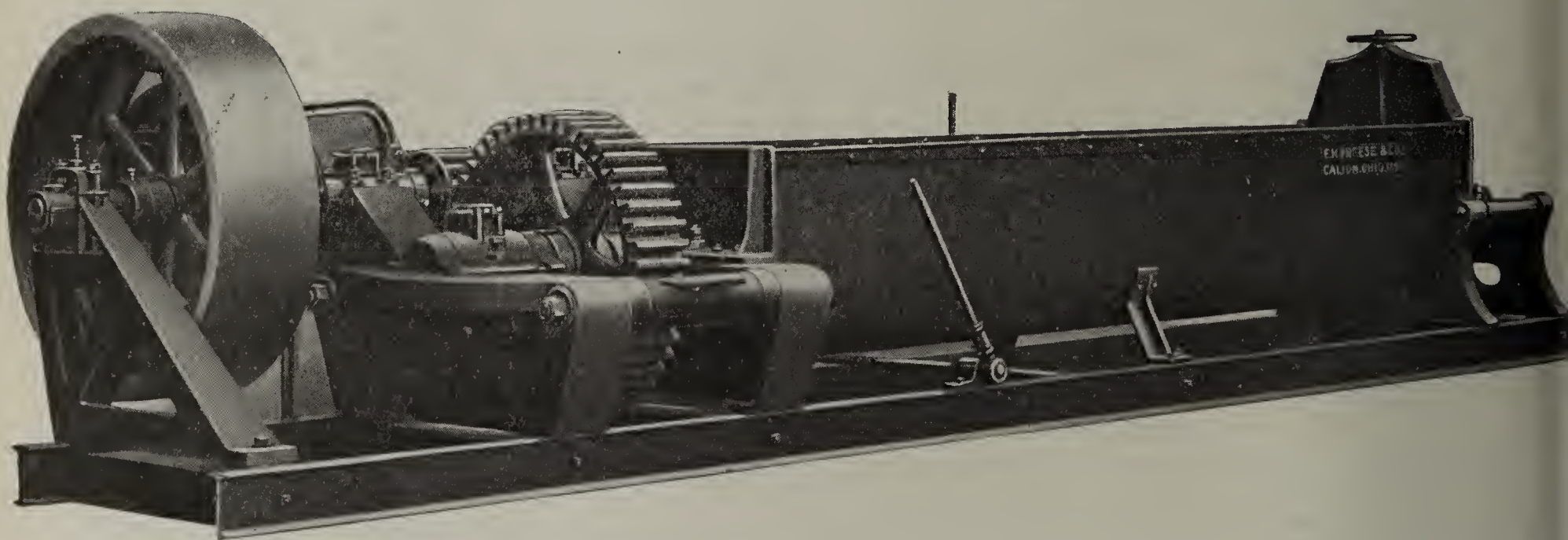
E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



STANDARD RATTLER FOR PAVING BRICK

Built to fully comply with the new specifications adopted by the National Paving Brick Manufacturers' Association. Write for detailed information.

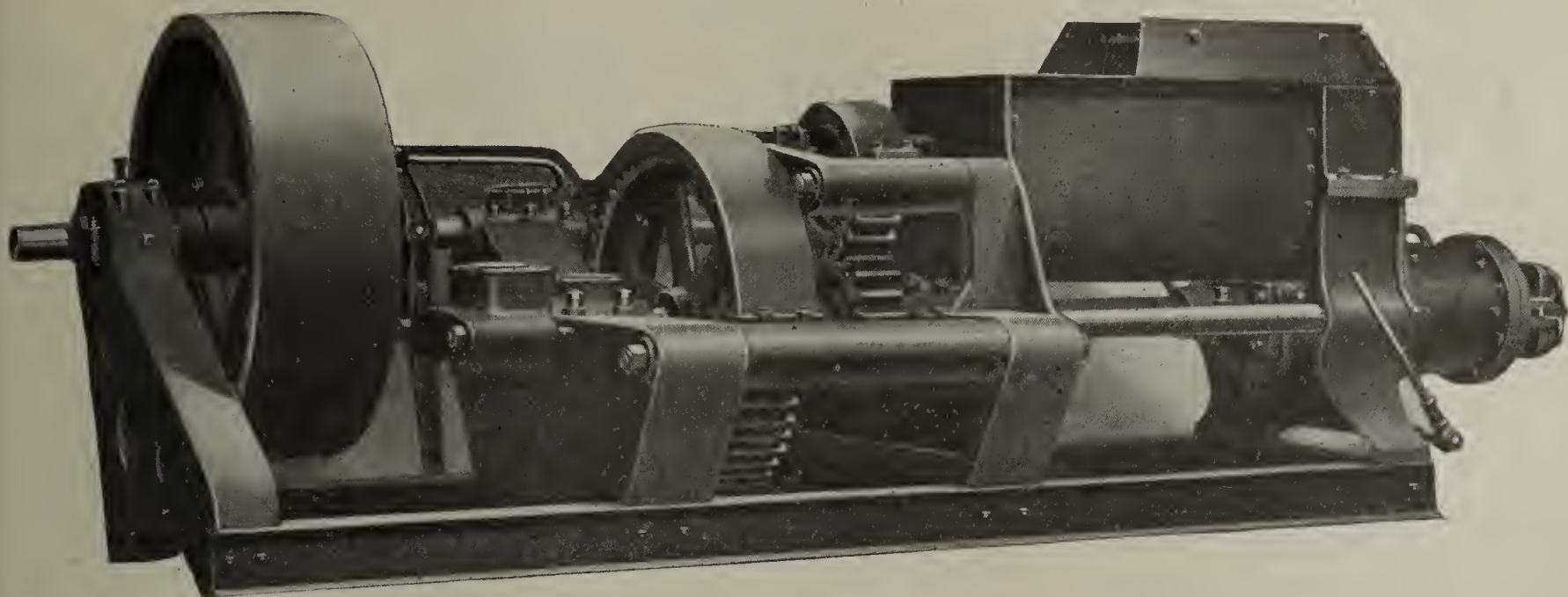


We are building Pug Mills in great variety—more than forty patterns and sizes. We have both spur and bevel geared Pug Mills of all sizes, arranged to discharge at either end as may be specified. The above is an example of a heavy, direct geared machine of large capacity, designed for most exacting requirements.

Let us send particulars.

E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



Model "KC" Auger Brick Machine

This machine has several features of merit. The construction is simple. The parts conveniently accessible. Each of its three shafts has three journal bearings, insuring substantial support for the gearing and more permanent alignment. The feeding chamber is open its entire length and the auger chamber is kept positively and uniformly supplied with clay. The gearing is designed for smooth and quiet operation. All the shafts are of large diameter and the proportions throughout are extremely heavy. The workmanship and material are of the best.

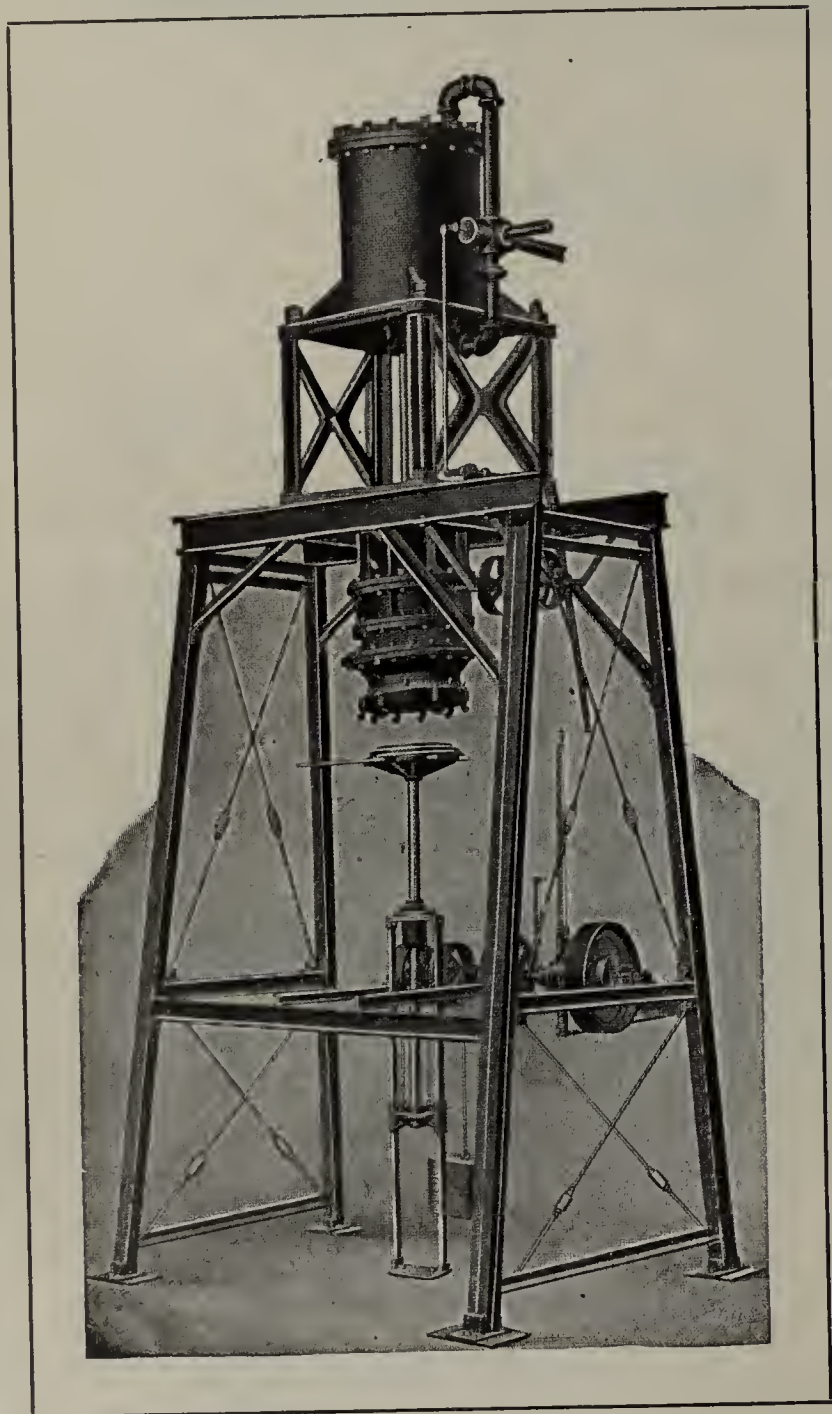
Intended for first-class product and economical operation.

E. M. FREESE & COMPANY, Galion, Ohio

1912 A Drain Tile Year

THERE are off years in drain tile as in the apple crops; but there is every reason to believe that 1912 will be a banner year in the drain tile industry, and it will be wise for all the drain tile manufacturers to prepare themselves accordingly.

Many plants which make good drain tile in the small sizes are unable to bid on contracts calling for the large sizes of tile, and consequently are shut out of much profitable business. Why not get into line to bid on the big business as well as small business? To make large tile at low cost, all you need is the



Stevenson Press

Many of the largest manufacturers of sewer pipe and drain tile throughout the country are equipped with the Stevenson Press, and it is making "Good" wherever installed.

The Stevenson press is made in a number of different sizes to meet all requirements. It will pay you to figure with us and let us tell you what an equipment for your needs will cost. We can give you some facts regarding this matter which will interest you.

THE STEVENSON CO.
WELLSVILLE, OHIO

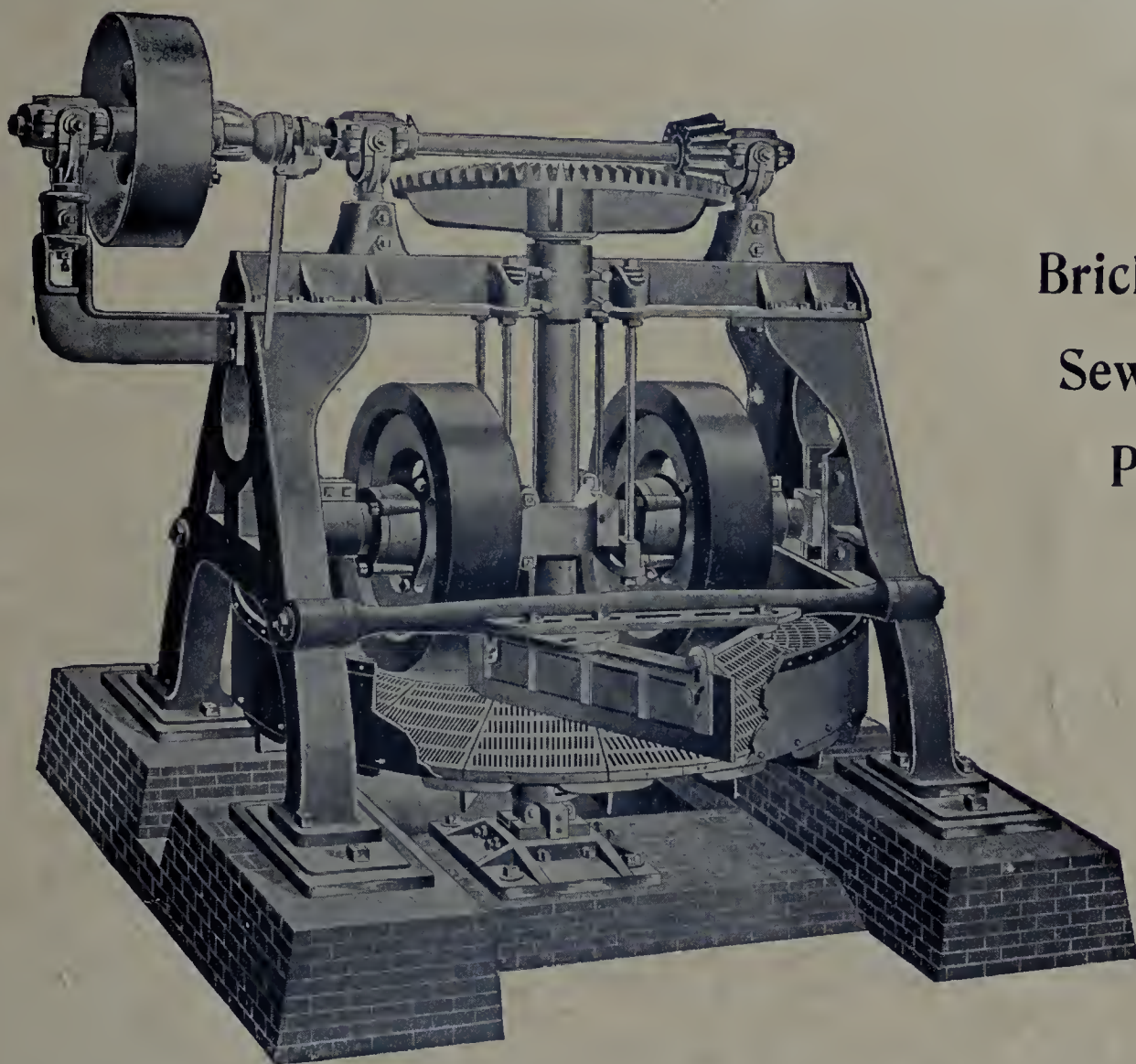
For Sixty
Years
The Name

Frost

Has stood for all
that is best in
Power Plant
Equipment, Clay
Crushing and
Mixing Machinery

We Manufacture Dry and Wet Pans in Six, Eight and Nine Foot Sizes

For
Cement Mills,
Steel
Foundries,
Etc.



Brick Plants,
Sewer Pipe
Plants,
Etc.

To interested parties a postal will bring you our catalogue No. 110, giving full detailed description of construction and operation of our pans. Don't forget we manufacture Power Equipment of every description to meet the needs of all users.

Write for Special Bulletins and Specifications.

The Frost Manufacturing Co.

Works at
GALESBURG, ILL.

CHICAGO OFFICE:
112 West Adams St., CHICAGO, ILL.
Cable Address "FROSTMANCO," Chicago.

Mention THE CLAY-WORKER.



Belt
Clay
Conveyor

Sprocket
Chain
Clay
Conveyor



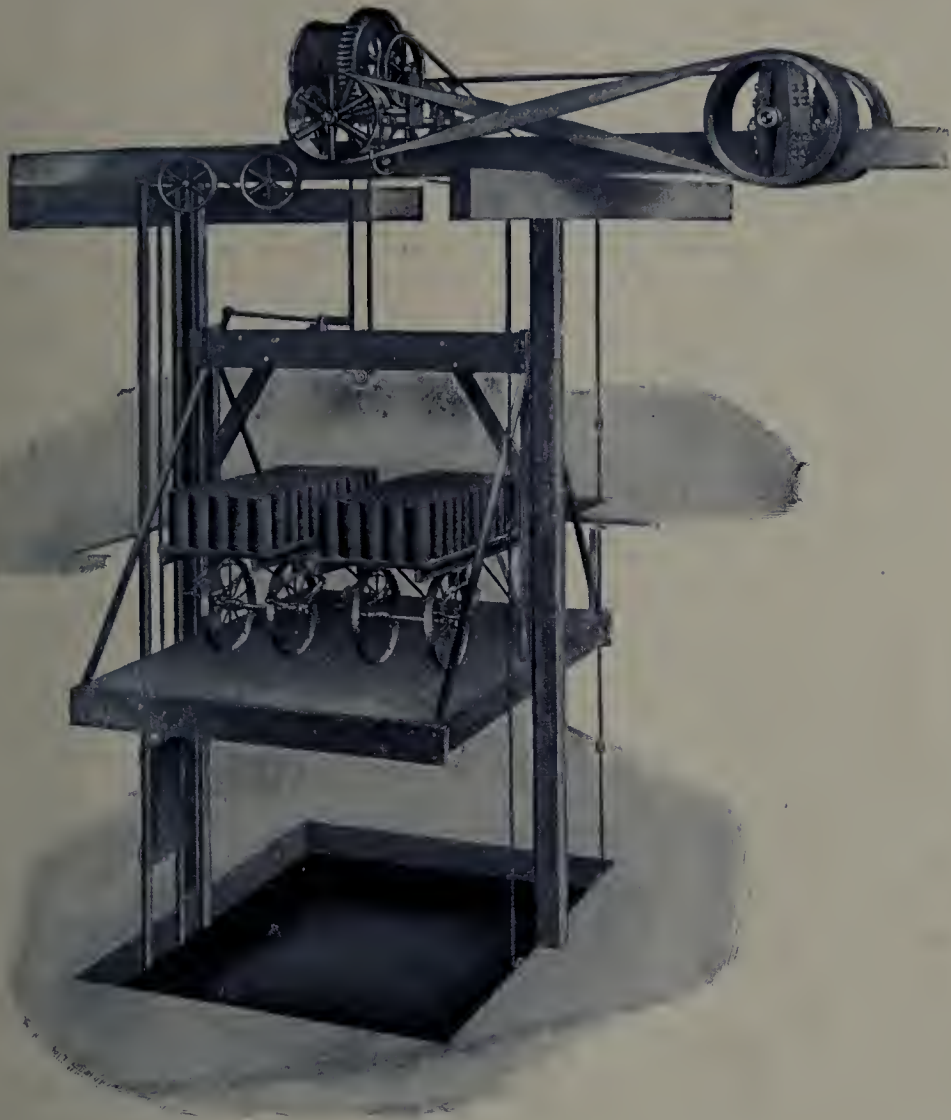
Side Dump Clay Car



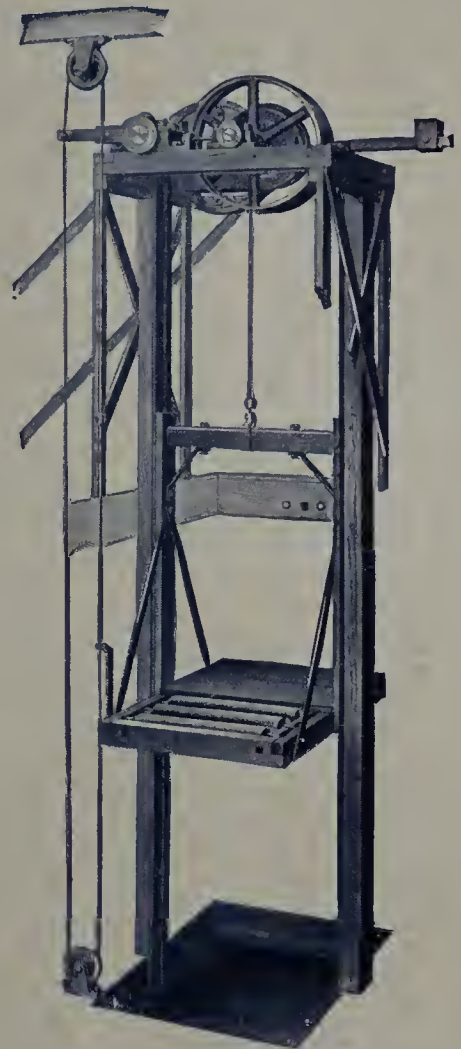
Bottom Dump Clay Car

The J. D. FATE CO., Plymouth, Richland Co., Ohio

A. E. Davidson, Western Representative, 604 Blake-McFall Bldg., Portland, Oregon.
The Manufacturers Equipment Co., Dayton, Ohio, Sales Agents.



Platform Power Elevator



Friction Drive Elevator



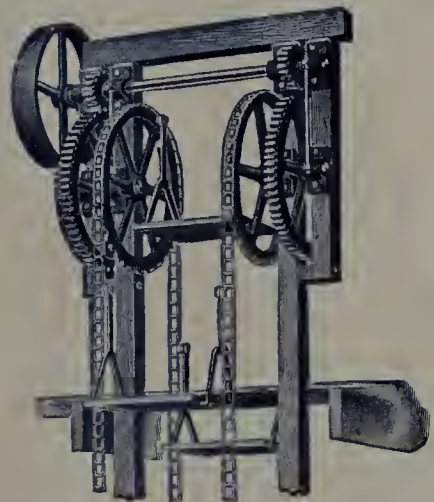
Gravity Elevator

The J. D. Fate Co. Plymouth, Richland Co., Ohio.

A. E. Davidson, Western Representative,
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The Manufacturers Equipment Co.,
DAYTON, OHIO,
Sales Agent.

See pages 160-165 for additional
advertisements.



Small Tile Elevator

1896

1912

14 Years of Constant Satisfactory Service In Many Clay Plants

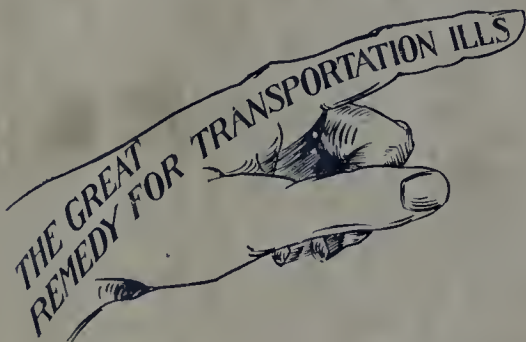
Is the Record of the PERFECT CLAY SCREEN

Why continue with your old clay screen from which today the product is entirely too coarse, tomorrow too fine, next day scarcely anything, and always requiring constant attention.

FIGURE up the cost and let us quote you on a PERFECT CLAY SCREEN that will give you ABSOLUTE CONTROL OF YOUR CLAY. The same fineness every day in the year and you get every pound of clay that is fine enough for your product.

Just think what it costs to have a man cleaning and breaking up your screen, and then not get capacity or proper fineness. THE PERFECT CLAY SCREEN is automatic, self cleaning, and the plates last many times as long as do plates on an ordinary screen. Increased and improved output at less cost, is our GUARANTEE. Let us try, if we don't do it IT WON'T COST YOU ONE CENT.

DUNLAP MFG. CO., **Bloomington, Ill.**



LAKEWOOD LINE

Ohio Ceramic Engineering Co.,
Cleveland, Ohio

Chicago—555 West Quincy Street.
Pittsburgh—1205 Fulton Building.

A WORD TO THE PURCHASING AGENT:

The persuasive tongue and strong personality of the salesman often secures orders for goods which are not Built to Last. At other times, a price so low is quoted, that closes the deal the purchaser overlooking the obvious fact that the dealer must make profit, and if the price is so low that there is not a legitimate profit, then the temptation is to make an illegitimate profit. A one-thirty second of an inch less than specifications in the dimensions of the steel is hard to detect, but it means a whole lot in the life of the car.

The "LAKEWOOD LINE" is sold under the absolute guaranty that the specifications are lived up to. That is the reason of the Trade Mark "BUILT TO LAST."



Mention THE CLAY-WORKER.

FEBRUARY 1912

THE CLAY-WORKER

TWENTY-SIXTH ANNUAL N.B.M.A. CONVENTION
CONGRESS HOTEL AND ANNEX CHICAGO



COLISEUM MARCH 4th to 12th 1912
FIRST INTERNATIONAL CLAY PRODUCTS EXPOSITION

Published Monthly by
T.A. RANDALL & CO.
INDIANAPOLIS, IND.
OFFICIAL ORGAN OF THE N.B.M.A.

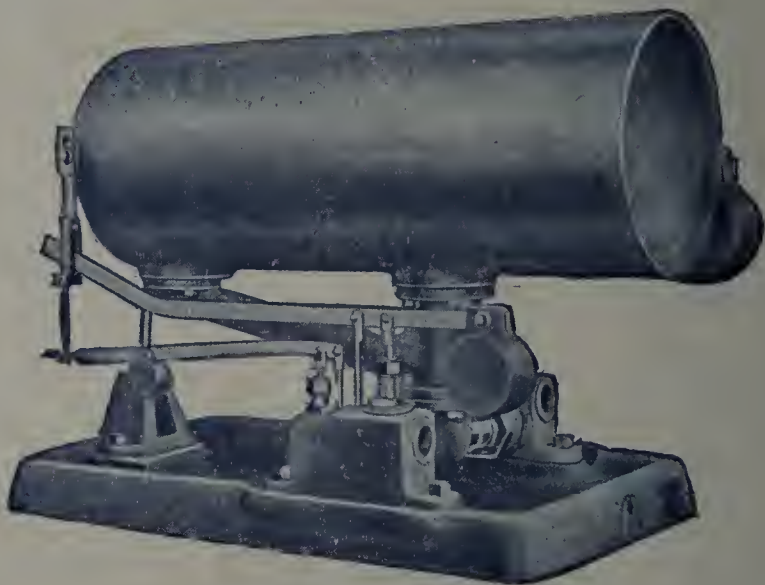
"Detroit"

RETURN TRAPS

Are Machines from start to finish—Built with as much care as is used in making the finest engine.

The design of "Detroit" Traps provides for strength and rigidity. Steam and air valves are in the same cast iron body—renewable discs. The extra heavy lap welded steel tank is tested to 300 lbs. pressure before shipment. A shock absorber receives the full weight of the water as the tank tilts, eliminating all stress, "smash and bang" usual with the ordinary tilting trap.

"Detroit" Traps embody the latest improvements tending to make them simple and economical for the draining of condensation from Brick Drying Systems.



"Sirocco"

TRADE MARK.

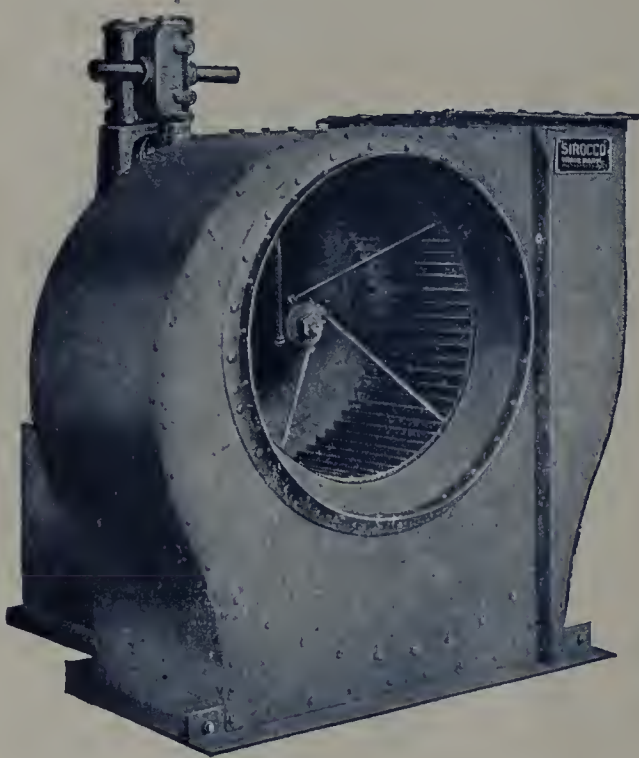
Fans for Waste Heat and Induced Draft

Occupy only one-half the space required by the ordinary Steel Plate Fan. Saves one-third the power to do the same amount of work. Installation cost for a "Sirocco" Fan is inexpensive—small fan—small foundation—small cost.

The speeds of "Sirocco" Fans are suitable for direct connection to reciprocating steam engines or electric motors.

A "Sirocco" Fan direct connected to an "ABC" Vertical Enclosed Self-Oiling Engine makes an ideal steam driven outfit.

"Sirocco" Bulletin No. 284-B and Trap Catalogue No. 326-B are waiting upon your request.



AMERICAN BLOWER COMPANY

DETROIT, MICH.
U. S. A.

New York, 141 Broadway.
Philadelphia, Hale Bldg.
Pittsburgh, Empire Bldg.

Chicago, Marquette Bldg.
St. Louis, Title Guaranty Bldg.
Atlanta, Empire Bldg.

Minneapolis, Plymouth Bldg.
San Francisco, Monadnock Bldg.
Seattle, Arcade Annex.



Look over **YOUR CHAIN** for weak links that will cause annoyance and loss of output.

One machine that is **NOT DEPENDABLE** will destroy the efficiency of your plant. No machine is good enough to operate, if by replacing it, you can decrease the cost of output or make a better product.

Starting a scrap-pile is sometimes the beginning of **SUCCESS**. Steady operation of your plant is what will put the balance on the **RIGHT SIDE** of your books.

Is there a weak spot in your chain of machinery? Write us about it.

BRICK MACHINES

CUTTING TABLES

REPRESSES

DRY PANS

PUG-MILLS, Etc.

THE BONNOT COMPANY

909 N. Y. Life Bldg.
KANSAS CITY, MO.

CANTON, OHIO



See Us at Convention==Annex Hotel, Rooms 1170-1172

Mention THE CLAY-WORKER.



We Waste Nothing, Not Even Words

The RODGERS DRYER has an unbroken record of success. We dry SATISFACTORILY most of the brick of Western manufacture.

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists,
Brick Works Engineers.

Largest Manufacturers of Brick Drying Equipment in the United States.

30 NORTH LA SALLE STREET, CHICAGO.



PERFORATED STEEL SCREENS.

No Doubt You Use Screens—Let's Get Acquainted.

¶ You may never have obtained them from us. It would pay you to do so.

¶ There's more to a Perforated Steel Screen than a sheet of metal with some holes in it. The shape, the spacing, the size and accuracy of the perforations and the quality of the metal of which the Screen is made, all have a bearing on the working and wearing of the Screen—all must be *exactly right*.

¶ There are Screens that cost less than ours, but then guess-work always does seem cheaper than know-how.

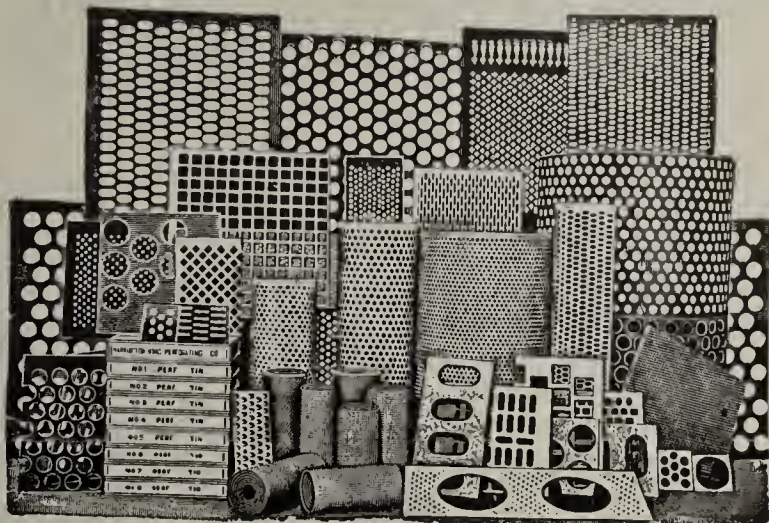
¶ We make Screens for Clay, Sand, Gravel, Cement, Stone, etc., and for Drying Floors, Car Bottoms, Conveyers, Dry Pans and cleaning and grading apparatus.

¶ You are not likely to want a size that we can not furnish. During our experience of over thirty years in the business (and that counts for something) we have acquired patterns by the thousand.

¶ Give us the size of sheets, the gauge (or thickness), the size and shape of holes, the number of sheets wanted and what for.

¶ With quotation we will send samples or Blue Prints.

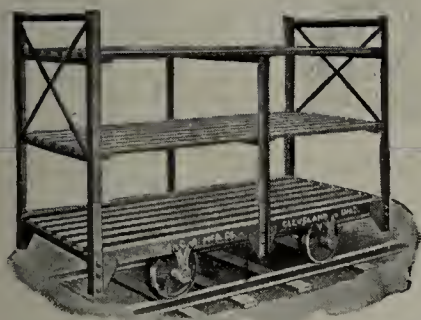
¶ The work is made entirely to order.



The Harrington & King Perforating Co.,

NEW YORK OFFICE,
No. 114 Liberty St.

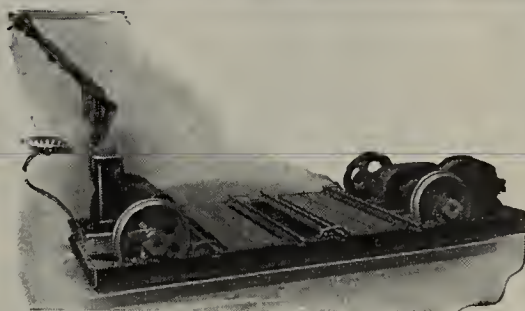
No. 624 North Union St.,
CHICAGO, ILL., U. S. A.



No. 1205
Triple Deck Car.



No. 147
Steel Turntable



No. 913
Double Track Electric Transfer Car.



No. 217-S
Side Rocker Dump Car, small capacity. Self-Oiling Wheels.

Cars for Brickyards,
Quarries, Cement Plants

Dryer Cars, Dump Cars,
Locomotives,
Turntables,
Track, Switches, Etc.



No. 160-E
Side Dump Gable Bottom Car.



No. 103
Stiff or Soft Mud Car.



No. 108
Stiff Mud Flat Car.

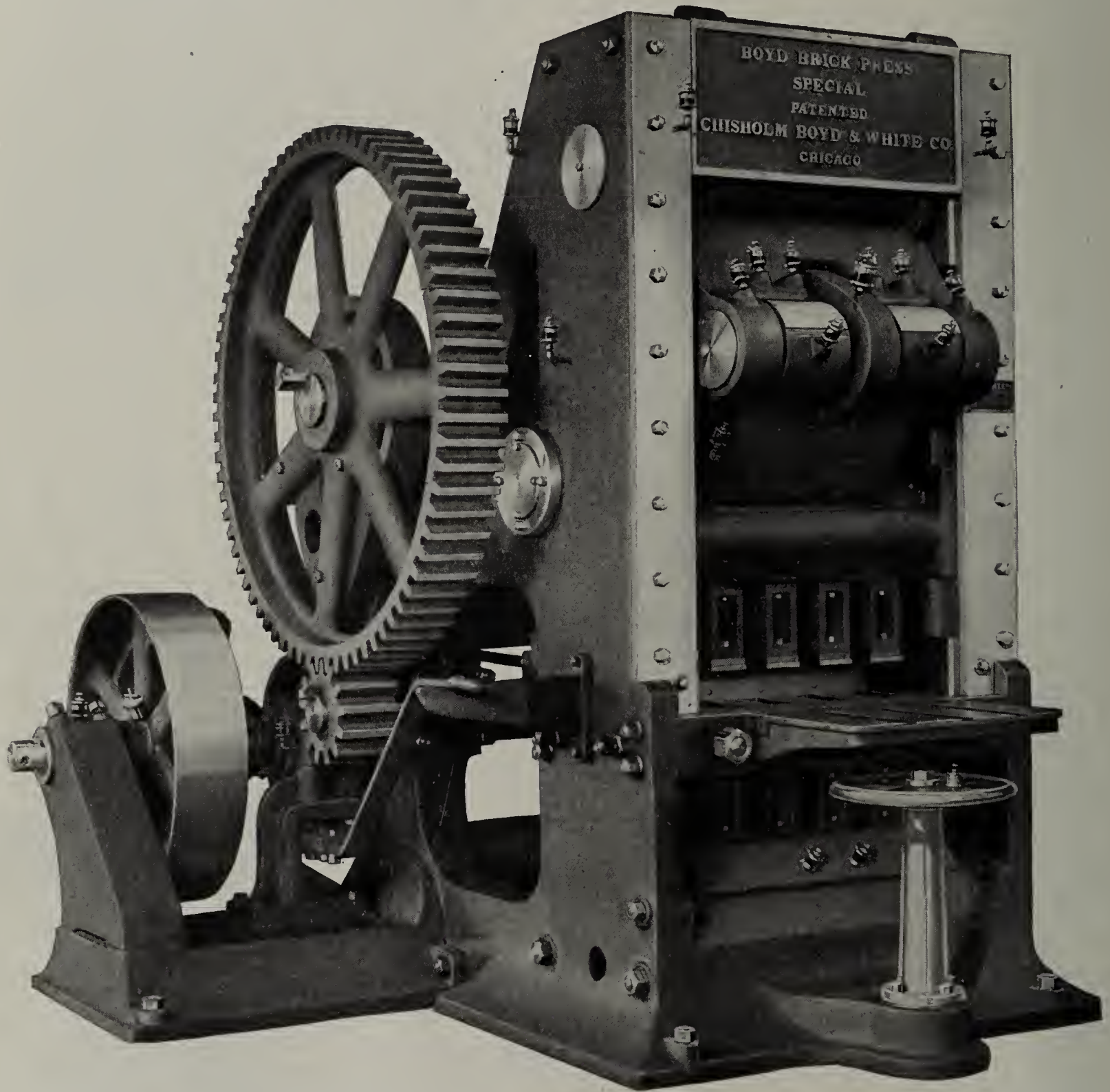


No. 1000
Portable Track, showing different styles of ties and connections.

THE ATLAS CAR & MFG. CO.
CLEVELAND, OHIO

The Boyd Brick Press

"Built Up to a Standard—Not Down to a Price."



SPECIAL FEATURES OF THE BOYD BRICK PRESS

BALANCED-PRESSURE—brick lifted in molds under pressure.
PRESSING TIME FACTOR—long duration, 50% of the cycle.
GEARS, SHAFTS, BEARINGS and other parts exceptionally large.
FREE from complicated parts—**ACCESSIBILITY** unequaled.
TOP and BOTTOM of brick equal hardness—**NO** granulated surfaces.

Write for latest Catalogue No. 25, which contains plans and suggestions concerning the design and equipment of brick plants.

Chisholm, Boyd & White Company

Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

The Boyd Brick Press in Canada

MILTON PRESSED BRICK CO. Limited

DR. ROBERTSON,
President.

J. S. McCANNELL,
Vice-Pres. & Man. Dir.

Manufacturers of
High-Grade Pressed Bricks
and
Terra Cotta Mantels

All quotations are subject to change without notice. All agreements are contingent upon strikes or other delays beyond our control, and all contracts must be approved by the head office.

MILTON, ONT..

Nov. 7th, 1911.

Messrs. Chisholm, Boyd & White Co.,
57th & Wallace Sts.,
Chicago, Ill., U.S.A.

Dear Sirs:-

We are pleased to advise you that the new Four Mold "Special" Boyd Brick Press which we recently purchased from you arrived in good condition and is now making bricks.

We have now six Boyd presses in a row and expect to be in the market for another in the course of a few months. It is now nearly twenty-two years since we installed the first Boyd presses.

We tore out the first one put in to make room for the new Boyd "Special" which is built on a very much stronger scale than the ordinary machine. However, we have still one of these old machines in operation and producing first-class bricks. For a number of years this machine worked night and day.

We might state that we are well satisfied with the Boyd press or we would not be using your machine exclusively.

We are satisfied that we are making the best bricks made in Canada with your machines.

Thanking you for prompt shipment of the last press, we remain

Yours truly,

J.S. Mc/

Milton Pressed Brick Co., Limited.

J. S. McCannell
Man'g Director

CHISHOLM, BOYD & WHITE CO.

57th and Wallace Sts., CHICAGO

**Address
Your
Next
Order
For
Mathews
Gravity
Carriers and
Automatic
Elevators
To—
Ellwood
City,
Penn.
U.S.A.**

Announcement:

THE Mathews Gravity Carrier Co. have moved their official and manufacturing headquarters to the above city, where a large factory has been erected, complete and modern in all its appointments. New and improved machinery has been installed. New plans and policies will be put into effect, all of which has been made necessary by the growing popularity and increasing demand for their Brick handling equipment. With increased office and factory facilities we shall be able to relieve the pressure on our productive capacity.

In making this announcement we desire to sincerely thank all those whose patronage has made our past wonderful success possible, and to express the hope that we may continue to merit their confidence and good will.

Mathews Gravity Carrier Co.

MAIN OFFICE AND FACTORY: ELLWOOD CITY, PENN.

NEW YORK—30 Church St., Room 726.

BOSTON—164 Federal Street, Room 50.

PHILADELPHIA—1002 Drexel Building.

ROCHESTER—1459 South Avenue.

CHICAGO—9 South La Salle Street.

ST. LOUIS—P. O. Box 568.

SAN FRANCISCO—Hicks, Neil & Marks, 604 Mission Street.

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How to handle brick economically—
Is that your problem?
Put it up to us—
The "Mathews Way" will solve it.

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Ohio State University.
Richardson-Lovejoy Engr. Co.

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Automatic Cutting Tables.

(See Cutting Tables.)

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Trautwein Dryer & Engr. Co.

Boilers.

American Clay Machinery Co.
Arbuckle & Co.
Frost Mfg. Co.
Morehead Mfg. Co.

Brick (Building).

Bloomfield Clay Co.
Bolivar Face Brick Co.
Flske & Co., Inc.
Kushequa Brick Co.
Marion Brick Works.
Purinton Paving Brick Co.

Brick (Fire).

Chicago Retort & Fire Brick Co.
Evans & Howard Fire Brick Co.

Brick (Paving).

Barr Clay Co., The
Bessemer Limestone Co.
Clinton Paving Brick Co.
Danyville Brick Co., The
Hocking Valley Fire Clay Co.
Marion Brick Works.
Metropolitan Paving Brick Co.
Nat'l. Pav. Brick Mfgs. Assn.
Purinton Paving Brick Co.
Terre Haute Vit. Brick Co.
Thurber Vitriified Brick Co.
Shawmut Vit. Pav. Brick Wks.
Wabash Clay Co.

Brick Conveyors.

American Clay Machinery Co.
Mathews Gravity Carrier Co.

Brick and Tile Machinery.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Chisholm, Boyd & White Co.
Dunn Wire Cut Lug Brick Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Fernholtz Brick Machy. Co.
Freese & Co., E. M.
Hensley, J. W.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Ohio Ceramic Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice & Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Brick Machines (Soft Mud).

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Wellington Machine Co.

Brick Machines (Stiff Mud).

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice & Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Brick Machines (Dry Press).

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Chisholm, Boyd & White Co.
Chicago Brick Machinery Co.
Fernholtz Brick Machinery Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Mueller Bros.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.

Brick Recutter.

Raymond Co., The C. W.

Brick Setting Machinery.

American Clay Machinery Co.

Brickyard Engineering.

Heald, G. W.

Buffing Machine.

American Clay Machinery Co.

Burning and Drying Systems.

Boss, John C.
Buhner, Jacob.
Dennis, F. W.
Haigh, H.
Hoehne, Richard B.
Hoffmann Construction Co.
Illinois Supply & Con. Co.
Koch, J. J.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Rodgers Engineering Co., L. E.
Snowden & Co., Geo. E.
Standard Dry Kiln Co.
Tate, Jones & Co.
Trautwein Drying & Engr. Co.
Vogt, Anton.
Yates, Alfred.

Cars.

(See Dryer and Dump Cars.)

Castings.

Arbuckle & Co.
Caldwell & Sons Co., H. W.
Chambers Bros. Co.
Wallace Mach. & Foundry Co.

Ceramic Engineers.

F. Julius Fohs.
Hoehne, Richard B.
Koch, J. J.
Richardson-Lovejoy Engr. Co.

Clay Crushers and Pulverizers.

American Pulverizer Co.
American Road Machine Co.
Arbuckle & Co.
Brewer Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Phillips & McLaren Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Wallace Mfg. Co.
Wellington Machine Co.

Clay Dryers.

American Process Co.

Clay Feeders and Mixers.

American Clay Machinery Co.
Arbuckle & Co.
H. Brewer & Co.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
E. M. Freese & Co.
Illinois Supply & Con. Co.
Raymond Co., The C. W.
Taplin, Rice-Clerkin Co.
Scott-Madden Iron Works.
Stevenson Co., The

Clay Gatherers.

(See Scrapers.)

Clay Steamers.

American Clay Machinery Co.
Raymond Co., The C. W.

Clay Technologists.

Koch, J. J.
Richardson-Lovejoy Engr. Co.

Clutches.

(See Supplies.)

Coloring Materials.

Chattanooga Paint Co.
Clinton Metallic Paint Co.
National Paint & Manganese Co.
Rickertson Mineral Paint Co.
Roessler-Hasslacher Chem. Co.
Williams & Co., C. K.

Cones.

Orton, Edward, Jr.

Conveying Machinery.

American Clay Machinery Co.
Arbuckle & Co.

Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Mathews Gravity Carrier Co.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.

Contracting Engineers.

Dennis, F. W.
Haigh, H.
Heald, G. W.
Hoehne, Richard B.
King, E. A.
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Wurz & Hillenbrand.
Vogt, Anton.

Couplings.

(See Supplies.)

Cutting Tables (Brick & Tile).

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Dunn Wire Cut Lug Brick Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.

Cutting Wires.

Arbuckle & Co.
Brewer & Co., H.
Ceramic Supply & Con. Co.
E. M. Freese & Co.
Manufacturers Equipment Co.
Raymond Co., The C. W.

Dampers.

(See Supplies.)

Dies.

(See Supplies.)

Disintegrators.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Wallace Mfg. Co.
Wellington Machine Co.

Drain Tile.

Evans & Howard Fire Brick Co.

Drain Tile Machinery.

(See Brick & Tile Machinery.)

Drums, Hoisting and Winding.

(See Supplies.)

Dryers.

American Blower Co.
American Clay Machinery Co.
American Process Co.
Chambers Bros. Co.

(Continued on next page.)

Buyers Ready Reference List—Continued.

Manufacturers Equipment Co.
 Martin Brick Mach. Mfg. Co., H.
 Ohio Ceramic Engineering Co.
 Potts & Co., C. & A.
 Raymond Co., The C. W.
 Richardson-Lovejoy Engr. Co.
 Rodgers Engr. Co., The L. E.
 Standard Dry Kiln Co., The
 Steele & Sons, J. C.
 Trautwein Dryer & Engr. Co.

Dryer Cars.

American Clay Machinery Co.
 Atlas Car & Mfg. Co.
 Arbuckle & Co.
 Bonnot Co., The
 Chambers Bros. Co.
 Chase Fdy. & Mfg. Co.
 E. M. Freese & Co.
 Fate Co., The J. D.
 Ohio Ceramic Engineering Co.
 Raymond Co., The C. W.
 Rodgers Engr. Co., The L. E.
 Scott-Madden Iron Works Co.
 Standard Dry Kiln Co., The
 Steele & Sons, J. C.
 Trautwein Dryer & Engr. Co.
 Wellington Machine Co.

Dry and Wet Pans.

American Clay Machinery Co.
 Anderson Fdy. & Mach. Works.
 Arbuckle & Co.
 Bonnot Co., The
 Brewer & Co., H.
 Chambers Bros. Co.
 Chicago Brick Machinery Co.
 Chisholm, Boyd & White Co.
 Eagle Iron Works.
 Fate Co., The J. D.
 Freese & Co., E. M.
 Frost Mfg. Co.
 Illinois Supply & Con. Co.
 Phillips & McLaren Co.
 Raymond Co., The C. W.
 Scott-Madden Iron Works Co.
 Stevenson Co., The
 Taplin, Rice-Clerkin Co.

Dump and Clay Cars.

American Clay Machinery Co.
 Atlas Car & Mfg. Co.
 Arbuckle & Co.
 Bonnot Co., The
 Brewer & Co., H.
 Chambers Bros. Co.
 Chase Fdy. & Mfg. Co.
 Eastern Brick Machinery Co.
 E. M. Freese & Co.
 Hensley, J. W.
 Ohio Ceramic Engineering Co.
 Potts & Co., C. & A.
 Raymond Co., The C. W.
 Steele & Co., The J. C.
 Scott-Madden Iron Works Co.
 Wellington Machine Co.

Electric Shovels.

The Marion Steam Shovel Co.
 Thew Automatic Shovel Co.

Electrical Furnaces.

Brown Instrument Co., The
 Richardson-Lovejoy Engr. Co.

Electric Instruments.

The Brown Instrument Co.

Electrical Locomotives.

Atlas Car & Mfg. Co.

Electrical Supplies.

American Clay Machinery Co.
 Raymond Co., The C. W.

Elevating Equipment.

(See Conveyors.)

Engines.

American Clay Machinery Co.
 Chambers Bros. Co.
 Frost Mfg. Co.

Engineers.

Rodgers Engr. Co., The L. E.
 Trautwein Dryer & Engr. Co.
 E. H. Callaway.

Fans.

American Blower Co.
 American Clay Machinery Co.
 Rodgers Engr. Co., The L. E.
 Trautwein Dryer & Engr. Co.

Feed Water Heaters.

American Blower Co.
 American Clay Machinery Co.
 Frost Mfg. Co.
 Morehead Mfg. Co.
 Standard Dry Kiln Co.

Filler (Paving).

Barrett Mfg. Co.

Filter Presses.

American Clay Machinery Co.
 Raymond Co., The C. W.
 Stevenson Co., The
 Taplin, Rice-Clerkin Co.

Fire Brick and Fire Clay.

Bloomfield Clay Co.
 Chicago Ret. & Fire Clay Co.
 Evens & Howard Fire Brick Co.

Fire Clay.

Evens & Howard Fire Brick Co.

Fire Proofing.

Evens & Howard Fire Brick Co.

Floor Tile.

Chicago Ret. & Fire Brick Co.
 Evans & Howard Fire Brick Co.

Flower Pot Machinery.

Rockwood Mfg. Co., The

Friction Clutch Pulleys.

(See Supplies.)

Furnaces.

Brown Instrument Co., The
 Illinois Supply & Con. Co.
 Raymond & Co., C. W.
 Richardson-Lovejoy Engr. Co.
 Tate, Jones & Co.

Gas Fire Continuous Kilns.

Raymond Co., The C. W.

Gears.

(See Supplies.)

Granulators.

American Clay Machinery Co.
 Anderson Fdy. & Mach. Works.
 Arbuckle and Co.
 Bonnot Co., The
 Brewer & Co., H.
 Chambers Bros. Co.
 Chicago Brick Machinery Co.
 Fate Co., The J. D.
 Freese & Co., E. M.
 Martin Brick Mach. Mfg. Co., H.
 Potts & Co., C. & A.
 Raymond Co., The C. W.
 Scott-Madden Iron Works Co.
 Steele & Co., J. C.
 Stevenson Co., The
 Taplin, Rice-Clerkin Co.
 Wallace Mfg. Co.
 Wellington Machine Co.

Gravity Carriers.

Mathews Gravity Carrier Co.

Gravity Haulage.

American Clay Machinery Co.

Hand-Power Presses.

American Clay Machinery Co.
 Carnell, Geo.
 Illinois Supply & Con. Co.
 Mueller Bros.
 Ohio Ceramic Engineering Co.
 Raymond Co., The C. W.
 Scott-Madden Iron Works Co.
 Stevenson & Co.

Hand Winch.

(See Supplies.)

Hangers.

(See Supplies.)

Hoists.

(See Supplies.)

Hoisting Engines.

American Hoist & Derrick Co.

Hollow Block Machinery.

American Clay Machinery Co.
 Arbuckle & Co.
 Bonnot Co., The
 H. Brewer & Co.
 Freese & Co., E. M.
 Raymond Co., The C. W.

Scott-Madden Iron Works Co.
 Stevenson Co., The
 Taplin, Rice-Clerkin Co.
 Wallace Mfg. Co.

Hollow Partition Tile.

Evens & Howard Fire Brick Co.
 Ohio Clay Company.

Jacks.

(See Supplies.)

Kilns.

American Clay Machinery Co.
 Boss, J. C.
 Buhner, Jacob.
 Chisholm, Boyd & White Co.
 Dennis, F. W.
 Haigh, H.
 Hoehne, Richard B.
 Hoffmann Construction Co.
 Illinois Supply & Con. Co.
 Manufacturers Equipment Co.
 Raymond Co., The C. W.
 Richardson-Lovejoy Engr. Co.
 Snowden & Co., G. E.
 Shumaker, J. H.
 Vogt, Anton.
 Yates, Alfred.

Kiln Bands.

(See Supplies.)

Kiln Doors, Castings and Frames.

(See Supplies.)

Kiln Floor Tile.

Chicago Ret. & Fire Brick Co.
 Evens & Howard Fire Brick Co.

Kiln Irons.

(See Supplies.)

Kiln Furnaces.

Illinois Supply & Con. Co.

Kiln Lugs.

(See Supplies.)

Knives.

(See Supplies.)

Locomotives.

Davenport Locomotive Works.

Locomotive Cranes.

American Hoist & Derrick Co.

Manganese.

(See Coloring Materials.)

Mechanical Draft.

American Blower Co.
 Boss, J. C.
 Rodgers Engr. Co., The L. E.

Mineral Paint.

(See Coloring Materials.)

Molds (Brick).

Carnell, Geo.
 Eastern Brick Machinery Co.
 Hensley, J. W.
 Martin Brick Mach. Mfg. Co., H.
 Potts & Co., C. & A.
 Raymond Co., The C. W.
 Wellington Machine Co.

Mold Sanders.

Carnell, Geo.
 Eastern Brick Machinery Co.
 Hensley, J. W.
 Martin Brick Mach. Mfg. Co., H.
 Potts & Co., C. & A.
 Raymond Co., The C. W.
 Wallace Mfg. Co.
 Wellington Machine Co.

Mortar Colors.

(See Coloring Materials.)

Oil Burners.

Ill. Supply & Constr. Co.
 Schurs Oil Burner Co.
 Tate Jones Co.

Paints.

(See Coloring Materials.)

Pallets.

Ohio Ceramic Engineering Co.
 Ohio Galvanizing & Mfg. Co.

Pans (dry and wet).
 (See Dry and Wet Pans.)

Patents.

Scientific American.
 Watson and Boyden.

Paving Brick or Block.

(See Brick.)

Perforated Sheet Metal.

Caldwell & Sons Co., H. W.
 Harrington & King Perf. Co.

Pitch (Paving).

Barrett Mfg. Co.

Flows.

(See Scrapers.)

Portable Track.

Atlas Car & Mfg. Co.
 Ohio Ceramic Engineering Co.
 Raymond Co., The C. W.

Pottery Machinery.

American Clay Machinery Co.
 Rockwood Mfg. Co.
 Raymond Co., The C. W.
 Stevenson Co., The
 Taplin Rice Clerkin Co.

Power Plant Equipment.

Rodgers Engr. Co., The L. E.
 Trautwein Dryer & Engr. Co.

Presses.

(See Brick Machines, also Sewer Pipe Machinery, also Roofing Tile Machinery.)

Pug Mills.

American Clay Machinery Co.
 Anderson Fdy and Mach. Wks.
 Arbuckle & Co.
 Bonnot Co., The
 Brewer & Co., H.
 Chambers Bros. Co.
 Fate Co., The J. D.
 Freese and Co., E. M.
 Hensley, J. W.
 Mueller Bros.
 Raymond Co., The C. W.
 Steele & Sons, J. C.
 Scott-Madden Iron Works Co.
 Stevenson Co., The
 Wallace Mfg. Co.
 Wellington Machine Co.

Pulleys.

(See Supplies.)

Pulverizers.

American Pulverizer Co.
 Illinois Supply & Con. Co.
 Scott-Madden Iron Works Co.

Pumps.

Dean Bros. Steam Pump Wks.
 Pulsometer Steam Pump Co.

Pyrometers.

Brown Instrument Co.
 Ceramic Supply & Constr. Co.
 Rodgers Engr. Co., The L. E.

Balls and Railway Equipment.

Atlas Car and Mfg. Co.
 Arbuckle & Co.
 Davenport Locomotive Works.
 Milwaukee Locomotive Mfg. Co.
 Ohio Ceramic Engineering Co.
 Scott Madden Iron Works Co.

Battlers (Paving Brick).

Ceramic Supply & Con. Co.
 E. M. Freese & Co.
 Hetherington and Berner.
 Phillips & McLaren Co.

Recording Gauges.

Brown Instrument Co.
 Ceramic Supply & Constr. Co.

Represses.

American Clay Machinery Co.
 Bonnot Co., The
 Chambers Bros. Co.
 Fate Co., The J. D.

(Continued on page 236.)



Full Circle Swing

Any experienced clayworker knows the advantage to be gained through the use of a full circle steam shovel. Such a shovel permits a larger radius of operation and less frequent moving of the machine—therefore less cost of labor and time. The

“American” Steam Shovel

is a full circle machine. It employs no outriggers or side braces of any kind.

This however, is only one of many important advantages possessed by this “best of all” steam shovels. Some of the reasons why you should purchase this shovel in preference to all others, can be named as follows:

- Absolutely one man operated.
- Non-reversing engine.
- Special portable, telescopic track, handled by machine.
- Absolutely no planking required.
- Digs deep below the rail—dumps high above.
- Works where other machines will not.
- Plunger on boom point prevents fouling bucket.
- Digs at any angle.
- Will handle cars like a locomotive.
- Will run anywhere with its own power.
- Will not back away in the hardest digging.

Ask for full information on “American” Steam Shovels and particularly regarding Clay and Shale Digging.

American Hoist & Derrick Co., **St. Paul, Minn.**

Buyers Ready Reference List—Continued.

Freese & Co., E. M.
Illinois Supply & Con. Co.
Mueller Bros.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Taplin, Rice, Clerkin Co.
Stevenson Co., The

Revolution Indicators.

Brown Instrument Co.
Ceramic Supply & Constr. Co.

Revolving Steam Shovels.

Marion Steam Shovel Co.
American Hoist & Derrick Co.

Rock Crushers.

American Pulverizer Co.
Phillips & McLaren Co.

Roofing Tile Machinery.

American Clay Machinery Co.
Ill. Supply & Construction Co.
Mueller Bros.
Raymond Co., The C. W.

Rope.

(See Supplies.)

Rotary Dryers.

American Clay Machinery Co.

Sand Dryers.

American Clay Machinery Co.
Anderson Fdry. & Mach. Works.
Fate Co., The J. D.
Hensley, J. W.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wellington Machine Co.

Sand Lime Brick Machinery.

American Clay Machinery Co.
Anderson Fdry. & Mach. Wks.
Chicago Brick Machinery Co.
Chisholm Boyd and White Co.
Fernholtz Brick Machinery Co.
Ill. Supply & Construction Co.
Ohio Ceramic Engineering Co.

Raymond Co., The C. W.
Scott-Madden Iron Works Co.

School of Ceramics.

Illinois University.
New Jersey State School.
New York State School.

Scrapers, Flows and Clay Gatherers.

Arbuckle & Co.
Eagle Iron Works.
Ill. Supply & Construction Co.
Scott Madden Iron Works.

Screens.

American Clay Machinery Co.
American Pulverizer Co.
Arbuckle & Co.
H. Brewer & Co.
Bonnot Co., The
Ceramic Supply & Constr. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
E. M. Freese & Co.
Harrington & King Perf. Metal Co.

Ill. Supply & Construction Co.
Mueller Bros.

Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.
The Stevenson Co.

Sewer Pipe.

Evens & Howard Fire Brick Co.

Sewer Pipe Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Taplin Rice Clerkin Co.
Scott Madden Iron Works Co.
Stevenson, Co., The.

Steam Gauges.

(See Supplies.)

Steam Shovels.

American Hoist & Derrick Co.
Marion Steam Shovel Co.
Scott-Madden Iron Works.
The Auto. Steam Shovel Co.

Steam Specialties.

Dean Bros. Steam Pump Wks.
Frost Mfg. Co.
Morehead Mfg. Co.
Pulsometer Steam Pump Co.
Standard Dry Kiln Co.

Steam Traps.

American Blower Co.
Frost Mfg. Co.
Morehead Mfg. Co.
Standard Dry Kiln Co.

Steel Pallets.

Ohio Galvanizing Co.
Ohio Ceramic Engineering Co.

Supplies.

American Clay Machinery Co.
Anderson Fdry. & Mach. Wks.
Arbuckle & Co.
Atlas Car & Mfg. Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. & W.
Carnell, Geo.
Ceramic Supply & Constr. Co.
Chambers Bros. Co.
Chase Fdry. & Mfg. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd and White.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Ill. Supply & Construction Co.
Ohio Ceramic Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
A. C. Newton.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin Rice Clerkin Co.
Wallace Machine & Foundry Co.
Wallace Mfg. Co.
Wellington Machinery Co.

Switches.

Atlas Car & Mfg. Co.
Ohio Ceramic Engineering Co.

Tempering Wheels.

Carnell, Geo.
Raymond Co., The C. W.

Thermometers.

Brown Instrument Co.
Ceramic Supply & Engr. Co.
Rodgers Engr. Co., The L. E.

Tile Machines.

American Clay Machinery Co.
Anderson Fry. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Ill. Supply & Construction Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Wallace Mfg. Co.
Wellington Machine Co.

Time Recorders.

Brown Instrument Co.

Tracks and Switches.

(See Rails.)

Transfer Cars and Turn Tables.

(See Supplies.)

Unloading Device for Pans.

American Clay Machinery Co.
Raymond Co., The C. W.

Voltmeters.

The Brown Instrument Co.

Wheels and Axles.

(See Supplies.)

Wheelbarrows.

(See Barrows.)

Wet Pans.

(See Pans.)

Wire.

(See Cutting Wire.)

The Taplin, Rice-Clerkin Co.

The Machinery Folks of Akron, Ohio, U. S. A.

SOME PLANTS WE INSTALLED

"The 'Pioneer' Wet Pan
Is the best known to man."

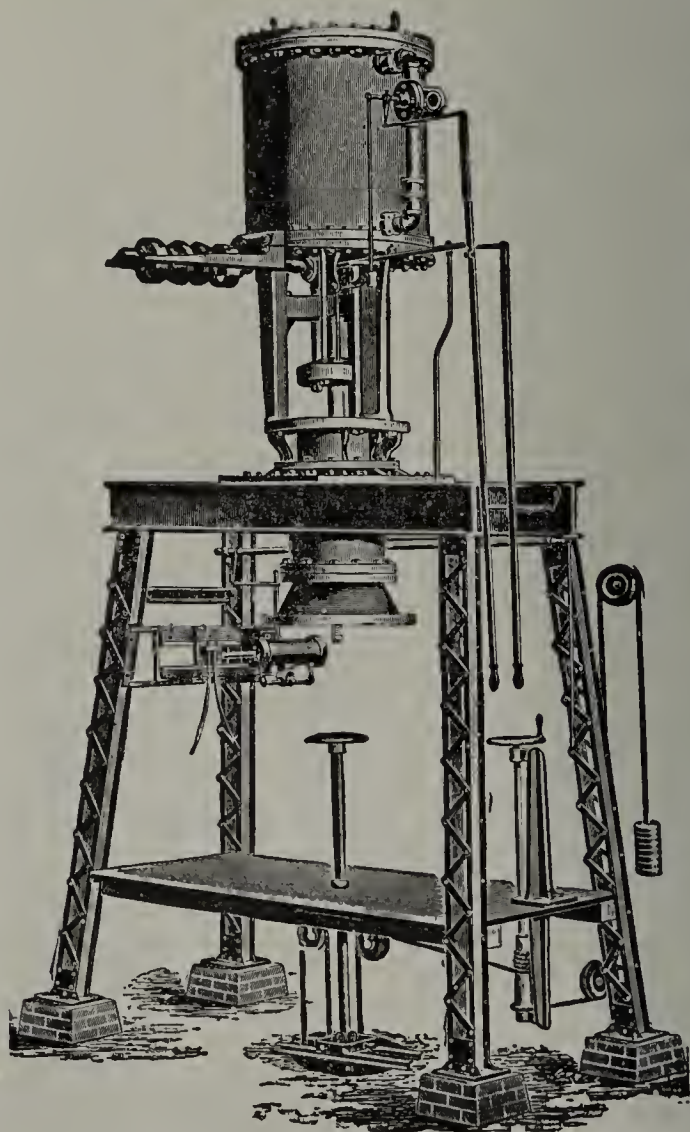
"Pioneer has no Peer."

"Pioneer Machinery is simply the best,
And Used in Clay Products it stands every test;
Durable, high-class, efficient, and true,
It does for its users what others can't do."

"Make things from Clay the
'Pioneer's' way."

"Established Eighteen-Sixty
Five,
But growing fast and much
alive."

Wm. E. Dee Clay Mfg. Co., Mecca, Ind.
National Drain Tile Co., Terre Haute, Ind.
White Hall Sewer Pipe Co., White Hall, Ill.
Lehigh Clay Product Co., Lehigh, Ia.
The Denny, Renton Co., Seattle, Wash.
The Gladding-McBean Co., San Francisco, Cal.
The Pacific Clay Products Co., Los Angeles, Cal.
W. S. Dickey Clay Mfg. Co., Kansas City, Mo.
Blackmer & Post Co., St. Louis, Mo.
Post Pipe Co., Texarkana, Tex.
San Antonio Sewer Pipe Co., San Antonio, Tex.
Henry Stevens Sons & Co., Macon, Ga.
Pomona Terra Cotta Co., Pomona, N. C.
Shawmut Clay Co., Shawmut, Pa.
Ohio Clay Co., Cleveland, Ohio.
Robinson Graves Sewer Pipe Co., Uhrichsville, Ohio.
Dominion Sewer Pipe Co., Swansea, Ont., Can.
The Hamilton & Toronto Sewer Pipe Co., Toronto, Can.
British Columbia Clay Products Co., Vancouver, B. C.



Send for Catalog No. 29.

The Grath BRICK PRESSES

ARE THE BEST

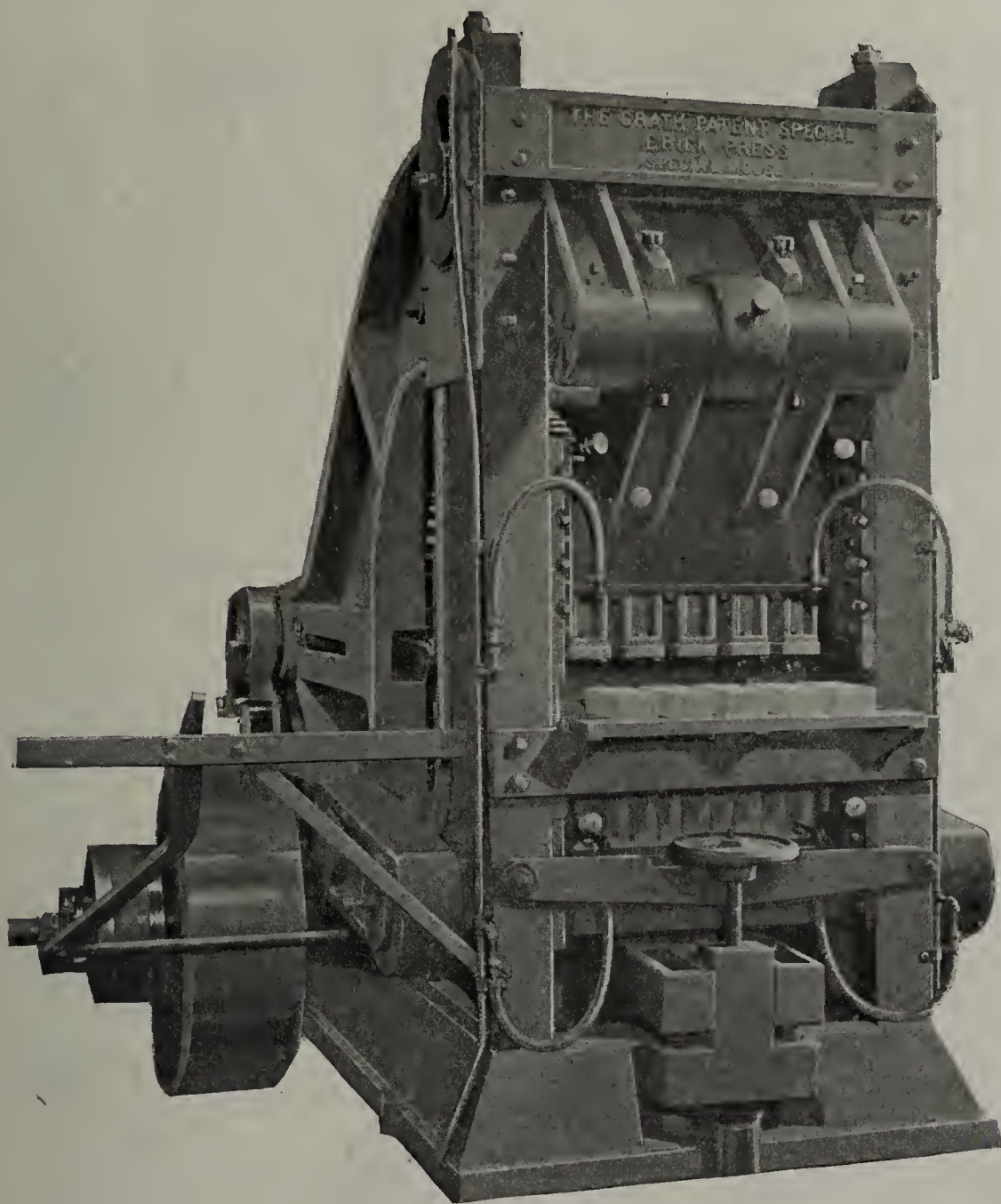
All side and cross strains and twisting of crank shaft eliminated.

Brick free from granulations and weak centers, pressed evenly throughout with balanced pressure.

Made in one-two-three-four and five mold sizes.

The best hand power brick press is the **Grath Hand Press**.

Roofing tile presses and machinery.



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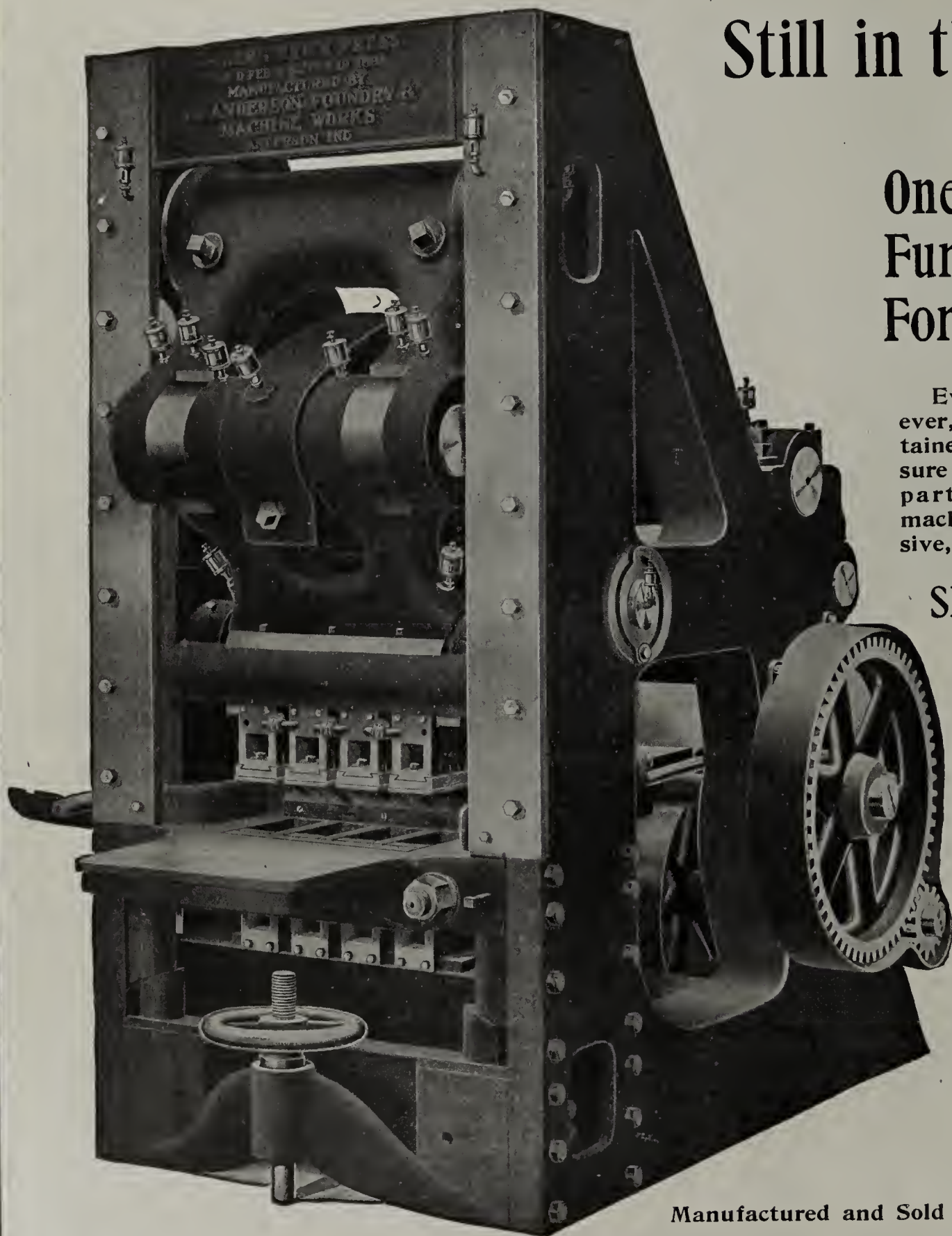
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BRIDGEPORT, TEXAS, AUGUST 5, 1911.

MR. H. HAIGH,
Catskill, N. Y.

DEAR SIR:—We have your favor of 1st inst and are handing you herewith check to balance our account, for drawings, specifications and rights for your system of continuous kiln, in this connection we desire to thank you for the many courtesies extended. Our relations with you have been very pleasant indeed, and the kiln is a fuel saver.

Business conditions have been such here that we have not been crowded with orders this year, but even under those conditions we are now adding four additional chambers to the kiln, which will then give us twenty-four chambers.

With best wishes for your continued success, we are,

Very respectfully yours,

WISE COUNTY BRICK CO.,

J. V. MONTRIEF, Secretary.

(This kiln was constructed from plans and written instructions wholly; neither myself nor any of my men have ever seen it, yet the company has operated it successfully for two years which is ample proof of the simplicity of the construction and operation of my kiln.—Hervey Haigh.)

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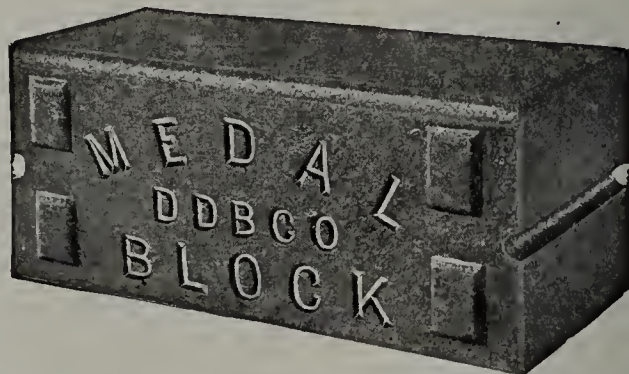
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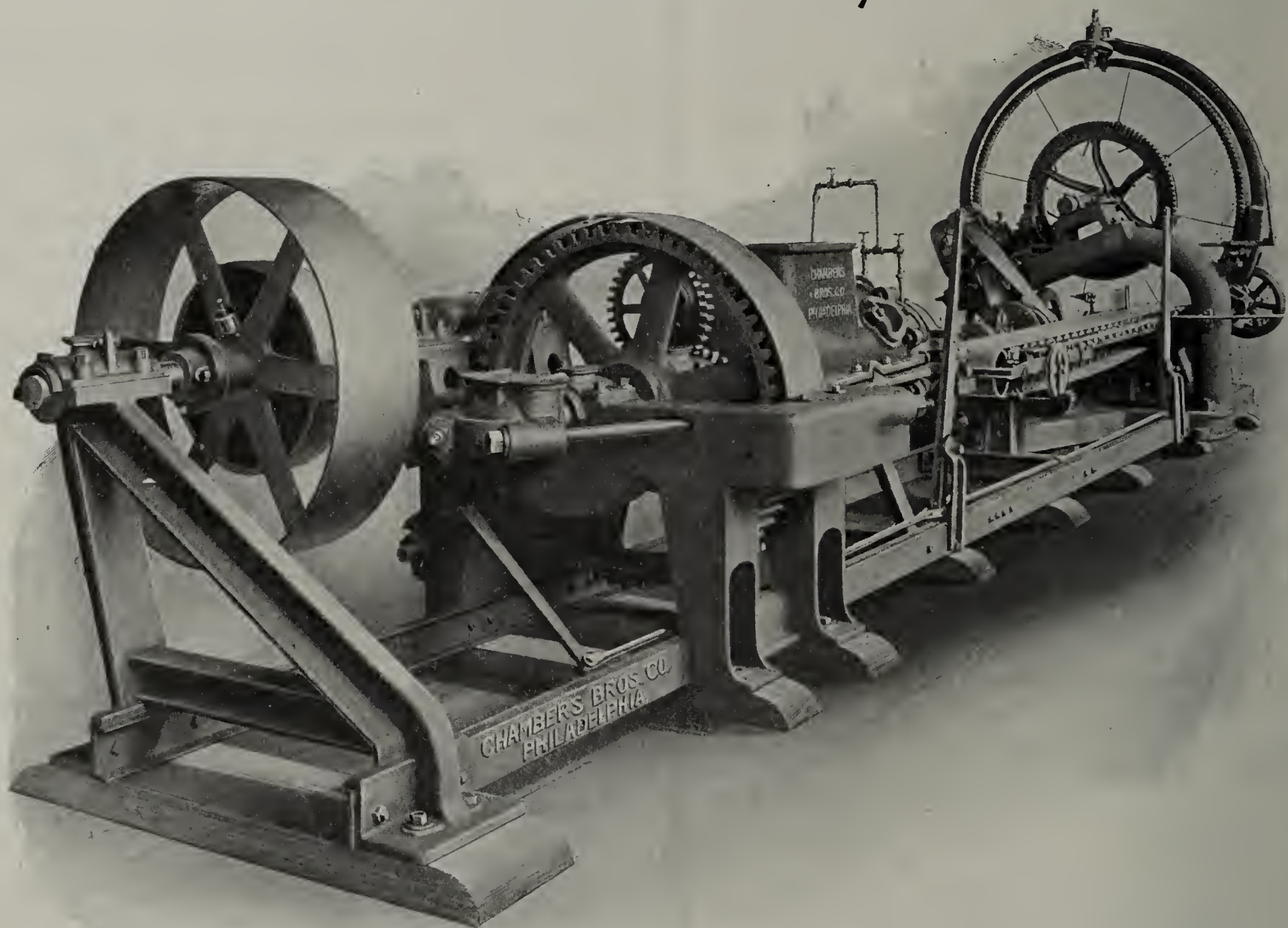
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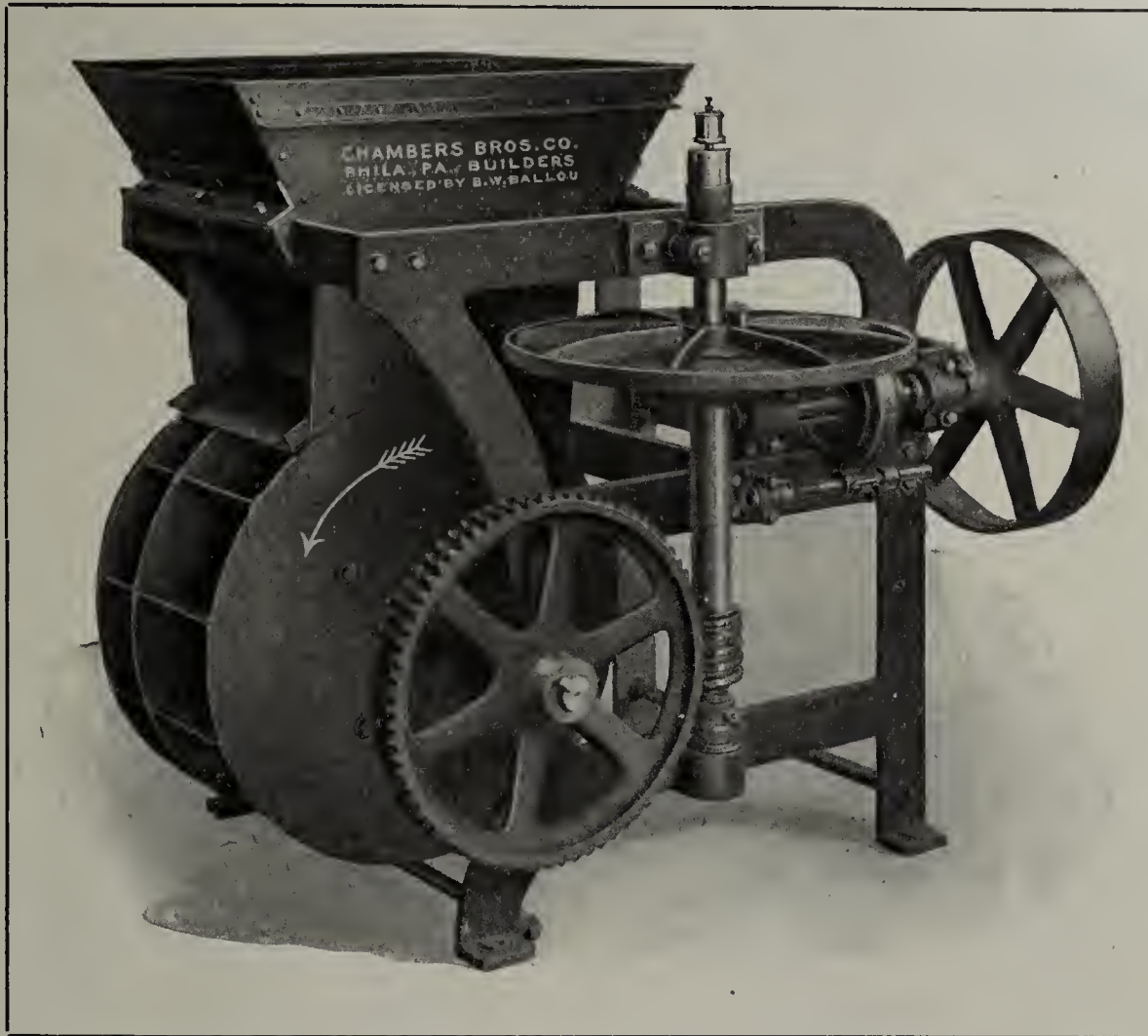
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I have many advantages that endear me to the wise brick manufacturer.

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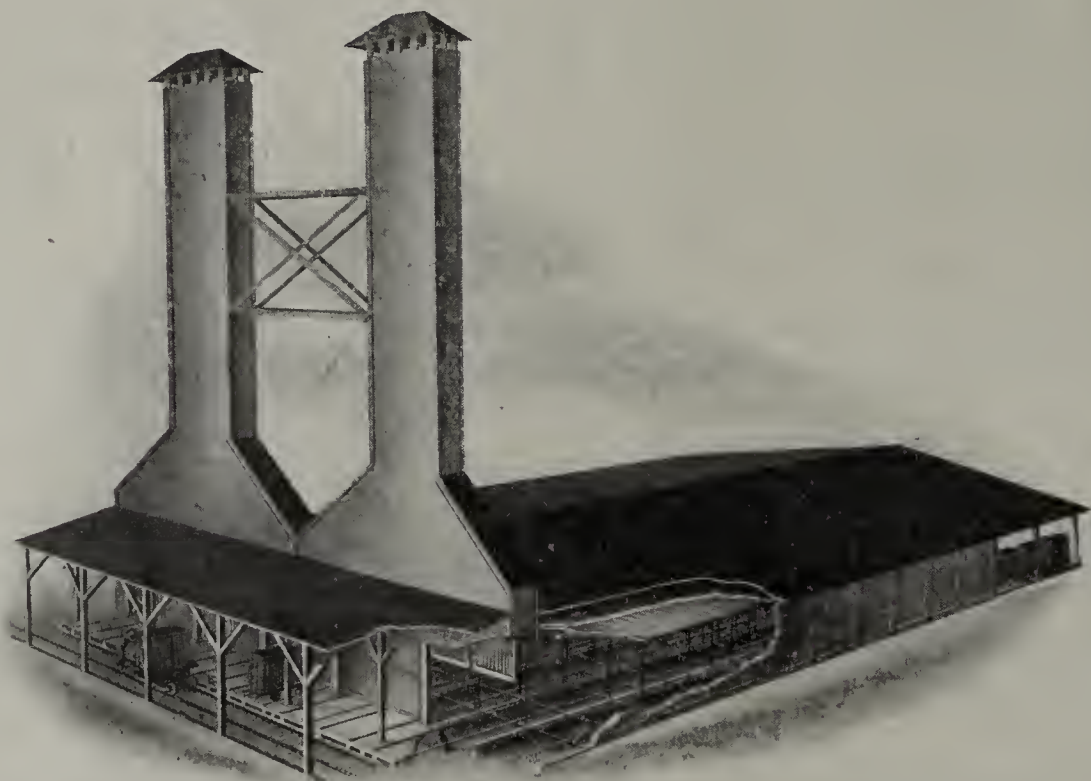
I am so economical that I scorn such expensive luxuries as engines and complicated machinery;

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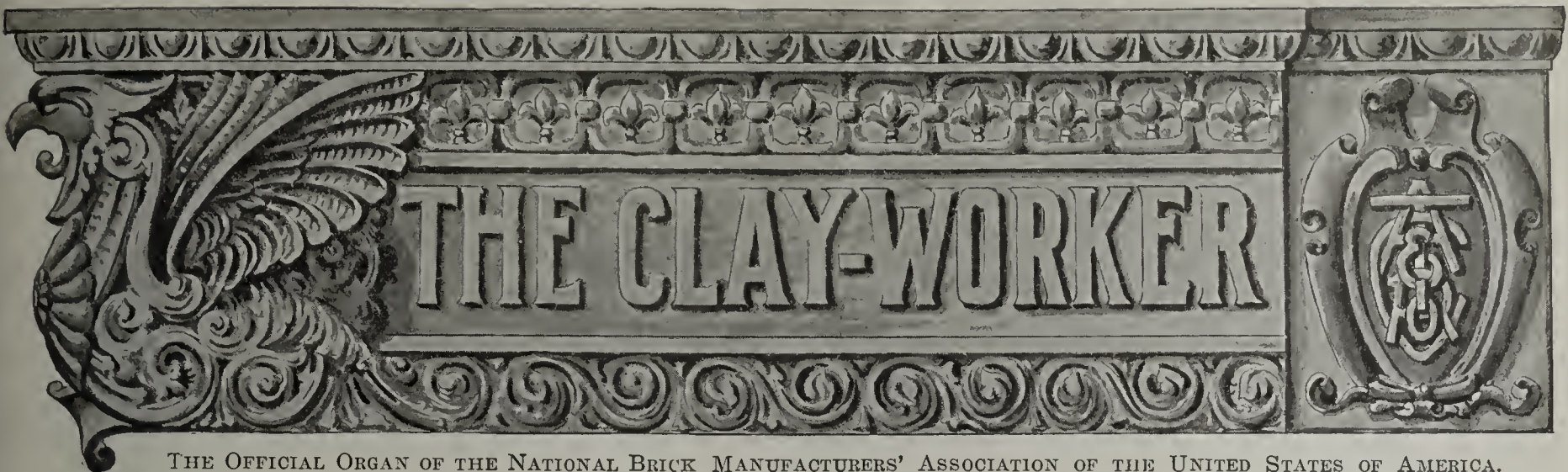
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at the International Clay Products Exposition



"An Olden Time Printer." A Study in Polychrome Faience. Executed by the American Terra Cotta & Ceramic Company. (See page 251)



THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LVII.

INDIANAPOLIS, IND., FEBRUARY, 1912.

No. 2.

Written for THE CLAY-WORKER.

GATES AND HIS POTTERY

Interesting Things Seen in a Recent Trip Through the Factory of the American Terra Cotta and Ceramic Co.

IN A RHAPSODIC moment the great Horace once declared that his lyrics would be for him a monument more glorious and lasting than bronze. Either his prophetic eye failed to perceive the twentieth century development of

ask him to tell you about pottery or to descant on the possibilities of terra cotta from an artistic rather than a strictly architectural point of view, or, better still, persuade him to take you out to the home of Teco, Polychrome and the new sculpture, at Terra Cotta, Ill. It will take a day and a change of cars each way. The little lake which reflects the plant of the American Terra Cotta and Ceramic Company in summer like a mirror, is frozen over. The snowy hillsides are not the models for Teco green that they will be a few months hence, and the only warble will be the expensive lay of some



Lake Lotus, in which is Reflected the Main Factory of the American Terra Cotta and Ceramic Co.

terra cotta as a vehicle for artistic expression, or he was more modest than we can well believe. It is easier to conceive that he didn't dream of the lasting beauties of terra cotta.

If Gates (W. D. that is; we have to distinguish now, because his four boys are getting up in the world and becoming known as somebodies on their own accounts), if Gates should button-hole you at the convention next month and begin to talk a little of his charming philosophy to you, just

exclusive hen in a nearby barnyard. However, the poetry of flower and leaf is caught in a thousand ways in the Gates potteries, and up in the polychrome "slip" room of the A. T. C. and C. factory across the road the pageantry of spring and summer and even florid autumn is being subtly, almost invisibly, reproduced, waiting only, just like the products of Dame Nature, for the miracle of warmth to bring them into radiant bloom. There are more wonderful things beside to see indoors, and the surrounding country with its

rolling stretches of meadow and timber will do no harm to weary eyes. All in all, not only will it be well worth your while to make the trip, but you can count yourself in big luck if you get the opportunity.

If the writer does not emphasize the strictly architectural products of the American terra cotta factory, the idea should not be formed that this branch of terra cotta work is in any way slighted at Terra Cotta, or that the products sent out from this point are not in every way the equal of the output of any plant in the country, and by far the superior of many. You have only to step into the finishing room to see miles of terra cotta cornices and face blocks for great exterior surfaces, some in rough finish to harmonize with Bedford limestone or rough granite, and some glazed and mottled so as to blend perfectly when seen at the height of a few stories with polished granite of the lower courses. Special

attractive summer home, some in green and some in varying shades. One, an exact reproduction of those in the Pompeian room, stands at the edge of the pool, where, under a graceful flying pergola, Pan, who seems the Patron Deity of Terra Cotta, stands guard at Gates' threshold.

While you are admiring these Teco green giants in that relief station for Chicago's most elite thirst, don't overlook another big piece of pottery at the end of the Teco row nearest the entrance—a great Roman wine bottle, in a rough, warm brown. If you ask Paul Gores about it—and if you don't know Paul, you will do well to make his acquaintance, for he is the Congress hotel's soul of hospitality—he probably can give you a complete pedigree of it, dating back to Rome and the days before Caesars. Well, if you are skeptical don't blame Paul; someone may have imposed upon him. Long life spent in pleasant tolerance of drummers'



Gates' Masterpiece in Teco Which, With Pan, Stands Guard at Terra Cotta.

ornamental work designed by architects from New York to the Pacific coast, also is in evidence at almost every possible stage of completion. All this is interesting, of course, but more or less to be expected. The distinguishing features are those which cause you to exclaim time and again as you go poking about the potteries and the plant.

One of the first places you will strike if you attend the convention at the Congress Hotel and Annex, will be the famous Pompeian Room, just off the equally famous Peacock Alley—unless you are terribly unsociable. You will not fail to observe along the north wall a row of splendid seven-foot vases. They are the real Teco and Teco green, the work of Gates' own hands and brain. If you are fortunate enough to get out to Terra Cotta afterward, you will see more of this same type scattered over the lawn which leads up to Gates'

yarns may have made him unduly credulous. At all events, don't be too ready to give up your own skepticism, for the editor of this magazine will stake considerable that Gates made that vase himself, and is enjoying a quiet laugh on the strength of having "put one over." Ask Gates about it. He will give you the bland look of one who has tilted the pot after "passing under the gun," and calmly bids the dealer help the gentlemen on his left; and in a tone of utmost candor diplomatically (?) gives you the impression that such an idea is wholly absurd. Wait till you get out to Terra Cotta, then keep your eyes open. Right at the end of the office building as you come down from the house, is a rough brown wine bottle of antique form in a standard. It isn't quite the same shape as the "Noble Roman" of the Pompeian room, because this one comes to a point at the base,



The First Glimpse of the Factory Office at Terra Cotta.

whereas the one in the Congress stands upon its own base, but examine color and texture carefully, and as a final test try to draw Gates or anyone else around the place into a discussion of its similarity or dissimilarity to the antique of the Annex. Note the great interest which everybody doesn't display in the subject.

It would surprise no one if Gates had done it—no one who knows Gates, that is—for the "Master of Terra Cotta" has traveled pretty widely and what he doesn't know about Roman, Grecian and Egyptian pottery isn't worth worrying about. However, when Gates turns his hand to antique it isn't to satisfy some plutocrat's fad, or to meet a market,

but because he happens to feel in that artistic soul of his that that is the one thing to do just at that particular time. Teco, as almost everybody knows by this time, is not a matter of bread and butter nor yet of automobiles nor trips to Europe to Gates. A psychologist would say that in Teco he found the best and truest expression of himself. Gates, who is simple and direct for all his art and erudition, probably would tell you that he just likes to "putter about pottery." In other words, the Gates potteries have been a relaxation rather than a business on their own account. So widely is Teco known, nowadays, and so great is the demand for it, that it is entirely believable that the books of



One of the Favorite Trysts of the "Master of Terra Cotta."

the potteries show a tidy surplus at the end of the year. In the early years, though, Gates must have put a good deal more into it than he could hope, or thought of hoping, to take out. Here and there, and especially about the charming old-fashioned house, you will see evidences of this. Along the plate rail in the dining room are beautiful vases in delicate tints, ornate with patterns which it would seem Jack Frost alone could trace. No mid-winter etching on the window-pane could be more exquisite than the elusive crystalline tracings in blues and browns and gold and silver and platinum. Gates discovered the formula for coloring and the more difficult firing, and then gave it away to his fellow-craftsmen, and one of them, far away in Germany, in token of appreciation, sent to him some of the choicest specimens which grace his collection. This phase of the art is not now actively developed at Terra Cotta.

Then there are the wall panels, landscapes painted on the flat surface of terra cotta with the finest of air brushes and

with the varying shades of haze from the blue veil of the mountain tops to the gray mists of the valleys, faithfully portrayed, and broken in one vivid spot by the red roof of a mountain cottage. Up in the modeling room is another panel worth remembering—a road winding up a hill through a wood of eucalyptus trees with their tall and graceful boles.

In an old brick farmhouse turned into a pottery, across the road from the office, you will find the real home of Teco, and here one may see almost anything in pottery from large garden pieces to the daintiest pieces of bric-a-brac. Here Gates' personal art is seen at its best. Tulips and lillies, leaves, flowers and buds are presented in all their appealing grace, or suggested in the general form of a vase or the turn of a pitcher or jar. Gates has been fortunate, too, for his friends have been glad to contribute their ideas for designs, and to give them permanent form in Teco. While the prevailing shade throughout the sample room is the famous Teco green, beautiful browns and russets and yel-



The First and Last View of the Factory Office at Terra Cotta.

the most delicate shades of "slip" known. Over the mantel in the dining room is one of the best things Gates has done in this line—a stream with the lights and shadows of the evening sky reflected in it, and a road and trees along one bank. Both as a sketch and in harmony of tone it passes criticism, and would, if it had been done with hair brush and oil or water color. Consider, then, that the true color of the "slip" used in coloring terra cotta does not appear until after firing, and that the artist in this material has to proceed by sheer visualization, remembering what shades he has used, and in what places and proportions they have been laid on. Consider what even a touch of the wrong color, or the blurring of an outline would mean, and then, perhaps, you will marvel as the writer did, when the process was explained.

There is another panel worth special mention. It is on the wall of the office building and meets the eye as you walk down from the house. It represents a mountain scene

lows and even blues and purples are in evidence. More recently have been added platinum tints, with a soft satiny finish baffling adequate description.

One of the latest products of the Gates potteries which has not yet been placed upon the market, but which will be exhibited at the coming Clay Products Show for the first time, is something wholly new in the line of faience tile. It is the softest appearing finish yet produced in tile, giving a shimmering effect, much like a changeable silk, with just the suggestion of iridescence about it. One especially attractive coloring used is a fluid green across which there seems to play elusively a shade of peacock blue. A beautifully textile-like surface also has been secured in a platinum. This tile should be much sought for interior work, where unusual effects are desired.

One of the largest pieces of pottery which the Gates people will exhibit next month, and certainly one which represents triumph over the greatest difficulties, is a huge basin,

six feet in diameter, a replica of the basin made for the Brandeis Fountain in Omaha, Neb. This beautiful fountain will be reproduced in part at the Coliseum. The niche behind the basin with the crowned head of Pan, and panels of polychrome is now being made especially for this purpose.

The examples of polychrome work which the American Terra Cotta and Ceramic Company will exhibit at the Coliseum are certain to be among the features of the whole Clay Products Show. One in particular deserves mention. It represents an old-time printer patiently etching out his work after the fashion of by-gone days. Above his head is a quaint little window, and behind him an ancient printing press. The picture is well-conceived and executed, and the color scheme is pleasing and effective. By courtesy of Mr. Gates a colored cut of this is used to illustrate this article.

A series of examples of the sculptor's art, which the writer believes will attract attention among the critics within a few months, are the panels for the new Lincoln Memorial Hall at the University of Illinois, which the Gates people are now preparing. These panels, ten in number, are to set forth critical events in the life of the Great Emancipator. The series is nearly finished, and some of the completed clay models may be seen in the great studio of the Gates plant.

Schneider, head of the American Terra Cotta Company's able force of sculptors, gave up months to studying Lincoln's life, familiarizing himself not only with the hero of the panels and with his traits and physical development from stage to stage of his career, but also with the appearance and personalities of those who were closely associated with Lincoln in the various crises which his study enabled Mr. Schneider to select. "Lincoln, the Boatman," watching the slave market; "Lincoln, the Railsplitter," "Lincoln at Gettysburg," and "Lincoln, the Emancipator," are among the panels. Those completed thus far are wonderfully strong and faithful in every line. But, more than mere accurate reproductions of likenesses, they set the blood to coursing swiftly, so pregnant are they with the significance of those old days which stirred the souls of men with sentiments of patriotism and humanity.

In addition to the ten panels there also will be twenty medallion heads, heroic size, of famous men of 1860-64, Seward, Stanton, Greeley, Grant, Logan, Stephen A. Douglas, Yates and Oglesby and many others.

The American terra cotta and ceramic plant is just what one would hope and expect to find, the physical complement and fulfillment of the artistic inspiration which emanates from William Day Gates and the friends and associates he has gathered around him. It is up-to-date and run in smooth, business-like fashion. Every bit of power machinery is electrically driven, and the factory makes its own electricity. The air pressure pumps for the "slip" rooms alone take forty horsepower. The kilns are of the muffle type, and oil is used for fuel. A well-appointed chemical laboratory with the tests of years carefully filed away is constantly in use, and this is responsible for the new developments in colors which are being constantly brought forward.

The first thing you see as you drive up to the office at Terra Cotta, and the last thing you see as you drive away, is a large panel on the end wall, to be reproduced at the Coliseum, by the way, with the Brandeis fountain, showing a school of porpoises sporting beneath the crest of a wave. It seems to be appropriate and quite symbolic of the terra cotta plant, for not only are there "finer fish in the sea than ever yet were caught," but—architecturally and otherwise—there are potentially finer creations at Terra Cotta than ever yet were wrought. And that is saying a great deal.

SCRIP.

When any one attempts to sell you stock in a Mexican mine or a South American plantation, don't take any chances, but, as Mr. Dooley would say: "Yell f'r a polisman."

Written for THE CLAY-WORKER.

BUTTON-HOLE TALKS.

The Point of View.

"YES, it does make a difference how a thing looks as to how you are situated. The viewpoint has much to do with it. Looking over a six shooter from the hind end is a calm and rational performance, but when you



W. D. Gates

look at it and into it, from the front and business end, the situation is entirely different. It foreshortens awfully. You can look right down into it and see the bullet getting uneasy. You realize the importance of what that little bit of muscular tension on the finger will do and your hair stands up while your heart sinks to such an extent that neither would be hit if the gun did go off."

He was an interesting stranger who had lurched into my compartment of the Pullman just as the train started, and we had gotten to talking quickly—at least he did. All was dark outside, so there was nothing to distract us and the rumble of the train and the lash of the storm did not hinder him from talking.

"Yes, I've looked over the gun and I've looked into it too! For years I was Captain of Texas Rangers, and you can be sure there's some action due in that occupation. There's no monotony there. Variety in plenty and action, varied, constant and quick. Why I never really hunted trouble, but it was there and I gathered considerable. Why I don't even carry a gun now—nothing but this." He opened his grip and extracted an immense bowie knife which he assured me he could throw twenty feet and stick just where he wanted. I talked soothingly to him, I would rather have looked into the gun than at the knife. I was glad I was not twenty feet from him, for there were spots in me that felt as though the knife was going to hit them. He slid it back into his grip and I breathed again as he continued. Opening his negligee shirt on his breast, he showed me a scar which he said marked the place where a Pawnee bullet went through him.

"That didn't bother me long," said he, "but this," indicating a horrible scar on his right side, "nearly got me. They shot my horse and he fell on me and pinioned me, and while I lay helpless one of them ran a sabre in there and twisted it. The wound would not heal and I lost my right lung, and it was only through use of the X-ray that they found the broken end of the sabre still in there, and extracting it, healed my wound and saved the rest of me.

"A Mexican came at me with a dagger when I was unarmed, I got this on my left arm, then this on my right wrist, then one in the back, but I quieted him and got over it. I have three buck shot and a bullet that I am wearing. Never let them cut them out, keeping them right with me for souvenirs, you know."

We were to reach Chicago the next morning. My companion had remarked before that he would spend the next day in that city and then go on at night so as to have the next day in Detroit. This had been in my mind while he had been giving me these fragments of his variegated, and I may say perforated life, and thinking to help him, I said, "You can get a train out of Chicago about 11 o'clock tomorrow night that will land you in Detroit early next morning." To this he promptly exclaimed, "Yes, I know that, but just let me tell you something. You won't catch me out on the streets of Chicago after dark."

Shades of Evanston and Zion City! This perforated man, this walking target from Mexican daggers and Texas guns, was going to hunt his room in his hotel till train time, not daring to brave the dangers of the street in Chicago after nightfall.

GATES.

Written for THE CLAY-WORKER.

THE CERAMIC DEPARTMENT OF THE UNIVERSITY OF ILLINOIS.

THIS YEAR'S WORK is progressing very satisfactorily and a substantial growth has been experienced, the records showing an enrollment of fifty-two students, who take work in Ceramics. While, of course, most of these young men are from Illinois, other states such as Indiana, Iowa, Washington, Missouri and Ohio are represented. The following changes in the staff have been made: Mr. E. T. Montgomery has resigned to take a position with the Bureau of Standards at Pittsburgh; Mr. Ralph K. Hursh, formerly of the Pittsburgh Clay Products Laboratories was appointed assistant and is instructing the class in industrial calculations as well as supervising the laboratory work in clay testing; Messrs. C. E. Fulton of New Brunswick, New Jersey, F. M. Wallace, Chicago Heights, Illinois, and G. H. Bald-

students from other departments of the University in this excursion which is to be managed by the Ceramic Club. The officers of this organization are: President, H. H. Bartells; Vice-President, M. R. Hornung; Secretary and Treasurer, Robert Back.

ILLINOIS DRAINAGE CONVENTION.

THE DEEP waterway project in Illinois was given a strong endorsement and the Chicago Sanitary District came in for a scoring at the meeting in January of the Association of Drainage and Levee Districts in Illinois. The following resolutions were adopted:

"Resolved, That the congress of the United States is earnestly requested and urged to enact laws as may be necessary to reclaim and make useful, swamp and overflow lands, to insure their highest development under such provisions as may be deemed best, and we do especially recommend the creation of a national commission to make the necessary



The New Home of the Ceramic Department of University of Illinois.

win, Brooklyn, New York, have been engaged as research assistants.

Eight men registered in the Graduate School are taking work in Ceramics. Two students, Mr. Paul Teetor, of Okeana, Ohio, and Mr. Robert Back of Chicago, have been offered appointments in the laboratories of the Bureau of Standards at Pittsburgh, as the result of a recent Civil Service examination. Mr. Teetor has accepted the appointment and expects to leave shortly for Pittsburgh.

The Department anticipates with pleasure, a visit by Professor R. C. Purdy, of Ohio State University, who was the first to offer instruction in Ceramics at the University of Illinois, and who has kindly consented to give several lectures before the classes on vital technical topics.

Great interest has been manifested in the Chicago Clay Show by the students of the Department who expect to attend in a body, taking in at the same time, the conventions of the American Ceramic Society, the N. B. M. A. and the Illinois Clay Manufacturer's Association. It is intended to include

surveys and estimates of cost and work out a comprehensive plan of national reclamation in connection with the several states, designed to co-ordinate the mutual interests in a progressive state and federal system of consistent and progressive drainage reclamation and development, and that sufficient funds be appropriated by the national government to carry out the work of the commission.

"Resolved, That the Association of Drainage and Levee Districts of Illinois through its officers send copies of this resolution to the appropriate committees of congress, the executive officers of the United States, the National Drainage Congress and to others who may be particularly interested."

ADDITION TO NEW YORK STATE SCHOOL FACULTY.

The New York State School of Clayworking and Ceramics, at Alfred, N. Y., has recently been strengthened by the addition of Mr. A. R. Heubach to the teaching staff. Mr. Heubach is a German by birth and comes of a family of potters.

He received his technical education under Dr. W. Pukall at the ceramic school of Bunzlau, and has been employed in this country in the terra cotta industry in Chicago and New York. At Alfred he will take charge of the workshops as specialist in clay manufacture.

Written for THE CLAY-WORKER.

CHOICE OF A KILN.

BY W. D. RICHARDSON.



THE LETTER in the January CLAY-WORKER from the Canadian Fireproofing Company brings out a subject of prime importance to every man who is planning a plant for the manufacture of brick, drain tile, fireproofing, etc., and it is to be hoped that there will be a generous response to their request for information. There are many who could give these people pertinent, interesting facts and disinterested advice that would help them to decide the kiln question right. They seem to have taken a wise course, however, in employing an expert to lay out their plant, and while it looks as though he were guiding them aright, and should have a free hand, yet it is natural that they should seek additional advice upon a problem of such vital import. At any rate they have opened up a field for discussion that must be of interest to many readers of this journal, and I shall be glad if I can contribute anything that will shed further light upon the kiln question and aid anyone in coming to the proper conclusion in his case.

Periodical or Continuous Kiln—Which?

Whether to build periodical kilns or a continuous kiln is a question that is receiving more consideration every year, not only from the individual business viewpoint of economical production, but from the broader view of the conservation of our fuel supply. Our government has been spending large sums of money in recent years in making elaborate investigations, the reports of which have been generously distributed, with a view to preventing the large unnecessary waste of fuel in industrial operations. The brick industry in this country must plead to enormous wastefulness in this respect, but there is abundant evidence of a widespread awakening to the means at our command for saving a large part of the fuel now used in the burning of clay products.

Every brick manufacturer has some knowledge of the invention by Hoffman, more than half a century ago, of his "Ringofen," a continuously operating kiln designed on the regenerative principle of Siemens. He has heard, at least, that the use of this kiln in one form or another has gradually spread over the world until today it is almost the universal kiln for brick burning in Europe and wherever high-priced fuel or sharp competition makes economical burning a necessity. He may know also of the introduction of this kiln into America and of some failures in getting the expected results with it. He may not know that these failures have been due to an inadequate knowledge of continuous kilns, their design, construction and operation, or to inability to properly appreciate our different local conditions. He may not know that few of the continuous kilns in this country have been designed or built by engineers, but generally by some one who has worked upon a European yard where continuous kilns were used, or else has evolved a design from what he has learned of these kilns by reading or seeing them on other yards. Such a one may, after various experiments at other people's expense, ultimately arrive at fair success. But such failures, becoming less frequent as more kilns are built, should not condemn a type of kiln based upon such sound, scientific and practical principles and that is capable of effecting such a great saving in fuel. Nearly

every kind of ware is now being burned in continuous kilns, and the number of such kilns in operation in this country is increasing rapidly, and they can today be built on as safe a basis as any other type of kiln. The chief drawback to the building of these kilns is that such a large investment must be made on the start before any brick can be burned, while periodical kilns may be built of any size and after a moderate investment brick can begin to be produced and the output gradually increased by additional kilns as conditions may warrant, and improvements can be made in constructions of later kilns as experience may develop.

Assuming, then, as we safely can, that the continuous kiln, in some form, is a safe proposition, the question arises in any special case whether the saving in fuel and other advantages of this kiln more than counterbalance its disadvantages. As compared with the down-draft periodical kiln the case stands about as follows:

Advantages.

1. Saving of one-half to two-thirds of the fuel.
2. Lower grade of fuel can be used.
3. Less labor in burning.
4. Greater compactness of plant—economizing space and transportation.

Disadvantages.

1. Must be operated continuously throughout the brick-making season.
2. Kilns not as comfortable for setters and drawers, since the chambers cool slowly and are always more or less warm when in operation, though electric fans have given this objection less weight.
3. Greater scarcity of men competent to take charge of the burning—experienced men harder to secure. This objection is becoming less forceful every year and will in time be overcome.
4. Not so easy to control results in producing certain kinds of goods, such as flashed brick, paving brick and salt-glazed ware.

The cost of construction for a given capacity is about the same in continuous kilns as in down-draft periodical kilns. Some forms of continuous kilns can be built cheaper than some forms of down-draft kilns of equal capacity, but the difference in cost is generally so small that it may be disregarded in this inquiry. It may be said, however, that in cost of construction the difference is in favor of the continuous kiln.

The cost of repairs may be greater in some continuous kilns than in some periodical kilns, but should be less in the continuous kiln.

Now, applying these premises to the case of the Canadian Fireproofing Company, we conclude that it can be regarded as chiefly a question of fuel saving, as the other advantages are about offset by the disadvantages. Therefore, in this case, let us see what this fuel advantage amounts to under their conditions, burning brick and fireproofing to cone 01, with mine run coal costing at plant \$5.00 a ton.

In making calculations upon this we should have an analysis or calorimic test of the coal, but an approximate estimate of the relative quantities of coal that would be required in periodical and continuous kiln can be made. For burning to cone 01 in a periodical down-draft kiln, about sixteen per cent of coal would be required, and in a continuous kiln about six per cent. Estimating the weight of 1,000 common building brick, burned, at 5,000 pounds, the burning of a thousand brick at cone 01 in periodical down-draft kilns would consume about 800 pounds of average bituminous coal, and in a continuous kiln 300 pounds. Now, with coal at \$5.00 a ton, the cost of burning a thousand brick in the periodical kiln would be \$2.00 and in the continuous kiln 75 cents, a saving of \$1.25 per thousand by using the continuous kiln.

How large a plant our Canadian inquirers propose to

build is not stated, but assuming that the yearly output would not be less than five millions, the continuous kiln would mean an annual saving over the periodical kiln of \$6,250, which would pay a dividend of six per cent on a hundred thousand dollar investment. Surely this is an item that should be carefully considered now before it is too late.

What Form of Continuous Kiln?

Now, granted, as I think we must, that the kiln clearly indicated (as the doctors would say) in this case is the continuous kiln, there still confronts us the perplexing problem of what form of continuous kiln is the most profitable one for them to build. There are several types of continuous kilns, and numerous forms of each type. Thousands of patents have been issued upon continuous kilns since Hoffman proved it to be a successful system of burning brick, and new patents are issued every year in this country and Europe. No one, not even the most skillful designer or the

partitions, the connection between each compartment being through openings just above or below the floor of the kilns, these openings being dampered in the following chamber for back draft by pasting paper over them. The other essential features of both types of continuous kiln are practically the same.

The annular kiln and the compartment kiln can both be used for the burning of the proposed ware—building brick and fireproofing—with practically the same results as to quality of ware, except that for face brick the compartment kiln, fired on one or both sides of chambers, is capable of producing a higher percentage of number one brick. If, however, as we assume, the product is to be largely common brick and fireproofing, the annular kiln has some decided advantages, as follows:

1. Lower cost of construction—a considerable less investment.
2. Lower cost for repairs.



Here Thousands of Tons of Excellent Terra Cotta are Manufactured Annually.

ablest investigator of this subject, can give to others one-hundredth part of what others have given to him. Undoubtedly most of the patented features have some merit, though many of them are practically worthless. In fact, the only valuable features of some of these patented kilns are those that are not patented nor patentable.

To discuss the advantages and disadvantages of the various types of continuous kilns would take us far beyond the limits of this article. The first point is whether the continuous kiln to be selected for their use should be of the annular type, as the original Hoffman, or of the compartment type. Both types are now built of rectangular shape, the former composed of two long arched chambers connected at both ends, forming an annular ring, paper or iron partitions being used to prevent a back draft from the portion of the kiln where the green brick are being set; while the latter type is composed of a continuous row of arched compartments, the arches resting upon fire brick

3. Less consumption of fuel.
4. Greater speed in burning.

The inquirer may be assured that more continuous kilns are being built in the United States every year, and that their use will increase more rapidly as their advantages become better known, though it should be considered that in the brickmaking centers of this country coal is cheap—from \$1.50 to \$2.50 a ton. The writer is using a continuous kiln where coal costs about one dollar a ton. It was his practice as an engineer for a number of years to recommend the continuous kiln only where the price of coal exceeded \$2.00 a ton, but for most purposes he would now lower this limit to \$1.50 a ton.

Let us hope that the "expert" may select the best form of continuous kiln for the conditions and purposes, that it may be properly proportioned in all its parts and constructed in the most approved manner.

THE NORTHWESTERN TERRA COTTA COMPANY'S NEW FIREPROOF FACTORY.



WITHIN a very few months of the destruction by flames of the Northwestern Terra Cotta Company's main factory building of its extensive plant at Clybourn avenue and Terra Cotta Place, Chicago, a new structure had taken its place and the work of turning out mammoth columns, stately statues, friezes, unique decorative details, caps, cornices, shields and terra cotta build-

ing material generally, goes vigorously forward.

Moreover, the new building has this great advantage over the old one—that it scarcely can be swept by fire as its predecessor was on January 12 of last year.

The new main factory is indeed the fireproof cradle of

pumping of water from the river, prevented the spread of flames to the entire neighboring district.

The old building had been of probably exceptionally good construction, but it was not fireproof, and in rebuilding, this experience caused the Northwestern Terra Cotta people to demand the best that could be had in the way of absolutely fireproof construction. Next to perfect construction, Mr. Fritz Wagner, the enterprising president of the Northwestern Terra Cotta Company, insisted upon speed in the rebuilding operations, and under his efficient supervision and that of his able staff, the new factory building has been in operation for some months.

The new building covers approximately an acre of ground, and as it is five stories in height it has about five acres of floor area, making it a terra cotta factory of mag-



A Corner of the Pressing Room of Northwestern Terra Cotta Company's Plant. Note Fireproof Construction of Interior.

fireproof material—a clay-products factory of clay-products construction. Walls, ceilings and floors are composed entirely of fireproofing supplied by the National Fireproofing Company, of Chicago, and even should a blaze start among the contents of any one room or any one floor, it could easily be confined and would not spread destruction to the whole structure. One of the pictures of the interior of this model clay-products factory building, which shows the fireproof construction, also shows a great number of wooden pallets stacked up in readiness for future use. At all times there are necessarily a great number of these pallets either in immediate use or in reserve, and it was these which gave the fire of January 12, 1911, its great start. Coming late in the night, it was not discovered at once, and by the time the alarm was given the flames had gained such headway through the building and dried out its contents that there was no heading it. To make matters worse, the flames speedily attacked the portion of the roof bearing the water tanks and brought them down. Thus the firemen were dependent on city water pressure, which is exceedingly weak in this part of the town, so weak in fact that only the presence of a fire tug at the Deering plant wharf nearby, and its

nificent capacity. In addition to the main building there are several smaller buildings and the office buildings, which were not destroyed in the fire. The exterior of this building is chiefly rough light-colored brick—common builders, in fact—but the decorative possibilities of the products of the factory are not lost sight of. Three bands of dark red terra cotta run around the building just below the second story and just above and below the upper story. Terra cotta trim of the same color is used for sills and lintels, and an ornamental cornice surmounts the whole.

In the space beneath each window on the third floor and also on the fourth floor is set a large square of brown terra cotta surmounted by a smaller square of green terra cotta set transversely and in relief.

The new factory structure has brick walls. The columns are combined steel and concrete and the 20-inch girders are of steel, as are the 12-inch floor beams which are spaced 6 feet 10 inches from centers and carry "end-pressure" 14-inch flat hollow tiles underneath, and all the girders also are covered with hollow tiles at no point less than 2 inches beyond all exposed parts. Floor and roof flat arching throughout is two inches deeper than the beams that sup-

port it. Thus no cinder concrete is required, the tops of the arches being flush with the beams.

Great pains have been taken with the lighting facilities. Over the plaster shop on the fifth floor is a "Monitor" roof with side lights along both sides, and above modeling room at the north end of the same story is a saw-tooth roof of somewhat unique design, the tier in the middle being twice the height of those at the sides.

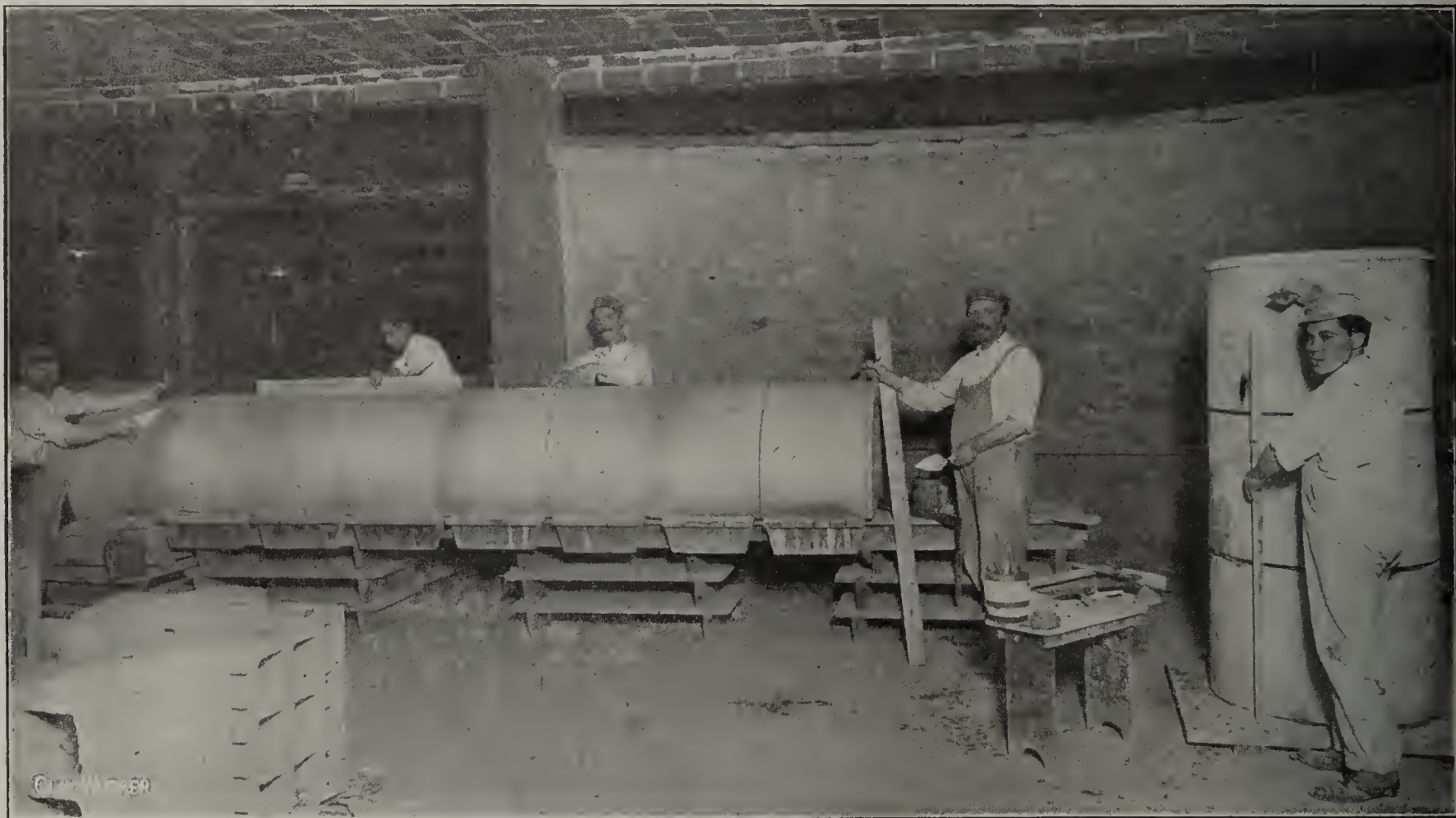
Not only is the modeling room admirably adapted for the sculptors to do their best work, but it is so arranged by means of a platform and machinery that a section of the proposed terra cotta wall in the plastic state can be raised up. In this way the effect of the models can be seen before the molds are made. Sculptors can better judge of their own work, and architects can improve designs at an early stage without incurring extra expense.

The Northwestern Terra Cotta Company is turning out some notable pieces of ornamental work for use in Chicago and other places just now. The graceful ribs of gray which support the vast vaulted ceiling of Gustavino tile in the

home of the lumber kings and yachting regattas, the Oshkosh Brewing Company has caused its somewhat unique trademark to be "done" in terra cotta, and the Northwestern Terra Cotta Company was called upon to do the "job." This trademark, as originally designed for the Oshkosh Brewing Company, presents against a medallion background the head and torso of old Chief Oshkosh complacent, hair pendant beneath a stovepipe hat resplendent and with peace pipe recumbent along left forearm. The serene face of the old chieftain (as portrayed by the original designer of this trademark) most appropriately suggests at once the stolidity of a mighty chief and the benignity of a well-nourished Teuton who practices and preaches the wise saw,

Trink nicht im Hast als sei's im Spiel;
Der Weise eilt nicht uber Ziel;
Er trinkt bedaechtlich, aber—Viel.

All this is brought out admirably in the terra cotta trademark as completed by the Northwestern terra cotta people. A graceful group is that of the eagle and his mate as



One Stage in the Making of a Huge Terra Cotta Column at Northwestern Terra Cotta Company's Plant.

main room of the Harper Memorial Library building now nearing completion out on the University of Chicago campus, came from the Clybourn avenue factory. They match the Bedford limestone in the walls and stretch like a cobweb against the arch of dark green.

The terra cotta frieze for the new State street building which is being constructed for Rothschild & Co.'s department store, is an artistic expression in burned clay which is eliciting favorable criticism.

One of the most striking examples of art in terra cotta recently turned out by the Northwestern's studio and factory, to the mind of the writer, is a reproduction of the British coat of arms. Not only have details been faithfully followed with great precision and nicety of line, but the very fighting spirit symbolized in the ferocious glare of the lion has been caught to perfection, and it is actually a reproduction and not merely a slavish imitation. This fine piece of terra cotta work is to appear over the entrance arch joining the two wings of the Manor House Apartments in Edgewater.

Up in Oshkosh, once the home of the red man, now the

prepared by the same company for the caps for the terrace pedestals about the Laffin residence at Lake Forest.

For beauty and wealth of detail, few pieces of terra cotta work surpass the ornament made to go above the doorway of the Woodmen of the World building at Omaha, Neb., by the artistic craftsmen of the Clybourn avenue plant. The shield in the center presents the crossed axe, adze and wedge above the new-hewn stump, about which shrubbery still blooms.

A series of three Corbels designed for the McKnight building, Minneapolis, Minn., is worthy of mention for the strength of expression evolved from this grotesque imagery. It is fortunate for the artistic world that fire could not put an end to such a wealth of output.

SCRIP.

Sometimes a man needs delivery from his friends more than from his enemies. For example, while we are all great admirers of Roosevelt, we cannot help but feel that some of his friendly enthusiasts are making so much noise about his movements that it is beginning to sound like a circus parade

POWER PLANT POINTERS.

Some institutions have trouble producing enough steam all the time and nearly all institutions find their power plant taxed quite heavily in the winter time. It is in midwinter that the average manufacturer takes a deeper interest in power plant pointers than any other time, because he has more need for new kilns, wrinkles, and ideas that will improve the efficiency of the steam producing plant.

Aside from proper insulation of exposed parts of the boiler, and piping and questions of that kind, there are two common propositions come up when more fire is wanted

and prevent its taking up heat as it should. The fire under the boiler may have a temperature ranging from 1,500 to 2,000 degrees Fahr., while usually the temperature of the boiler shell itself is between 300 and 350. In consequence the boiler shell is in effect cold to the gases of combustion and this causes them to condense and form soot, unless there is a strong air current to carry them out up the smoke stack.

This is where the forced draft comes in, and while the forced draft helps out this condensation and soot forming it does not alter the fact that the boiler shell is in effect cold to the gases of combustion.

The building of a Dutch oven involves the extending of



Terra Cotta Cornice and an Ornamental Detail Executed by Northwestern Terra Cotta Company for Blackstone Hotel

under the boiler. One of these is to use a forced draft and thus increase combustion, and the other is to extend the boiler furnace in the form of a Dutch oven to get more fire surface and consequently more combustion.

Perhaps the original inventor of the Dutch oven merely had in view the getting of additional grate or fire surface, but either unconsciously or knowingly there was developed with this a point in combustion that has been overlooked by many. That point centers around the fact that the shell of the boiler right over the fire, because the water can only be heated to a certain temperature. Usually this temperature is low enough that some of the gases of combustion condense on it and form a soot and thus insulate the boiler shell

the boiler furnace out front so that the primary combustion takes place in a separate oven and the heat is carried on back through the boilers. This improves combustion, especially where coal is used, and while the boiler shell continues cold to the gases the combustion has been more complete and the boiler gets the benefit of the heat without the condensation of gases in the form of soot to insulate the boiler and keep it from taking up heat.

In other words, the Dutch oven probably has more good points about it than the original inventor dreamed of when he was devising it and both the Dutch oven and the forced draft are good things to turn to when one is anxious to increase the fire under the boiler to get more steam.



BY W. G. WORCESTER.

The Patterns of Roofing Tiles and Their Qualities.

STYLES OR VARIETIES.

IN MAKING a careful analysis of the styles or designs of roofing tiles, both ancient and modern, one can readily see that we are using the same fundamental shapes of the early days. Modifications and improvements have been made along both artistic and practical lines until today the clay roofing tile stands at the head of all roofing materials. Their artistic superiority enables them to surmount all attacks of competition; it is the same quality that enables the architect to complete his edifices with an attractive ornamental setting, rather than a finish of somber disfigurement.

Furthermore, roofing tiles have a distinctive advantage

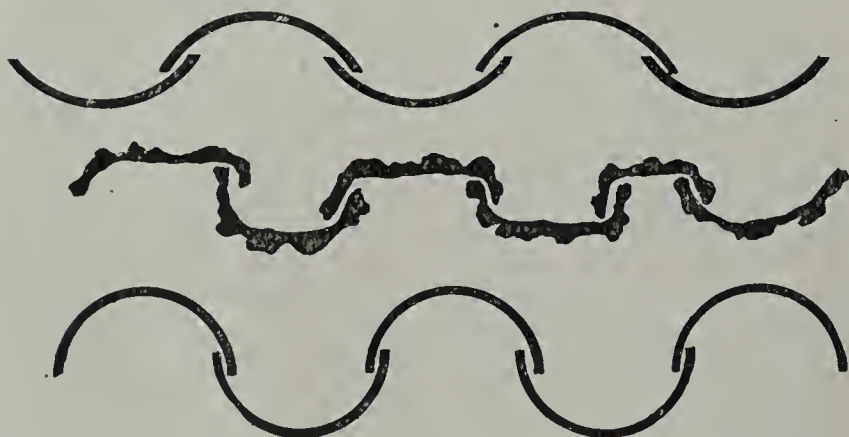


Fig. 1. Normal Tiles and Bark Used as Original Roofing Tile.



End Section of Roman Tile.

over other roof coverings in that outline or shape as well as permanent colors are at the disposal of the architectural artist in the execution of his work. With other materials, slate for instance, he can find a limited color board to work from, but his efforts will be most seriously handicapped owing to the one great quality, form, will be found lacking. It is this feature that instinctively attracts attention to a tile-covered roof, while it is both the outline and color of tiles that adds dignity and richness to the entire structure. All roofing tiles may be divided into three general groups, namely:

1. The normal or roll tiles.
2. The flat or shingle tiles.
3. The interlocking tiles.

The Normal or Roll Tiles.—This pattern of tile is without doubt the oldest of all; this conclusion is drawn from the fact that tiles of this description have been found among the debris of the oldest ruins in all parts of the world. The true normal tiles in outline are more or less semi-circular troughs, so tapered that the exterior of the small end will fit into the interior of the large end, thus providing for the necessary lap. While their outline at first was rather

low and wide, taken, no doubt, from the form furnished by curved pieces of bark, it has gradually been improved until today we have the modern auger-made Spanish tile.

The Romans, in their use of the normal tiles, made a modification whereby a pantile was substituted for the up-turned roll tile. This change was of material artistic value in that the pattern better conformed to the strong lines of the Roman architecture. Tiles of this type are known as Roman tiles, and at the present time find a limited use on certain classes of work. By observing the outline drawings in Fig. 2 it will be observed that one of our modern Spanish tile forms has been taken directly from the Roman pattern in that we have the pan and roll, but they have been combined into one piece, thus doing away with the use of two sets of dies and pallets. It also lessens the number of pieces of ware to be handled fifty per cent, which is a large item. It must not be understood, however, that the auger-made tile can entirely take the place of the true Roman tile. One may purchase a ready-made suit of clothes, but the class or style of same will only in a small degree represent what would be received if he were to order a genuine tailored outfit. Just so with the Spanish tiles; to supply the masses the tiles must be made along the most practical and economical lines. This is accomplished by using the auger machine to express the tiles in a continuous stream, simply cutting them to length.

While the auger-made Spanish tile is greatly in demand,

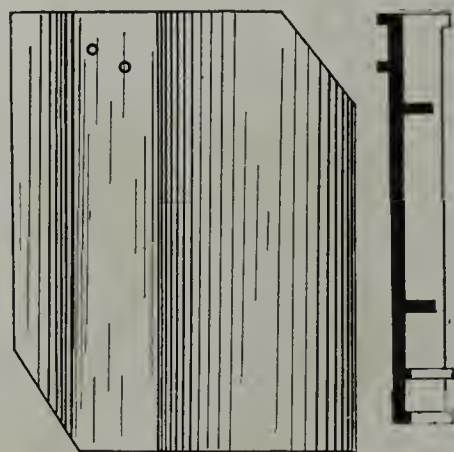


Fig. 2.
Auger Made Spanish Tile.

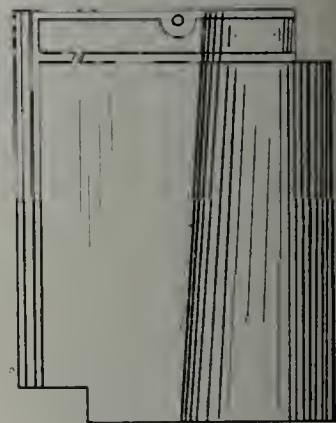


Fig. 3.
Interlocking Spanish Tile.

owing to its lower cost than other patterns, it has a mechanical defect which can not easily be overcome. The point in question is the chance of leakage at the lap joint of the ends of the tiles when laid on the roof; in other words, the end overlap of the tiles. While the tiles are made to fit snugly together, they are, in most cases, laid dry, that is, without the use of elastic cement. Thus, with drifting rain or snow, it is not unlikely that they may be driven up over the end of the lower tile. This same objection, however, applies to all patterns of tiles except the interlocking types. In spite of this one criticism, the auger-made Spanish tile is the standard commercial tile of this group and is bound to hold its own for the following reasons:

1. It makes an attractive roof.
2. Its weight is not excessive, approximately 900 pounds per square.
3. Its cost of manufacture is low, thus its selling price is in its favor.
4. The public demands it.

As the tailored frock is to the custom made garment, so is the interlocking Spanish tile to the auger-made tile of the same pattern. The end-cut of the auger-made tile is un-

avoidably a rough, harsh line in comparison to the gentle curves of the tile otherwise. In the interlocking Spanish tile, which is necessarily press-made, it becomes possible to design the tiles with rounded or curved horizontal lines as well as the vertical ones, thus the tile is greatly improved artistically. This point, however, is not the one of greatest importance; the chief value of the tile lies in the interlocking principle, which permits of water-tight joints at the ends of the tile as well as the sides. We thus have the perfect Spanish tile. It is, though, a more expensive tile to manufacture than the auger-made, which naturally means a higher selling price. To the conservative user of tiles this latter point is put aside when the superiority of the pattern is taken into consideration.

In outline the shingle tile is nothing more than a mere rectangular blank or sheet of clay about three-eighths of an inch thick and fifteen inches long, which is two and one-half times the width. As a rule, their surfaces are plain and unornamental, though at present it is possible to find press-made shingle tiles that show more or less outline that very materially adds to the character of the tile. The true shingle tile of this country is expressed as a continuous ribbon through a die on an auger machine; it is then cut into the desired lengths and two nail holes punched near one end.

Fig. 4. Flat Shingle Tile.



Fig. 5. Interlocking Shingle Tile and Standard Interlocking Tile.

In foreign countries the practice in most cases is to make each tile with a downward projecting lug at one end of the tile. This lug is about three-fourths of an inch high and one inch long, by means of same the tiles are hung over strips on the roof. Nails are very seldom used.

It may prove irritating to some and a surprise to others when the claim is made that the flat shingle tile is the least important of all patterns, especially is this true in this country. While the flat tile has had a very extensive use in the past, especially in some of the European countries, they are losing ground when compared with the other styles. Not that a less number are being used each year, but in the rapidly growing demand for roofing tiles the use of other patterns is advancing in leaps and bounds, while the flat tile remains about stationary. This state of affairs is in a measure brought about by the tile manufacturers, the roofers and the low artistic value of the tile. The manufacturer who is making a complete line of tiles does not try to push the sale of his shingle tiles, owing to the fact that he can not make the same money on them that he can on other patterns. In the manufacture of shingles he has to make approximately 400 tiles to cover a square and will handle about 1,200 pounds of clay, whereas on other patterns an

average of 150 tiles will cover a square and he only has to use from 800 to 900 pounds of clay.

After the tiles reach the roofer he objects to them on the grounds that he finds it necessary to handle 400 pieces of tile and drive 800 nails per square against 150 tiles and 150 nails with most other patterns. Artistically, the shingle tile can only lay claim to color; form, like in slate, is lacking. Thus with the above conditions against the flat shingle tiles it is not to be expected that they will ever reach an extensive degree of commercialism.

While mention has been made of the interlocking Spanish tile, it should not be confused with the true or real interlocking tile. The latter group of tiles differ from the Spanish in outline, and no one in the trade would think of classing them together. As the name implies, these tiles are interlocking, the same being applied to the ends as well as the sides of the tile. The locks are, in most cases, single or double, though in some few cases a triple lock is used. The most popular form of interlocking tile is shown in Fig. 5. Owing to the strong vertical lines, as well as the horizontal ribs, it becomes possible to make these tiles in large sizes, the average size being about nine inches by sixteen inches; when made this size, 125 to 135 will cover a square. On account of its size and the ultimate small number required per square, it at once becomes a popular tile with the manufacturer and roofer.

Little is claimed for the artistic value of this pattern, because it was designed primarily for a strictly utility tile. It has met the latter requirements in every respect and will unquestionably prove to be the greatest commercial tile of the future.

(To be continued.)

SURFACE CLAYS FOR TILE MAKING.

IN THE January CLAY-WORKER, C. G. Elliott, Chief of Drainage Investigations, United States Department of Agriculture, in speaking of the tile manufactured by Mr. Henry T. Miner, Kingsville, Ontario, said: "The surface clay taken direct from the bank makes a fine red tile which will pass critical inspection."

When tile drainage and tile making were new in Illinois, the fellows who made tile that did not burn red tried to stampede the farmers by crying that tile should be made of fire clay. The surface clay manufacturers replied by saying that fire clays might stand fire but tile that were to stand water and frost should be made of clays that would change under fire. Then the others changed their cry and said that tile should be made of potter's clay. In the meantime the red tile factories were selling to their local trade and experience demonstrated that red tile were good enough for the farmer.

In laying some large tile on the old homestead in Illinois last fall the brother of ye editor came upon some two-inch tile that had been made of surface clay and laid thirty years ago, and they were running a little stream after being in all these years.

Without wishing to injure any one and "with charity for all," it may be said that some folks think that the surface clays are a little safer for tile making because they are less liable to laminate and scale and pop and sprawl, and they show as plainly by their colors just how well they have been burned, while some of the shales change color so little in burning that it is difficult to distinguish between soft and medium burned tile.

The old Egyptians, who are regarded by our historians as being the first people to rightly understand the rules of government, had a theory that the true end of politics is to make life easy and the people happy. A good dose of that kind of sentiment would be mighty good for the political body of today.

REVIEW OF THE IOWA BRICK AND TILE CONVENTION.

THE 1912 CONVENTION of the Iowa Brick and Tile Association was held in Fort Dodge, January 23, 24, 25. The Commercial Club gave the visitors the use of their rooms and did much to make the convention pleasant. The mayor, Hon. John F. Ford, gave a cordial and felicitous address of welcome, saying that there were no keys to the city to surrender to the visitors, that we would find everything open—excepting the jail, and suggesting that those who wanted to see the inside of the jail might find their way by following the goings in and out of some of the members of the local committee of entertainment. Each member of this committee wore a white badge upon which was printed "Ask Me." Prominent local clay workers formed this committee, among whom we mention with grateful memories, Messrs. John Abel, W. U. Turpin and G. M. Eilenberger, of Fort Dodge; Mr. George Schnurr, of Kalo, and Mr. D. I. Johnston, of Clay Works.

Wednesday evening was given to entertainment by the local committee and business men of the city, including a sitting at the Magic theater, where views of local clay plants were shown, in addition to the regular program. This was followed by a Dutch lunch at the armory. Draw on your imagination for the menu, as no printed copies were in evidence.

The reply to the mayor's address of welcome was made by Judge J. L. Stevens, of Boone, who said, in part: "We take the commonest material and make of it the finest and most useful and beautiful wares. We are the real conservationists, because our material in streets, buildings and fields will last and give wealth, comfort and beauty. We can not boost the clay business without boosting Iowa, and vice versa, and no man can say that any organization has done more to develop the material interests of the state than ours."

The program was enriched with papers by members of the faculty of the Iowa State College at Ames, who have done, and are doing, much by their original investigations to develop the material interests of the state. Prof. S. W. Beyer gave a comprehensive view of Iowa's standing as a brick producer, with suggestions for future development. Prof. A. Marston reported upon the progress being made towards the establishment of standards of quality. Prof. M. L. King, who has done more than any other living man to develop and establish the burned clay hollow block silo, gave many valuable suggestions, and pointed to a bright future for this—the best of all silos.

The annual address by the president, C. F. Green, of Sioux City, was listened to attentively by the members, and contained "food for reflection" and suggestions for future action.

In the report of the legislative committee, by the chairman, J. B. McHose, of Boone, it was shown that, among other good works, the committee had assisted in preventing the "kidnapping of the Geological Survey from Des Moines and embalming it at Iowa City."

During reports from members, one progressive member suggested divorcing the machine men from the convention. He charged that they find a clay bank, promote a new company, sell the machinery and start another competitor. The stand-pats took this with a smile and nothing further was said.

The outlook for tile makers was, in the main, rather gloomy, although many were hopeful. On Tuesday evening separate sessions for a free discussion were held by the brick and tile men. The tile men reported demand limited, competition sharp and cutting and prices on the toboggan, with an uncertainty ahead. The discussion brought out very plainly that the big factories, who must ship far and wide in order to find market for all their goods, were meeting opposition and were feeling the effects of competition, while the little fellows, who have no "overhead" expenses, and who cared for their local trade and shut down when they had enough, were "feeling very well, thank you."

Of course, the cement tile came in for a share in the discussion, and we drew these conclusions from what was said: Cement tile are here—and here to stay until further

notice. Clay tile, ditto. In order to get the trade the clay tile must be made good and prices on the open market must be met, whether made by cement or clay tile manufacturers, for, unfortunately, contractors and farmers often buy the cheapest. Instances of failure of cement tile are more common than failures of clay tile, but purchasers are often illogical enough to draw conclusions from one premise without making thorough investigation. In the mind of the average farmer, both kinds of tile have failed and so they are on a level in his mind. Somebody said cement tile get harder the longer they are in the ground, and that idea gives hope for poor cement tile.

Paper—"The Common Brick Plant; Essential Conditions," by C. M. Stewart, Des Moines.

A discussion as to freight rates disclosed some peculiar conditions and practices, as shown by actual shipments that have been made in special cases—notably from points in other states that have brought brick from a distance in competition with those from Iowa plants.

Paper—"Iowa's Standing as a Brick Producer; Chances for Future Development," by Prof. S. W. Beyer, of Ames.

Paper—"Standards of Quality," Prof. A. Marston, Ames, Iowa.

In the discussion following, instances of failure of cement tile in public drains were cited and the need shown of establishing standards of quality for the protection of those interested. A desire was expressed to establish standards of quality and that an organization be perfected whereby accredited manufacturers might be brought before the public and that would serve as a guide and protection of both drainage engineers and users. Should standards be established it would be necessary to have some final court of appeal or a commission to decide, and it was suggested that this be placed with the ceramic school.

Prof. Marston cited several authentic instances in which clay and cement tile and sewer pipe, both of standard and double strength, had cracked, broken and failed under pressure in actual work. At the meeting last year a series of standard methods for testing tile and sewer pipe were adopted, and these are in a fair way to be adopted as the national standard methods. The national committee, composed of sixteen members, has under consideration the standard methods of testing, and also standard specifications that should be met by pipe and tile when tested by the standard methods for testing.

Paper—"The Clay Block Silo," by Prof. M. L. King, of Ames, Iowa.

Prof. King is experimentalist in the agricultural engineering department of the college. In his introductory Mr. King mentioned the first silos made, particularly speaking about the first patent given on silos, issued in 1899. A company was formed to manufacture the wooden silo therein described, and this has developed into what is known as the "silo trust." Mr. King explained that the company has tried to give out the impression that its patent for the primitive silo covers points included in the clay block, or masonry silo, and has thus attempted to deter the sale of the masonry silos and to retain business for itself alone. Mr. King himself recently offered a \$50 reward for anyone who could supply him with authentic description of silos similar in any way to the old wooden silos which were built prior to the time this old patent was issued. As a result he has material in a dozen different instances which will invalidate this old patent and thirty or forty cases which plainly clear the clay silo makers of infringement on the patent.

In the fall of 1908 the first experimental hollow block silo was built on the college ground at Ames. The next year twelve were built in co-operation with farmers, and observations made looking to the issuing of a bulletin. The next year ninety were built, the next year from 300 to 400. Now the demand is so great for burned clay hollow block silos that the farmer who wants one should order early. Investigation has shown that silos are paying fifty per cent on the investment.

The small number of failures reported of the hollow block silo have been due to lack of re-inforcement and imperfect work. The conditions in a silo are a severe test of the quality of the blocks, and manufacturers should allow none but well burned block to be used. The joints must be well pointed up else air will get in and considerable silage be spoiled.

The Most Popular Silo.

"There are all kinds of silos and we have literature on all kinds at Ames, but this one seems to make the biggest appeal to the farmer," said Prof. King.

Reasons for this were forthcoming during Mr. King's.

talk. He said the masonry silo is fully as cheap as the best grade of wood silo, and it is absolutely permanent, whereas the wooden silo is not. Also, the masonry silo is absolutely fireproof and wind proof. Insurance companies, he said, will not insure wooden silos against wind in summer, but they will insure masonry silos against both wind and fire.

Conditions in the silo are conducive to the rapid decay of wood, but do not in the least affect the clay product. Of course, the masonry silo also needs far less attention than the wooden silo.

A Nominal Cost.

The masonry silo has been widely discussed and described in farm journals and farmers are familiar with its style. The cost, Mr. King estimated at between \$400 and \$450. This is for a silo sixteen feet in diameter and forty feet high.

Prof. King made his address particularly interesting to the brick and tile men by showing them that the quality of the material used for the silos has everything to do with their success.

Explaining the silo for the benefit of the uninitiated, Prof. King used the expressive thought, "the silage proposition is the same to green corn as kraut is to cabbage. A silo is a big kraut barrel for green corn."

Masonry Water Tank on Silo.

The strength of the hollow block silo wall is shown in the work being done at Ames, where they are developing a masonry water tank to be built on top of the silo. The actual existence of the hollow block silo supporting the water tank establishes its strength.

The problems have not yet all been worked out in de-

tail, but Prof. King hopes soon to be able to issue a bulletin on this subject.

Discussion brought out the fact that blocks with horizontal air space are better, as the blocks thus laid furnish better hold on reinforcement, and that the four-inch wall makes a good silo, although many people who want to be doubly sure prefer the eight-inch wall. An eight-inch wall built of two four-inch blocks makes a better and warmer wall than that built of one eight-inch block.

C. L. Smith, of Mason City, spoke on "Manufacturing Difficulties Met With in Fireproofing."

Mr. W. T. Shepherd, Harlan, spoke on "The Phases of the Business from the Dealer's Position."

Mr. W. U. Turpin, of the Lehigh Sewer Pipe and Tile Company, read a paper on "The Cost Feature as Affected by High Standards of Quality."

G. C. Stoll, of Chicago, gave an interesting talk in the interest of the Clay Products Exposition, and requested that Iowa manufacturers unite and make a collective exhibit. Several Iowa firms will have separate and individual exhibits. Many present favored making a collective exhibit to be known as the Iowa exhibit, and steps were taken to gather data, formulate plans and arrange for such an exhibit. C. E. McHose and James Wilson being committee in charge.

Paper—"System in Rotation of Sizes to Secure Most Economical Manufacturing Conditions," B. J. Whipple, Lehigh.

"Burning Tile," J. M. Powell, Brooklyn, Ind.

Officers Elected.

President, G. N. Fairchild, Sioux City, Iowa; vice-president, J. L. Stevens, Boone, Iowa; secretary, C. B. Platt, Van Meter, Iowa; treasurer, H. R. Straight, Adel, Iowa.

Upon invitation, convention voted to accept and meet in Sioux City next year.

ROSTER OF THE IOWA BRICK AND TILE CONVENTION.

H. R. Straight, Adel, Iowa.
C. R. Matteson, Algona, Iowa.
Prof. S. W. Beyer, Ames, Iowa.
Prof. I. A. Williams, Ames, Iowa.
A. O. Anderson, Ames, Iowa.
Prof. M. L. King, Ames, Iowa.
Ollie Wilson, Barnes City, Iowa.
R. W. Jackson, Belle Plaine, Iowa.
J. B. McHose, Boone, Iowa.
J. L. Stevens, Boone, Iowa.
W. H. Brecht, Boone, Iowa.
A. B. Scott, Boone, Iowa.
A. A. Yegger, Boone, Iowa.
E. D. Buckman, Buffalo Center, Iowa.
Wm. Johnson, Clay Works, Iowa.
D. G. Johnson, Clay Works, Iowa.
Johnston Bros., Clay Works, Iowa.
J. H. Kookham, Clay Works, Iowa.
Ray Scott, Clay Works, Iowa.
C. C. Miller, Clermont, Iowa.
A. E. Miller, Clermont, Iowa.
D. W. Stookey, Cedar Rapids, Iowa.
Globe Machinery & Supply Company, Des Moines, Iowa.
Standard Oil Company, Des Moines, Iowa.
L. Aulman, Des Moines, Iowa.
Thos. Houghton, Des Moines, Iowa.
C. W. Emery, Des Moines, Iowa.
F. W. Stuart, Des Moines, Iowa.
Enterprise Coal Mining Company, Des Moines, Iowa.
Geo. Yarn, Des Moines, Iowa.
Globe Machinery & Supply Company, Des Moines, Iowa.
Chas. Rawson, Des Moines, Iowa.
H. A. Rawson, Des Moines, Iowa.
M. W. Anderson, DeSoto, Iowa.
Iowa Pipe & Tile Company, Des Moines, Iowa.
J. A. Wilson, Dows, Iowa.
W. J. Wilson, Dows, Iowa.
Geo. Hix, Dysart, Iowa.
C. A. Reaver, Eldora, Iowa.
Clermont Brick & Tile Company, Clermont, Iowa.
X. Y. Z. Brick & Tile Works, Eldora, Iowa.
G. G. Wheat, Estherville, Iowa.
H. M. Pratt, Ft. Dodge, Iowa.
Ft. Dodge Commercial Club, Ft. Dodge, Iowa.
J. H. Abel, Ft. Dodge, Iowa.
G. E. Goldner, Ft. Dodge, Iowa.
J. L. Johnson, Ft. Dodge, Iowa.
Wm. Fessel, Ft. Dodge, Iowa.
G. M. Ellenberger, Ft. Dodge, Iowa.
J. L. Rainey, Fairfield, Iowa.
W. U. Turpin, Ft. Dodge, Iowa.
Mayor J. L. Ford, Ft. Dodge, Iowa.
Geo. M. Stauffer, Gladbrook, Iowa.
F. Freese, Gladbrook, Iowa.
John Slater, Grinnell, Iowa.
Harlem Brick & Tile Company, Harlem, Iowa.
S. J. Neiswanger, Harvey, Iowa.
J. D. Fortney, Kalo, Iowa.
Kalo Brick & Tile Company, Kalo, Iowa.
Robt. Dawson, Kalo, Iowa.
Geo. Schnurr, Kalo, Iowa.
Jas. Campbell, Lehigh, Iowa.
B. J. Whipple, Lehigh, Iowa.
F. D'Autremont, Monticello, Iowa.

H. G. Hamilton, Marshalltown, Iowa.
G. O. Richards, Mason City, Iowa.
D. A. Potter, Mason City, Iowa.
R. Valentine, Mason City, Iowa.
M. W. Stephenson, Mason City, Iowa.
F. A. Stephenson, Mason City, Iowa.
C. L. Smith, Mason City, Iowa.
C. McHose, Maxwell, Iowa.
R. McHose, Nevada, Iowa.
S. McHose, Nevada, Iowa.
W. E. Supernois, Packwood, Iowa.
H. A. Nelson, Rolfe, Iowa.
W. A. Queale, Redfield, Iowa.
A. V. Everett, Rolfe, Iowa.
G. H. Galvin, Sheffield, Iowa.
C. C. Carhart, Sheffield, Iowa.
M. R. Cameron, Sioux City, Iowa.
C. F. Green, Sioux City, Iowa.
D. C. Duggan, Sioux City, Iowa.
C. E. Travis, Sioux Rapids, Iowa.
Platt Bros., Van Meter, Iowa.
Acme Brick & Sewer Pipe Company, Webster City, Iowa.
P. W. Hearn, Webster City, Iowa.
Tuscola Supply & Contr. Company, Webster City, Iowa.
Tuscola Supply & Contr. Company, Webster City, Iowa.
F. Tittering, Carbon Cliff, Ill.
C. G. Stoll, Chicago, Ill.
Edgar Allen American Manganese Steel Company, Chicago, Ill.
Chicago Retort & Fire Brick Company, Chicago, Ill.
R. & J. Dick, Ltd., Chicago, Ill.
Main Belting Company, Chicago, Ill.
B. T. King, Colchester, Ill.
Frost Manufacturing Company, Galesburg, Ill.
C. W. Shuttuck, Monmouth, Ill.
J. M. Powell, Brooklyn, Ind.
Arbuckle & Son, Rushville, Ind.
Ed. Barr, Austin, Minn.
W. S. Note Company, Minneapolis, Minn.
Plant Rubber Company, Minneapolis, Minn.
Improvement Bulletin, Minneapolis, Minn.
St. Paul Machinery Manufacturing Company, St. Paul, Minn.
J. A. Glandon, Mexico, Mo.
Independent Powder Company, St. Louis, Mo.
F. A. White, Versailles, Mo.
H. Brewer & Co., Tecumseh, Mich.
H. Brewer & Co., Tecumseh, Mich.
H. Brewer & Co., Tecumseh, Mich.
H. J. Melcher, Geneva, Neb.
A. Koehler, Geneva, Neb.
Yankee Hill Brick Company, Lincoln, Neb.
Herman Shields, Omaha, Neb.
H. L. Cassell, Omaha, Neb.
Gordon Bell, Omaha, Neb.
Geo. Cassell, Omaha, Neb.
J. T. Smith, Omaha, Neb.
L. W. Owen, Tekamah, Neb.
Farmers' Clay Products Company, Tekamah, Neb.
H. H. Stevens, Tekamah, Neb.
American Clay Machinery Company, Bucyrus, Ohio.
Ohio Ceramic Engineering Company, Cleveland, Ohio.
Industrial Car Company, Cleveland, Ohio.
E. M. Freese & Co., Galion, Ohio.
Thew Automatic Shovel Company, Lorain, Ohio.
J. D. Fate Company, Plymouth, Ohio.



OFFICIAL ANNOUNCEMENT.

The Twenty-Sixth Annual Convention of the National Brick Manufacturers' Association to be Held at Chicago, March 4th to 9th, 1912.

In Conjunction With the First International Clay Products Exposition, Which Opens March 7th and Continues Until the 12th.

The American Ceramic Society, the National Paving Brick Manufacturers' Association, the Building Brick Association of America and Other Auxiliary Organizations Will Hold Separate Sessions During Week.

THE TWENTY-SIXTH annual convention of the National Brick Manufacturers' Association will be held at the Congress Hotel and Annex (formerly known as the Auditorium Annex), Chicago, March 4 to 9, 1912, in conjunction with the first International Clay Products Exposition. The Clay Show will open its doors to the public March 7, and will be open daily thereafter, including Sunday, from 10 a. m. to 10 p. m., until March 12. The yearly meetings of the American Ceramic Society, the National Paving Brick Manufacturers' Association, the Building Brick Association of America, the Clay Machinery Manufacturers' Association, the Illinois Clayworkers' Association and other kindred organizations will be held during this time. Ample facilities for all meetings, such as convention halls, committee rooms, etc., will be provided at the Annex, free of charge, for each and any auxiliary association desiring same.

Of recent years there has been a marked improvement in the quality of brick and other clay products, and the Clay Show will demonstrate clearly to all who visit it that burned clay in whatever form desired is the best and most dependable structural material in use today. The displays will challenge admiration from users and producers alike. To the former, the exhibits will afford convincing proof of the superiority of clay products, both in point of artistic merit and indestructibility; and to the latter, will be an inspiration for further improvement and development in methods of manufacture. Hence, every clayworker who can should plan to be in Chicago convention week, visit the exposition, and participate in the convention work, which has for its chief object the advancement of all clay industries.

Congress Hotel and Annex Headquarters.

All N. B. M. A. sessions and functions will be held at the Annex Hotel, which is one of the largest and best appointed hostelrys in the world. It is located on Michigan Boulevard, Chicago's most aristocratic thoroughfare, overlooking lake Michigan, and is in the center of the city's activities. It is but a few blocks from the Coliseum and is convenient to all places of amusements, depots, and best shopping districts. It contains 1,200 rooms, affording every modern convenience and luxury. Its numerous convention halls, beautiful banquet and reception rooms, all of which will be at the disposal of the association, will afford unexcelled facilities

and comfortably accommodate our entire membership, even though the attendance is double that of previous conventions, as is anticipated. Those desiring luxurious quarters for entertainment purposes, etc., will have no fault to find with the service at the Annex, which is par excellence in every respect. The ladies particularly will be delighted with the famous Pompeian room, library, lounge rooms, etc., all of which are elegantly appointed.

The following are the rates agreed upon, European plan: Single rooms, without bath, for one person, \$2.00 per day and upward; for two persons, \$3.00 per day and upward; single rooms, with bath, for one person, \$3.50 per day and upward; for two persons, \$5.00 per day and upward; two connecting rooms, with bath, \$7.00 per day and upward.

No Exhibitions of Machinery.

As the display of brick and other clay products at the exposition will meet every requirement in that connection, there will be no public display room at the hotel, though facilities will be afforded for the display of trade literature in or near the convention hall. Those desiring to show models of machinery, supplies, etc., will do so in their private rooms. Neither will there be any formal side trips, though those who wish to visit any of the clay plants in or near Chicago will be afforded an opportunity to do so, if they will make known their desire to the local committee.

No Reduced Railroad Rates.

Owing to the fact that a two-cent rate prevails in Illinois and adjoining states, the Central Passenger Association, having jurisdiction in that territory, has declined to grant reduced rates on certificate plan as in former years. Accordingly, members are advised to use mileage books, or purchase round trip tickets where the latter can be obtained. The mileage book affords the advantage of a variable route, and the privilege of stop over at any point en route to or from the convention, which oftentimes is quite important to those wishing to visit relatives or friends or make little trips of inspection to clay plants or other points of interest.

Entertainment of Ladies, Smoker and Annual Banquet.

A varied entertainment will be afforded visiting ladies, a special local committee having been appointed to look carefully after their comforts and pleasures.

An informal reception and smoker will be given Wednesday evening at the Annex.

The annual banquet, or association dinner, will be served Friday evening at 8 p. m., in the beautiful banquet hall of the Annex. Following the rule which has prevailed for several years, it will be a subscription banquet under the direction of the N. B. M. A. Executive Committee, assisted by the local entertainment committee. The ladies will grace the occasion as usual, and full evening dress will be in order, though by no means necessary.

The Clay Products Exposition.

The formal opening of the International Clay Products Exposition will occur Thursday evening at 8 p. m. A special program for same will be provided at that time.

Convention Sessions.

As in former years, convention week will be divided by the National Association and affiliated bodies, as follows: The sessions of the N. B. M. A. will be held in convention hall of the Annex Hotel, beginning Wednesday, March 6, at 2 p. m., and continue Thursday and Friday. There will be but one session a day after the exposition opens, thus affording members ample time for visiting the Clay Show.

THE NATIONAL PAVING BRICK MANUFACTURERS' ASSOCIATION will hold its sessions in the Green Room of the Annex Hotel, beginning Monday morning, March 4. Those



Congress Hotel and Annex, where N. B. M. A. Convention
will be held, March 4 to 9, 1912



Lobby of Annex Hotel, which will be the Busiest Place
in Chicago, Convention Week



Gold Room, in the Annex, where the Annual N. B. M. A.
Banquet will be held Friday Evening



Elizabethan Room, Annex Hotel, which will be Headquarters
for the Ladies during the Convention

desiring program of same are requested to communicate with Will P. Blair, secretary, 824 Brotherhood of Locomotive Engineers building, Cleveland, Ohio.

THE BUILDING BRICK ASSOCIATION OF AMERICA will hold its business sessions in the Club Room of the Annex Hotel, beginning Tuesday morning, March 5, and will hold a public session in the main convention hall Thursday forenoon. For further information, address J. Parker B. Fiske, secretary, Flatiron building, New York City.

THE NATIONAL CLAY MACHINERY ASSOCIATION will hold its formal sessions in an assembly room of the Annex Hotel, beginning Tuesday morning, March 5. For further particulars, address W. N. Durbin, secretary, Anderson, Ind.

THE AMERICAN CERAMIC SOCIETY will begin its annual sessions Monday morning, March 4. For exact time and place of meeting, program, etc., address Prof. Edward Orton, secretary, Columbus, Ohio.

Souvenir Badge and Number Buttons.

An appropriate souvenir badge and number button will be presented to each delegate and visitor, with the compliments of the Chicago Clay Club, a local organization, the sole purpose of which is to welcome and entertain visiting clayworkers convention week. These badges and number buttons will be distributed by the secretary of the N. B. M. A., whose headquarters will be in parlors 1102, where visitors are requested to call and register on arrival.

All sessions of the National Convention are open to the public. Those who are interested directly or indirectly in clay work of any character are invited to join the association and attend the convention. Members and their families or friends who may accompany them will be entitled to reduced hotel rates, and may participate in all the entertainments. Those desiring further information as to requisite of membership, etc., are requested to communicate with the secretary at Indianapolis.

THE EXECUTIVE COMMITTEE,

CHAS. M. CROOK, President.

THEO. A. RANDALL, Secretary.

N. B. M. A. PROGRAM.

FIRST SESSION, WEDNESDAY, MARCH 6, 1912, 2:00 P. M.
Prayer.

Welcome to Chicago by His Honor, Mayor Carter B. Harrison.

Response by Elliott S. Morse, Washington, D. C.

President's annual address, Charles M. Crook, Youngstown, Ohio.

Report of Treasurer John W. Sibley, Birmingham, Ala.

Election and installation of officers and members of standing committee.

"Report of Committee on Technical Investigation."—Ross C. Purdy, Columbus, Ohio.

Rules of Procedure.

All formal resolutions shall be presented in writing.

At the close of each essay or address an opportunity will be afforded for the full discussion of the subject under consideration.

No papers or essays not included in the regular program will be heard, unless previously submitted to and approved by the executive committee.

Papers and addresses delivered during the convention become the property of the Association and, in accordance with the rules of the Association, may not properly be given out for publication, except by or through the secretary.

The proceedings of the convention will be copyrighted to prevent piracy, but the greatest publicity will be given all the convention papers and discussions at the proper time,

after the report is complete, not before, when copies of any and all papers and discussions may be had free of charge on application to the secretary.

Convention Papers.

"The Power and Value of Working Together Versus Working Alone."—W. H. Sayward, Boston, Mass.

"Back to Brick."—John B. Rose, Boston, N. Y.

"Points on the Construction and Operation of the Lubricating Die."—R. T. Stull, Urbana, Ill. Illustrated.

"Steam and Electric Power for the Operation of Brickyards."—Louis Campbell, Grand Forks, N. D.

"Strain Measurements of Brick Pavements."—J. E. Howard, Washington, D. C. Illustrated.

"The Relation of the Porosity of Bricks to Their Crushing Strength."—Prof. A. V. Bleininger, Champaign, Ill.

"The Need of Organization Among Drain Tile Manufacturers."—J. W. Anderson, Jr., Woodland, Ill.

"The Technical Man as a Commercial Asset in the Clay Industry."—Dwight F. Farnham, Seattle, Wash.

"Let Go That Which is Good When You Find Something Better."—W. C. Denison, Cleveland, Ohio.

"Relative Economy and Efficiency of Power Trucks and Horse Haulage."—A. R. Warner, Cleveland, Ohio. Illustrated.

Pros and Cons of the Soft Mud Process.—General discussion, led by C. H. Bryan, Detroit, Mich.

Dryer Problems.—General discussion, led by W. E. Dunwoody, Macon, Ga.

Is the Tunnel or Continuous Kiln Practical for Common or Press Brick?—General discussion, led by ———

Have Sand-Lime Brick Proven a Success in the United States?—General discussion, led by ———

A Simple Cost System for Common Brick Plants.—General discussion, led by ———

Under What Conditions is it Desirable to Use Crude Oil as Fuel for Burning Brick?—General discussion, led by ———

Questions for Discussion.

What is the relative economy and efficiency compared with first cost of a soft mud, stiff mud and dry press brick plant of 50,000 per day capacity?

What effect does salt in the clay have on the drying and burning of brick?

Is it feasible to salt glaze dry press brick? What is the best method?

What is the cost of electric power for operating a brick plant as compared with steam, coal costing \$2.00 per ton?

What is the cause of drain tile splitting or cracking during burning? What is the remedy?

Does the selling end of the brick business receive the attention it should?

THE CLAY PRODUCTS SHOW OPEN SUNDAY.

The formal opening of the Clay Products Exposition will occur at the Coliseum Thursday evening, March 7, at 8:00 p. m., and the occasion will be celebrated in an appropriate manner. Thereafter, the exposition will be open from 10:00 a. m. to 10:00 p. m., daily, including Sunday, until March 12.

There will be a special band concert of sacred music at the Coliseum Sunday evening and the ladies will be made guests of honor. The committee on entertainment is planning special entertainment for the occasion. It is anticipated that there will be a large attendance at the show on Sunday.

There will be a smoker in the Gold Room at the Annex Wednesday evening, during which a special musical program and other amusement features will be provided by the local committee. It will be a "stag" party, as the ladies will be the guests of Chicago's famous Art Museum that evening. On Thursday the ladies will be tendered a reception at Marshall-Fields store, during which luncheon will be served. The weather permitting, there will be an auto ride through beautiful South Park, and a program of additional entertainments will be provided for their benefit.



CHICAGO—BRICK AND ARCHITECTURE.

CHICAGO is the great clay-products center of the Middle West and West, probably of the country, when considered both as a manufacturing and distributing center. She is the greatest producer of common brick in the world, her output of this product for 1911 being 1,221,000,000 of the common builders. An account of the plants which turn out this important building material will be found on other pages.

Chicago also is a great manufacturing center for terra cotta and ceramic products, with the two great plants of the American Terra Cotta and Ceramic Company at Terra Cotta, a few miles to the northwest, and the even larger Northwestern Terra Cotta Company up on Clybourn avenue and Terra Cotta Place, and both of these plants are given detailed descriptions upon other pages.

Fireproofing and drainage tile also are manufactured to a more limited extent in and about the city chosen for the 1912 convention of the N. B. M. A., and their plants, like those of the brick and terra cotta companies, are well worthy of visits, if delegates to the convention find the time.

The distributing agencies for face brick in Chicago will yield first place to those of no other city either in respect of volume of business handled nor in respect of excellence of material supplied. They fill orders for high class material from one coast to the other, and at practically all the points between. These gentlemen are just about the best Chicago has to offer in the way of citizens, and the material they offer, it is their boast, is exactly as they represent. Clean cut, charming and businesslike in their own personalities, the same qualities are reflected in their office displays which are described somewhat in detail elsewhere in this number, and a trip to the Chamber of Commerce building, the Roanoke, the Stock Exchange and other office buildings where the dealers make their daily headquarters, should be on the program of every man who wants to keep up to date.

With a start like this it is naturally to be expected that Chicago has something to show for it in the way of brick architecture in her beauty spots and important buildings, and she has. Chicago can not boast of being the best paved city in the world, because she has reason to curse at more kinds of paving material beside brick than you can shake a stick at. She can not boast being the most handsomely roofed city in the world, because she has too many flat-roofed buildings to give roofing tile a real chance. But when the man who is interested in clay products has said this he has delivered the last knock that can be delivered against Chicago from the clay products point of view.

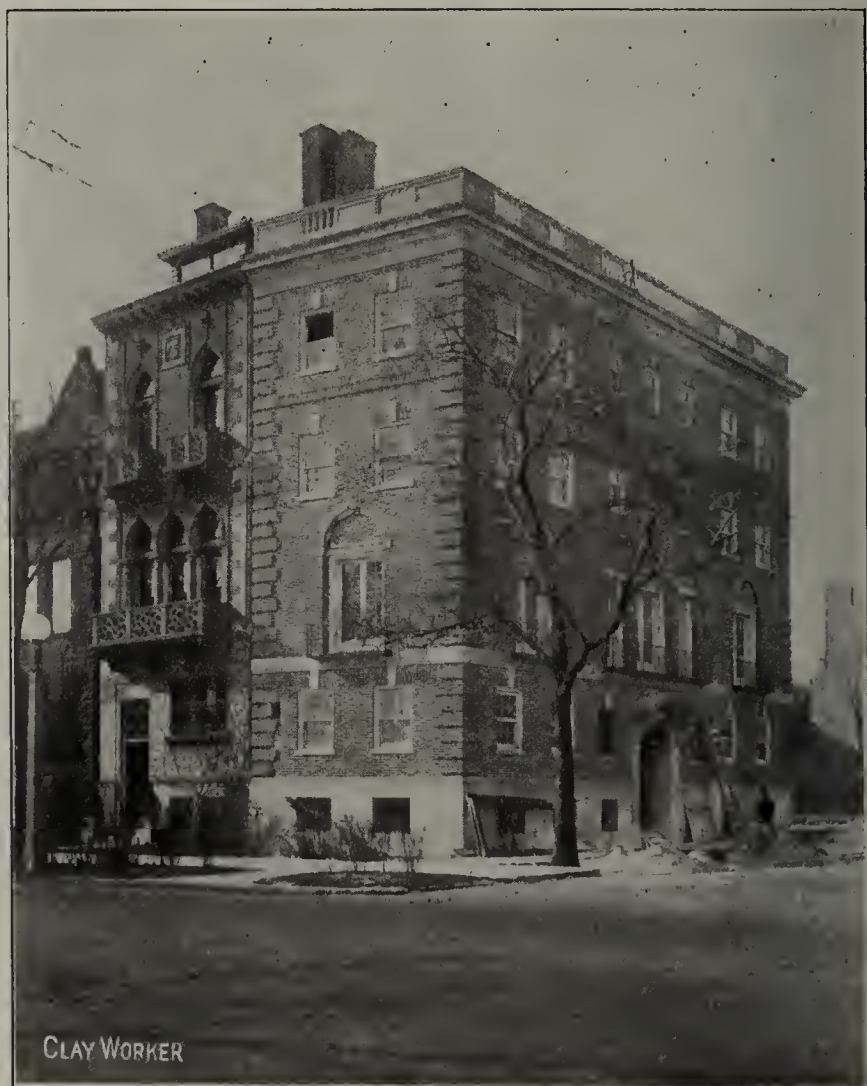
One does not have to go outside of the loop district to see the influence of brick. The latest example of the glories of brick stand forth with the newly completed majesty of the new Insurance Exchange (D. H. Burnham, architect), on Jackson boulevard, running through from Sherman street to Fifth avenue. Tiffany enamel brick from the Thomas Moulding Company spells the charm. Face brick of attractive color and finish and handled in good taste make prac-

tically every modern building in the downtown district what it is artistically. The office buildings, the hotels, the railroad stations, all show what brick has done and is doing for downtown Chicago.

When it comes to the best in architecture Chicago has it, and she has it because her architects have found out the only way to get truly artistic effects in buildings, and that is by the use of brick, supplemented, of course, by a proper amount of tile and terra cotta.

Even the formal and prosaic flat buildings, which in the first instance were about as uninspiring a subject for artistic consideration as could be imagined, have been modified and softened in outline in late years by the development of the brickmaker's art plus the architect's genius. However, it is not the intention to devote this article to apartment dwellings, for although the aesthetic change that brick has wrought in them has been really miraculous, brick has proved its ability to work miracles in the high places of the builder's art as well as in the architectural abysses, and it is more pleasing to contemplate the higher uses to which face brick has been so admirably adapted.

To drive through the show-parts of Chicago and her beautiful suburbs is to convince one that so far as the Windy City on the lake is concerned at least, this is pre-eminently the age of brick. Residences, from the mansion to the bungalow,



Residence of Oriental Brick, Furnished by Bonner-Marshall Co



homes of clubs and country clubs, park houses, churches, schools, settlement houses, structures of almost every description, which attract and hold the eye because of their beauty, are found on second glance to have their chief claim to attention in this king of all building materials. In the outlying residence portions, and even in some of the business and industrial sections removed a little from the central or loop district, the surroundings are harmonized by brick pavements in the streets. Some of the pretty shaded streets in the southwest section of Englewood, on the northwest side, and still more notably in many of the suburbs, offer fine examples of the first, while leading thoroughfares in South Chicago, and the east and west trunk line streets on the south and west sides, illustrate the latter. Exchange avenue in the stockyards, the "Great Brick Way," as it is often called, with the brick columns of its entrance way standing guard at Halsted street, is one of the earliest as well as one of the best known of the brick paving jobs of its kind laid down in Chicago. For many a long year the main artery of traffic in the "yards," it has stood a heavy strain with splendid endurance. The Purington paving blocks which make up the "Great Brick Way," were put down under the personal supervision of D. V. Purington, the forceful and genial founder, and for many years the head, of the great industry at Galesburg, Ill., many years ago. About nine years ago, when the

Union Stockyards was beginning to grow out of its earlier, slovenly and utterly filthy habits, this brick paving was extended to most of the pens and runways. Still more recently it has taken the place of the old planked ways with their ooze and filth and decay, and with the new and impervious surface the old streets up around the Armour and Morris plants, which used to reek day in and day out and year in and year out, are now made almost as pleasant as a boulevard drive once in twenty-four hours.

New landmarks in brick are constantly rising in Chicago and its environs. Northwestern University's new home of physical culture, the famous Patten gymnasium, is a marvel of brick both inside and out. Brick is coming more and more to be used for interior work, where quaint artistic effects are sought. It has long been the practice to use white enameled brick or terra cotta for facing court walls and other walls of rooms and areas which it was desired to make as light as possible, but clever architects have now discovered that other light shades besides white will help to make interiors light. Throughout the interior of the Patten gymnasium has been used the ivory impervious brick of the Columbus Brick and Terra Cotta Company, sold by the S. S. Kimbell Company. It produces a stunning effect in the entrance way, and helps to light up not only the inside of the gymnasium proper, but the great indoor field as well. This brick gives to the walls a delicate tint of old ivory. The indoor field makes the Patten gymnasium the envy of the other Western and Middle-Western colleges. There the football team can practice in unusually bad weather, work out secret formations when preparing for a big game, or continue signal drill and even scrimmage work late into the evening under electric light in the late November days when the sun quits before coach and team are ready. Long before open weather in the spring the baseball squad gets busy under this roof, while the sprinters, hurdlers, jumpers, distance and weight men are preparing for the spring track events, having all the advantage of clay and cinders, while most of their rivals are working out on pine boards and gutta percha matting. The exterior of the building commands admiration. The Kittanning brick, sold by the Thomas Moulding Company, is a big factor in its attractiveness. The architect was George W. Maher.

Many of the city's theaters are of brick exterior, especially the newer ones. No other material is used for the schools and rarely for the churches. Of the later types of brick construction for houses of worship, an excellent example may be seen in the North Side Hebrew Congregation, Pine Grove avenue and Grace streets, where Oriental brick in full range of colors, and supplied by Bonner & Marshall Co., have been employed with telling effect by Alfred S. Alschuler, the architect; and another in the French Roman Catholic church of St. John the Baptist, Peoria street and West Fiftieth Place, built of dark iron clay mottled brick supplied by the S. S. Kimbell Brick Company. The architect for this was Joseph T. Fortin.



Cyrus Bentley's Residence, Built of Oriental Brick.

Driving along the boulevards, visitors to Chicago can not



fail to notice the Loeb residence, at the corner of Fifty-first street and Ellis avenue, of which Arthur Henn is the architect. The style of architecture is such as to attract attention forcibly and the "Textur" brick of the Thomas Moulding Company have been used to splendid advantage in the building and in the artistic garden walls.

Another striking south side residence is that of Melville N. Rothschild, 3701 Michigan avenue, showing the rich effects of the McArthur Turkish Mission brick, which is here laid in English bond. It was furnished by the S. S. Kimbell Company.

Brick continues to be a favorite material for the exclusive residence district of the north side, the Oriental brick handled by Bonner & Marshall Co. showing to splendid advantage in the new home of Cyrus Bentley, Astor street and Burton Place, designed by Jenny, Mundie & Jensen, and in the Rockwell residence, Lake Shore drive and Goethe street, designed by Holabird & Roche.

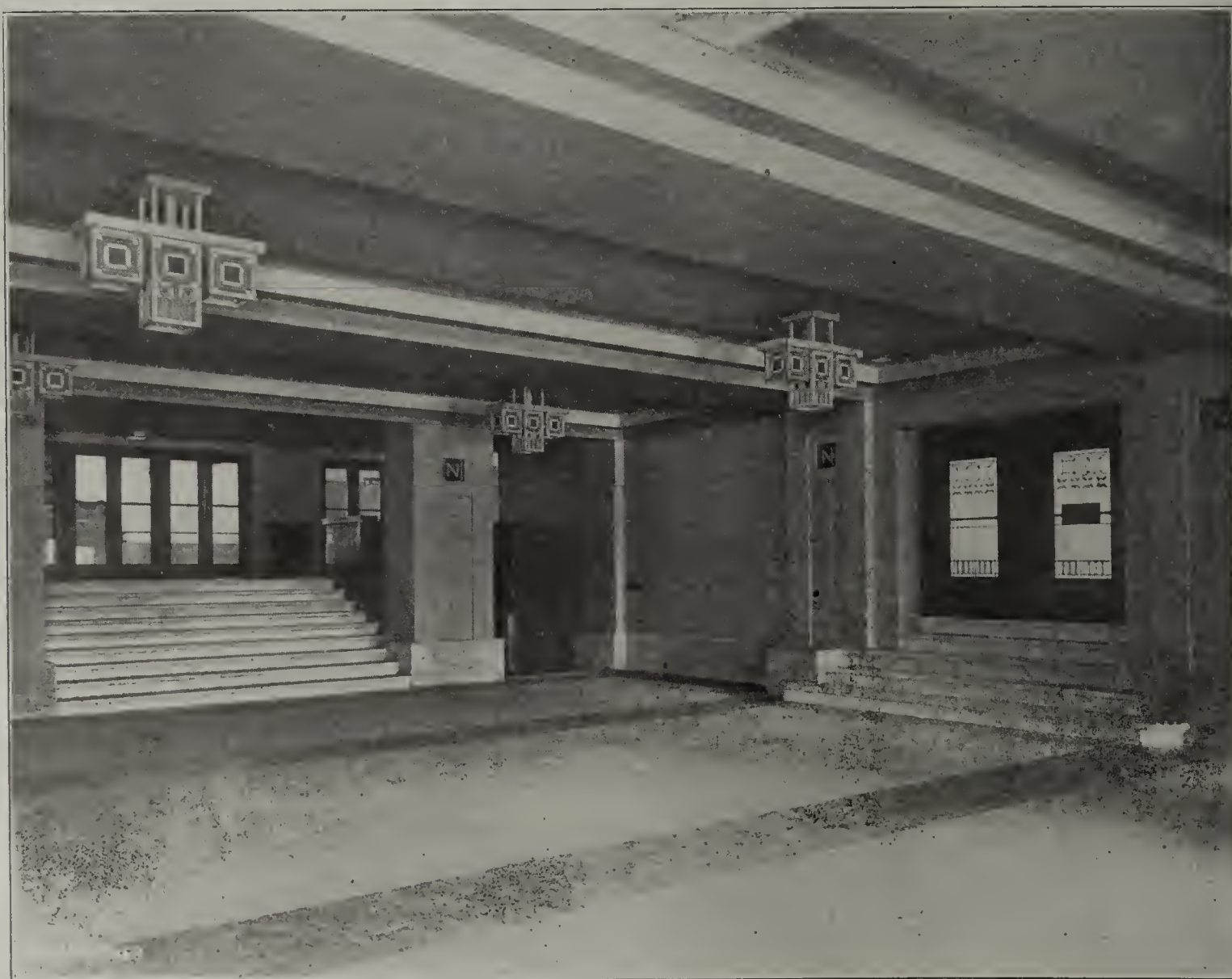
The University of Chicago, out on the Midway, will be a point of interest to many, and its red tile roofs can be seen from afar. Hull House, the Northwestern University Settlement, the University of Chicago Settlement, the Henry Booth

House and others will attract the sociologically inclined, who will not fail to be gratified to find that these buildings have been made the art centers of their respective communities by the judicious use of brick.

Lincoln Park, with its Zoo, is always interesting and within easy reach of the downtown district. Its newer buildings are of brick construction and of more than common merit architecturally. The refectory and boat house is one of the most artistic park buildings in the country.

The steel plant at South Chicago, the great central stations of the Commonwealth-Edison Company, the Hawthorne plant of the Western Electric Company, and the mail order plants of Sears, Roebuck & Co. and Montgomery, Ward & Co.; Marshall Field & Co.'s great retail store, are among the leading places of industrial interest. In most of them brick is, structurally speaking, a predominant factor. The new Y. M. C. A. building, connected with Sears, Roebuck & Co., is one of the most beautiful creations of brick recently put up in Chicago. The brick were furnished by the Jenkins & Reynolds Co.

Of historic interest are the sites of Fort Dearborn at the foot of Michigan avenue, the monument on the grounds of



Artistic Entrance of the Patten Gymnasium. Walls of Ivory Impervious Brick. Sold by S. S. Kimbell Brick Company.



the Pullman residence, marking the spot of the Chicago massacre, the statue of the Haymarket riot on the west side and the building of the Chicago Historical Society.

The Art Institute, the Field Museum in Jackson Park, the public library, the Newberry library on the north side, the Holy Name Cathedral, are all points of great interest.

The shops of Michigan avenue are becoming known throughout the country, and the headquarters of the convention itself, the Congress and Annex Hotel, is one of the busiest places on earth, with something doing every minute—especially when the brickmakers are in town.

CHICAGO BRICK DEALERS.

Chicago does things right. So do Chicago brick dealers. Their office displays show that. No sloppy, hit-or-miss business about them; they are trim and orderly and in most cases put up to give the best idea possible of their appearance in actual service. Artistic arches, Gothic points, doorways and many patterns meet the eye of the visitor.

The Chamber of Commerce building is the home of most of these offices with their pleasing displays.

Bonner & Marshall Co. are located on the twelfth floor in room 1205. Displayed about their walls are the products of the various companies appearing in the following list:

The Poston Paving Brick Company, of Crawfordsville, Ind., makers of Oriental brick, which has been a specialty with Bonner & Marshall for several years; Evarhard Company, Massillon, Ohio, Iron Spots and Antiques; Gloninger

& Co., Van Port, Pa., waterproof brand of Iron Spots in Romans and Standards; Kittanning Clay Products Company, Bradford, Pa., and the Upper Kittanning Brick Company, Gray Manganese; Pearl Clay Products Company, the Craftsman, a wire-cut face brick; Tuna Valley Pressed Brick Company, Cherry Red Romans and Standards; Indiana Brick Company, Anderson, Ind., sand-mold brick; Toronto Fire Clay Company, Darlington, Pa., Gray Manganese and rough Devonshires; Watson town, Pa., Brick and Clay Products Company, Red Breast, beveled edge pavers and Persians; Barr Clay Company, Streator, Ill., Colonial pavers, wire-cut and repressed; Hanover Pressed Brick Company, Hanover, Ohio, Hanover Reds and Bossage wire-cut face; Hocking Valley Fire Clay Company, Nelsonville, Ohio, salt glaze and encaustic tile; Wadsworth, Ohio, Brick and Tile Company, Rustic pavers; American Enamel Brick and Tile Company, South River, N. J., patented enamel plunge bath specialties; Akron Roofing Tile Company, Akron Ohio, Akron roofing tile and Akron quarries; Fiske & Co., Inc., New York City, Tapestries, Caledonians, pony brick and floor tile; "Sand-faced," Oakland Pressed Brick Company, Zanesville, Ohio; Massillon Iron Spot, Massillon Brick Company, Massillon, Ohio.

The Hydraulic Pressed Brick Company has its attractive offices in rooms 301-303 of the Chamber of Commerce building. It handles its own make of brick exclusively, enamels, light and red, two new types of rough face brick, the "Bolcharas" and the "Velours," and a complete line of hydraulic press brick. Their nearest plant to Chicago is at Porter, Ind. They make there both rough face and press brick, turning out 40,000 daily. The rough face brick are made on a Chambers Brothers machine, while a hydraulic press is used for making the press brick. They make 7,000,000 rough face brick and 3,000,000 press brick annually. The dry press rough face brick made at this Porter plant is one of the prettiest buff brick in the country. Their office display is well worth a visit.



Garden Wall of "Texture" Brick Furnished by Thomas Moulding Company.



Residence of McArthur Turkish Mission Brick Laid in English Bond.



A Corner of Thomas Moulding Company's Display Room.

Doorway to Sample Room, Thomas Moulding Company.



The Attractive Display Room of the Hydraulic Pressed Brick Company.

of the same building. With their excellent lint they represent

The Jenkins & Reynolds Co. have their offices in room 1210 the Adams Brick Company, Indianapolis, Ind., Missions and Harvards; the Acme Brick Company, Marietta, Ohio, reds; the Beaver Clay Manufacturing Company, New Galilee and Rochester, N. Y., Turkish tans, Moquettes and Iron Spots; Brazil, Ind., Face Brick Company, reds, glazed, semi-glazed and Rustics; M. Heckard, Canton, Ill., Colonial brick; Federal Clay Products Company, Mineral City, Ohio, glazed and flashed; Steffens & Brown, Darlington, Pa., buffs and grays; Kittanning Clay Manufacturing Company, Kittanning, Pa., buffs and whites; Marion Brick Works, Marion and Montezuma, Ind., old rose Colonials; Streator Paving Brick Company, Streator, Ill., repressed Colonials.

The S. S. Kimbell Brick Company, with offices at 304-305 the Chamber of Commerce building, also present an excellent display of a strong line, representing the Alliance, Ohio, Brick Company, the Athens, Ohio, Brick Company, Lizarb

and within a comparatively few years have built up a substantial and growing business. The material which this vigorous young company handles and the producers it represents are as follows: Warren B. Ferris Brick Company, Columbus, Ohio, flashed Kittanning and "Velvet" brick; Douglas-Whisler, Beaver Falls, Pa., Iron Spot and rough face brick; Bolivar, Pa., Iron Spot and rough face brick; Ohio Brick and Supply Company, Columbus, Ohio, Iron Spot and rough face brick; Melvin & Peterson, Bradford, Pa., repressed red face brick; Latrobe, Pa., Brick Company, wire-cut and red face and Devonshire brick and porch tile; Keystone Clay Products Company, Greensburg, Pa., wire-cut red face brick; Centre Brick and Clay Company, Orviston, Pa., Iron Spot and Persian rough brick; Steffler & Brown, Darlington, Pa., manganese gray iron spot; Streator, Ill., Paving Brick Company, repressed pavers and Colonials; Marion Brick Works, Montezuma, Ind., Autumn Leaf face brick and paving brick; Ohio Fireproofing Company, Nelsonville, Ohio, fireproofing and par-



Display Room of the Bonner & Marshall Company.

brick; Campfield Raggle Block Company, Richmond, Ind., interlocking cornices and copings; Columbus, Ohio, Brick and Terra Cotta Company, Harbison-Walker Refractories Company, Pittsburg, Pa.; Iron Clay Brick Company, Columbus, Ohio, iron spots; LaSalle, Ill., Pressed Brick Company; McArthur Brick Company, McArthur, Ohio, Mission brick; Purington Paving Brick Company, Galesburg, Ill., pavers and Continentals, Nos. 1 and 2 repressed; Ricketson Mineral Paint Works, Milwaukee, Wis.; Spahr Pressed Brick Works, Maysville, Ky., porcelain brick; Andrew Ramsay Company, Savage, Md.; Claycraft Brick Company, Columbus, Ohio; Bradford, Pa., Brick Company, Bradford "Ruffs;" C. E. Poston, Attica, Ind., Poston Orientals; Geo. B. Roller, Canton, Ill., pavers; Sunderland Bros., Omaha, Neb., 15-inch Persians.

The McLaughlin Building Material Company, at 705 The Roanoke building, LaSalle and Madison streets, like their fellow-tradesmen and competitors in the Chamber of Commerce and elsewhere, represent a fine line of clay products,

tition tile; Athens, Ohio paving brick; Nelsonville, Ohio, Brick Company, paving brick; Portsmouth Granite Brick Company, Firebrick, Ky., paving brick; Osceola Silica and Firebrick Company, Pittsburg, Pa., fire brick; Mexico, Mo., Brick and Fireclay Company, fire brick.

One of the roomiest and most attractive display rooms in the city is that of the Thomas Moulding Company, well known in building and material circles for many years. Their line is as follows: Acme Brick Company, Cayuga, Ind.; Abingdon, Ill., Paving Brick and Tile Company; Canton, Ohio, Pressed Brick Company; Fallston, Pa., Fire Clay Company; Jewettville Pressed Brick Company, Buffalo, N. Y.; Kushequa, Pa., Brick Company; Martinsville, Ind., Brick Company; Osnaburg, Brick Company, Canton, Ohio; Ohio Mining and Manufacturing Company, Shawnee, Ohio; Puritan Brick Company, Detroit, Mich.; Parry Brick Company, Boston, Mass.; Straitsville Impervious Brick Company, New Straitsville, Ohio; South Zanesville, Ohio, Sewer Pipe and

Brick Company; Sayer & Fisher Co., Sayersville, N. J.; Tiffany Enameled Brick Company, Momence, Ill.; Toronto, Ohio, Fire Clay Company; Western Brick Company, Danville, Ill.; Kittanning, Pa., Brick Company; Yingling-Martin Pressed Brick Company, Johnsonburg, Pa.; Streator, Ill., Paving Brick Company.

The Wisconsin Lime and Cement Company, one of the old stand-bys in the building material world, with extensive offices on the sixth floor of the Chamber of Commerce building, presents a wide choice of excellent materials from the plants of the following producers: Bloomfield Brick Company, Bloomfield, Ind.; Danville Brick Company, Danville, Ill.; Twin City Brick Company, St. Paul, Minn.; Colonial Pressed Brick Company, Mogadore, Ohio; Junction City Clay

makes of brick: Dry press and stiff mud of all kinds and colors, made by the Kansas Buff Brick and Manufacturing Company, Buffville, Kansas; stiff mud flashed brick from the Black Fork Company, Blackfork, Ohio; greys and buffs from the Darlington Brick and Mining Company, Pittsburg, Pa.; red dry press brick from National Pressed Brick Company, St. Louis, Mo.; Colonial and Mission from the Adams Brick Company, Indianapolis, Ind.; first quality glazed, from Federal Clay Products Company, Mineral City, Ohio; red shale brick from Sheldon Brick and Building Supply Company, Urbana, Ill.; dark flashed, South Webster Face Brick Company, South Webster, Ohio; stiff mud and shale and Afghan, from Crawfordsville Shale Brick Company, Crawfordsville, Ind., and



The Wisconsin Lime & Cement Company's Cozy Display Room.

Products Company, Junction City, Ohio; Canton Pressed Brick Company, Canton, Ohio; Vanport Brick Company, Pittsburg, Pa.; Douglas-Whisler Brick Company, Beaver Falls, Pa.; American Sewer Pipe Company, Akron, Ohio; Kentucky Fire Brick Company, Portsmouth, Ohio; J. B. Hammond, Bolivar, Pa.; Columbus Contractors' Supply Company, Columbus, Ohio; Hocking Valley Products Company, Columbus, Ohio; Bessemer Limestone Company, Youngstown, Ohio; Barr Clay Company, Streator, Ill.; Vulcan Clay and Brick Company, Wellsville, Ohio.

The Meacham & Wright Co. has its offices on the second floor of the Chamber of Commerce building. Here are exhibited some very pretty panels of the following kinds and

dark flashed and red shale matt from the Coshocton Brick Company, Coshocton, Ohio.

The Garden City Sand Company has offices at 708-711 Chamber of Commerce building. This company has the agency for a line of fine fire brick, cement and sand and a high grade of Pennsylvania, Ohio, Kentucky and Missouri fire clays. They have a very attractive office display.

The William E. Dee Company has offices at 30 North La-Salle street. They are manufacturers of sewer pipe, flue linings, copings, fireproofing, hollow block and drain tile. They own and operate two plants at Mecca, Ind., and one at Newport, Ind., and also own a foundry at West Twelfth street

and Forty-sixth avenue, Chicago, where sewer castings, etc., are made.

The Chicago Fire Brick Company is another firm that has offices in the Chamber of Commerce building. They own a plant at Mecca, Ind., where they manufacture sewer pipe, flue linings, wall coping, and drain tile. At their Brook, Ind., plant they make fireproofing, drain tile and flue lining. Their fire brick factories are in Ohio.

The Illinois Terra Cotta Lumber Company, with offices

ing kilns, has an attractive office in the Commercial National bank building. This is a live, up-to-date firm, serving well the interests of the brickmakers over the country. They pay strict attention to every detail of their business, believing thoroughly in keeping an accurate check on the cost of every material and item entering into the making of their several products. They consider the brickmaker's chief trouble, lack of strict attention to this side of the business. This progressive, reliable firm ships its products to all points in the United States.

The Ludowici-Celadon Company has offices on the eleventh floor of the Chamber of Commerce building. The company makes an excellent line of roofing tile, owning and operating a large number of plants throughout the country.

THE MIDLAND TERRA COTTA COMPANY.

The Midland Terra Cotta Company, with offices at 523 Chamber of Commerce building, while less than a year old, has already made a name for itself. The plant is located at West Sixteenth and Fifty-fourth avenue, and is up-to-date in every respect, with every improvement known which will better the product. The employes are skilled artists and artisans and the business is conducted by men who know the requirements of the architects and contractors and are anxious to cater to their wants. The company takes pride in the quality of its material and the promptness of its service. They have shipped large orders to Minnesota, Wisconsin, Indiana, Ohio, Michigan and Kentucky. The officers are Wm. G. Krieg, president; Alfred Brunkhorst, vice-president, and Walter S. Prinley, secretary and treasurer. A complete description of this plant, with illustrations, will appear in a later issue of THE CLAY-WORKER.

DESIGNING DISTRICT DRAINS.

IN DESIGNING draining improvements for a district, according to a statement issued by the drainage expert of the Department of Agriculture, the all-important consideration is the maximum rate at which the water must be removed. This run-off, as it is called, must in nearly all cases be determined without actual measurement of the flood flow. It is usually assumed according to some empirical formula that is limited in application to conditions that may or may not be similar to those of the case in hand, the result tempered by the engineer's judgment and experience. Run-off is greatly affected by the amount and the distribution of the rainfall, the slopes of the land surface, the character of the soil, and the kind of vegetation. Also, from two drainage basins much different in size but otherwise similar, the flood flow from the larger basin will be the smaller per unit of acre. The outline of the basin and the arrangement of the drainage channels further affect the rate of flow. Detailed investigations of run-off have been made during the past year in Arkansas, Louisiana, Mississippi, Missouri and Tennessee. The flood flow from various areas of known size and character have been measured to determine the relation of the several factors. At the same time investigations and gaugings of natural and artificial water courses have been made to determine their capacities under different conditions of cleanliness and uniformity of channel.—The Farmer.

IN CUBA.

The Cuban Congress is planning to expend \$25,000,000 for irrigation. As under-drainage is a necessary result of irrigation, there will be work in Cuba for the tilemaker, both for sub-irrigation and under-drainage. The production of sugar cane in Cuba for the crop year ending with September, 1911, exceeded 1,459,000 tons, showing that they can raise profitable crops there of something besides cigars and insurrections. Busy people have little time for discontent, and if the Cubans can be kept busy improving their lands and, incidentally, their material condition, they would have less time and desire for discontent.



Brick from Holy Door at St. Peter's, Rome. A Feature of the Thomas Moulding Display at Clay Show.

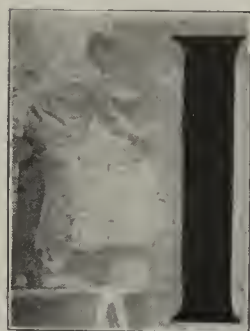
in the Rookery building, Chicago, owns and operates a plant at Pullman, Ill., where a high grade hollow tile and fireproofing is made. Mr. A. W. Beidler is president; F. R. Greiner, treasurer, and R. W. Raftis, secretary. Their materials have been used in a number of Chicago's fine buildings, chief of which are the Powers building, Majestic theatre and office building, Chicago Savings Bank building, Harris Trust building and the Otis building.

The Chicago Retort and Fire Brick Company, manufacturers of that well-known "Ajax" brand of fire brick for build-

Written for THE CLAY-WORKER.

CHICAGO BRICK PLANTS.

Interesting Points About the Plants that Produce One-Tenth of Total Production of Common Brick in America.



IT IS NOT difficult to understand why Chicago, with its splendid central location, its unexcelled transportation facilities, its wealth of surface clays, its intelligent practical brickmakers and its immense building operations, is the greatest producer and consumer of common brick in the world. Chicago covers three hundred square miles, it stands on a foundation of clay and is surrounded by a wealth of the same material. In

the early days, before the Chicago fire in 1871, Chicago was a city of wood. The fire was a terrible lesson, but a good one for the brickmaker and builder, for it taught the people the value of brick and other burned-clay products. The fact that brickmaking by machinery was in its infancy at that time is sufficient reason why the wealth of raw material around the White City was so little used. From that time

all in Chicago. There are thirty-three plants, twenty-seven of which are active during the summer months. None operate during extreme cold weather. The product turned out is about the same quality in all yards. The largest producer of brick is the Illinois Brick Company, which operates thirteen plants. The second largest producer is the National Brick Company, with three yards, while the Alonzo J. Curtis Brick Company is third, with two factories. A rough estimate of the production of brick for 1911 by plants is as follows:

Acme Brick Company.....	8,000,000
Allis Brick Company.....	45,000,000
Bach Brick Company.....	45,000,000
Builders' Brick Company.....	35,000,000
Calumet Brick Company.....	30,000,000
Carey Brick Company.....	60,000,000
Chicago Brick Company.....	70,000,000
Alonzo J. Curtis Brick Company.....	125,000,000
G. J. Heimann & Co.....	30,000,000
Illinois Brick Company.....	525,000,000
Lake View Brick Company.....	18,000,000
Lutter Brick Company.....	45,000,000
National Brick Company.....	200,000,000

Total.....1,236,000,000

The method of manufacture and equipment of all the



Dryer on Illinois Brick Company's No. 30 Plant.

to this, with the revolutionary changes in brickmaking, the perfecting of machinery and education in the manufacture, the Chicago brickmaking industry has grown and developed until today over one billion brick are made and consumed annually. In fact, one billion and a quarter of common brick were made in the Chicago plants during the past year. Of course, these figures do not show the real amount of brick used in the last year's building operations, for this is in common brick alone.

Chicago is a great consumer of face brick; this is proven by its wealth of brick buildings and the score or more of face brick dealers who are actively engaged in selling brick from the kilns of nearly every face brick plant in the country. Besides the common and face brick interests in Chicago there are many other lines of equal importance. Nearly every product made from clay has its place here, the greatest in importance outside of the common brick is terra cotta. Three large plants—the Northwestern Terra Cotta Company, the American Terra Cotta and Ceramic Company and the Midland Terra Cotta Company,—furnish Chicago with thousands of tons annually. Sewer pipe, fireproofing, hollow blocks, conduits, pottery, fire brick and paving brick all share in Chicago's fine record of consuming more clay products than any other city in the world.

The brick industry is, of course, the most important of



Three-track Electric Transfer Car Used on Yard No. 30.

plants are for the most part identical, hence a description of one will suffice for all, with the few exceptions we will cite later on in this article.

A description of the yard, known as No. 30, of the Illinois Brick Company will prove about as interesting as any other, for it is an up-to-date, well-constructed plant and has nearly every feature of the other yards.

The Illinois Brick Company's Plant No. 30.

This plant is located thirty miles south of the court house in Bernice, Ill., a suburb of Chicago. It has been in operation for twenty years, improvements having been made from time to time as the conditions required. The company owns one hundred and fifty acres of clay land at the rear of the plant. This is the ordinary Chicago blue, very plastic surface clay averaging fifty feet in depth with a very little subsoil, so that no stripping is necessary. A Marion steam shovel is used for digging the clay. The shovel was made especially for the Illinois Brick Company. It has a fifty-foot boom which enables the company to work the entire fifty-foot surface of the clay bank. The dipper holds five yards of clay. The clay is dropped into wooden-side dump cars of the company's own construction, each car holding one dipperful of the clay. The shovel is located near the foot of a long incline, so that the



A Glimpse of Illinois Brick Company's Yard 30, Looking Across Clay Field.

clay is hoisted one car at a time up this incline by a wire cable and winding drum.

The main trouble with the Chicago clay is that it is full of lime pebbles. This necessitates fine grinding, as the clay will not stand a sufficiently high temperature to make the brick a hard vitrified product, and the price per thousand is not high enough to warrant washing or the use of barium.

double die is used in the mouth of the machine which splits the clay column, the clay issuing from the machine in two columns less than an inch apart. A Chambers Bros. end-cut cutter cuts both columns, and the brick are taken from the off-bearing belts on one side and loaded onto cars holding 840 brick each. Each carload of brick represents a unit which is easily picked up by the bricksetter after drying.



Mr. Schlake Standing on One of Oil Reservoirs. Kiln Shed in Background.

Therefore, the first important step used in preparing the clay is running it through a granulator and two sets of conical rolls. These are all of the company's own make.

The finely-ground clay is then elevated to a pug mill, also of the company's own make, where it is tempered preparatory to going into the Chambers Bros. brick machine. A



Emptying a Kiln of Chicago Brick.

The carloads of green brick are pushed into a 31 track dryer. Each track holds twenty-one cars, so that the capacity is 620 cars or 520,800 brick. Live steam from the boilers is used in drying the brick, the necessary draft being furnished by five stacks. It takes twenty-four hours to dry the brick, after which the cars are taken from the dryer and shoved onto a



Panoramic View of Clay Field, Illinois Brick Company's Yard 30.

three-track electric transfer car made by the American Clay Machinery Company. Two of these electric transfer cars are used, one in either direction along the immense kiln shed, which is one-quarter of a mile long, the largest kiln shed in Chicago. The electric transfer cars carry the cars of brick to any point in the kiln shed where the brick-setting machine can reach them without loss of time or motion.

The Penfield Brick-Setting System.

The brick-setting machine has revolutionized brickmaking in Chicago. It increased the output of brick 50 per cent. with

same time doing double the work the old force was capable of doing. The machine and its installation is, therefore, cheap at almost any price, for it insures a constant output, more uniform setting and less loss in culls.

The operation of this setting machine has been described in numerous articles in the Clay-Worker during the past few years. However, we think it worthy of a brief description in order that everyone may understand its value. The only preparation necessary for the installation of the Penfield setting system in any plant is to equip the kiln shed with an overhead crane. The tracks upon which the overhead



The Brick Setter in Place Ready to Lift a Carload of Brick.

less labor, and has been of more benefit to the industry than any other one thing.

It has been instrumental in the riddance of labor troubles, a problem that has given the Chicago brickmakers many restless nights in the past. It was not uncommon several years ago for the setters to stop work at any time during the day to go and get a drink, or fish, or what not. The union was the boss of the situation, and the work at the plants was, therefore, always in an unsettled state. The setting machine remedied this condition, for it eliminated the setters, at the

cranes run extend the entire length of the kiln shed, a few feet above the point allowed for the top of the kiln. This permits of the easy operation of the setting machine in all parts of the shed.

The setting machine is made of steel and provided with a number of heavy prehensile fingers which enter the spaces left between the bottom rows of brick as stacked on the dryer cars. Each stack or unit having been built on a uniform plan, it is easy for the operator of the crane to run the setter up to the dryer car and slip the fingers of the setter

into the spaces left to receive them. Each finger is provided with pressure plates automatically operated. As soon as the fingers are inserted the operator starts to raise the load. As soon as the weight of the load of brick rests on the setting machine the grip plates are automatically closed on the bottom row of brick with just enough pressure to keep them from falling. The bulk of the load is carried by the heavy steel fingers, as above the first two courses of brick the stack is set crossways of the fingers. Having raised the load to the height required, the craneman carries it to that part of the kiln where he wishes it set, and it is lowered accurately to the exact position required. When the stack is lowered into position the weight of the load is naturally removed from the machine. This being the case, the pressure is automatically released by the grip plates, which have held the bottom row of brick, and the machine is left free. The craneman backs out with his machine and returns to the dryer cars for another load.

Up to the time this brick-setting device was installed the

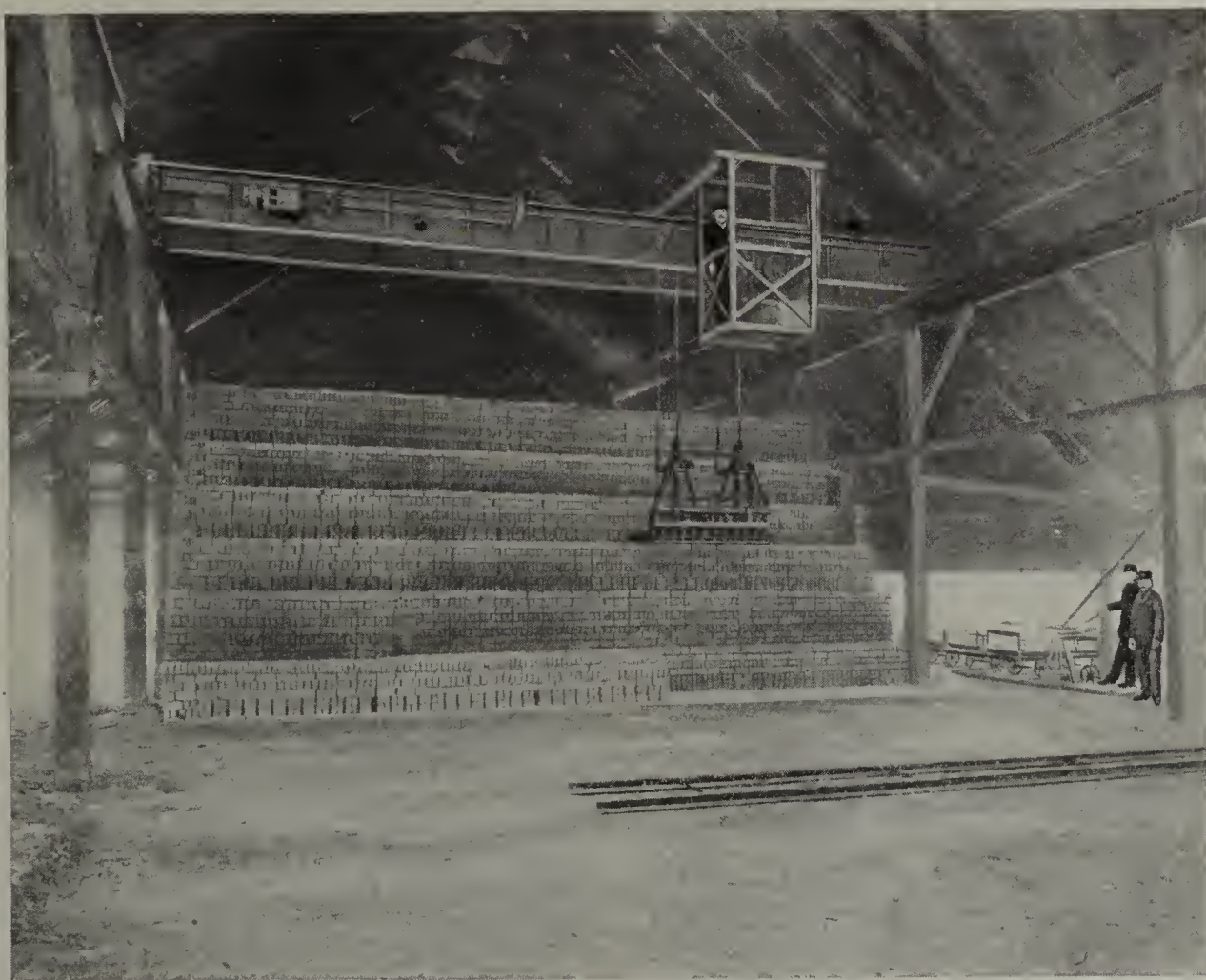
stituting a kiln. This is burned in seventy-two hours, oil being used as fuel. After the brick are set the kiln walls are built up and daubed. Not a single permanent kiln is used on any of the plants.

The oil is purchased from the Indian Refining Company, and is shipped in, in 10,000-gallon tanks. These are emptied into two underground brick cisterns or storage tanks, which hold 50,000 gallons. The oil is pumped from these tanks into a gravity tank and fed through pipe lines as needed. The oil burners used are of the company's own make.

Most of the Chicago plants use oil, as it is more economical, makes a better and quicker burn, is easily handled and does away with the dirt and smoke incident to the use of coal or wood.

The finished kiln is emptied by hand, the brick being loaded onto freight cars and shipped to the Chicago market. A switch from the Panhandle railroad connects with all the main lines in Chicago.

The power at the plant is furnished by three Babcock &



Electric Crane and Setter in Operation Under Kiln Shed of the Illinois Brick Company's Plant No. 30.

plants throughout the world had used the slow, burdensome hand method of setting, in which the brick were handled by a gang of three men—a tosser, a setter and a helper. An average of thirty thousand brick a day was considered good work. When it is known that the average brick setter alone in Chicago received 55 cents a thousand and that the brick at that time were sold for less than \$7.00 a thousand, one can readily understand what a great boon the brick-setting machine is to these manufacturers.

This plant of the Illinois Brick Company has a daily output of 300,000 brick. By the old hand-set method this alone would require thirty bricksetters, to say nothing of the tossers and helpers. This setting machine will handle each day more than this plant can make, and it does the work better than can the most expert bricksetter. The loss by breakage by the old method in Chicago was nearly 10 per cent., while today by this new method the spoilage is under 5 per cent.

The brick are set 48 high and 54 wide, forty arches con-

Wilcox boilers, with a total capacity of 900 horsepower, and a St. Louis Corliss double-eccentric engine. This furnishes power for the main line of machinery. A 100-horsepower engine and generator supply the current for the lighting and electricity for running transfer cars and crane.

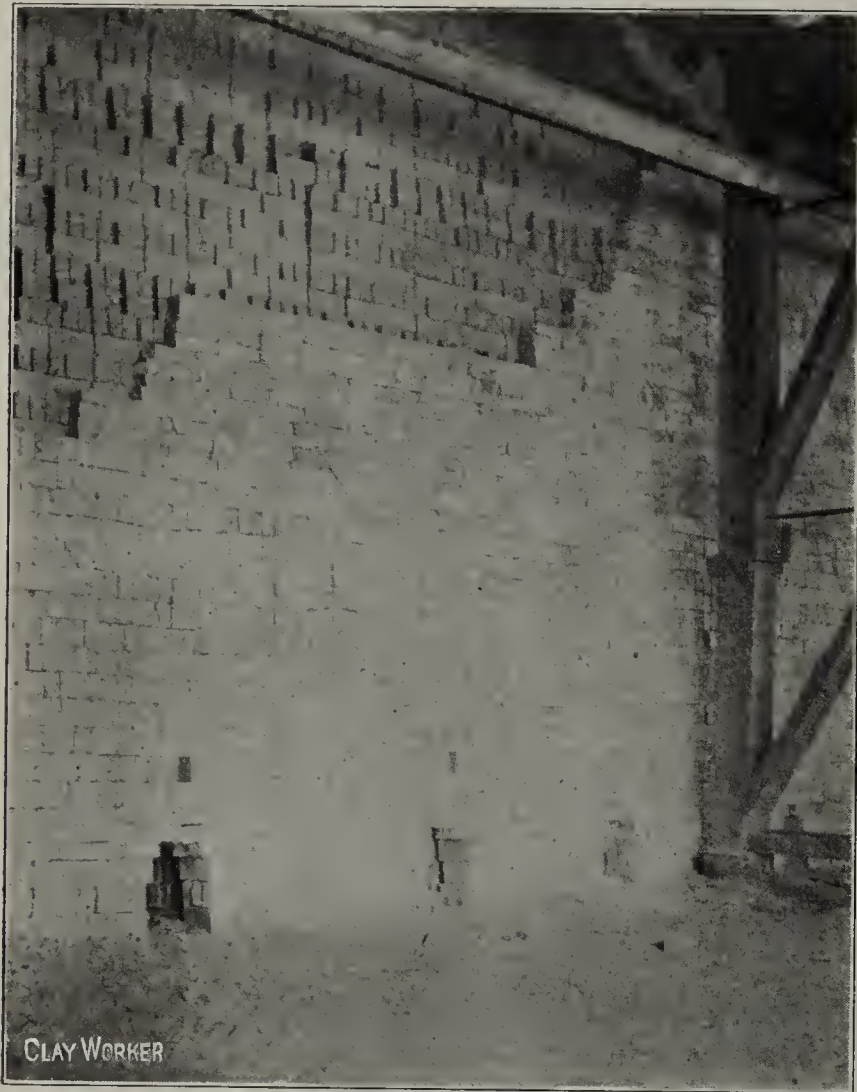
The water supply is obtained from an artesian well. Worthington pumps are used in this connection. The company's shops are at its Purington (Ill.) plant, consisting of a number of brick buildings, housing the carpentry, wagon, blacksmith and machine shops.

Eight of the company's thirty plants use the setting system and are for the most part similar. Plant No. 17 uses a six-track electric transfer car. Plant No. 30 has the largest brick stack on any plant in Chicago. It is built of radial brick and is 150 feet high and 7 feet 16 inches in diameter at the top.

The Pullman plant, known as No. 25, is radically different from the others only in the fact that they dredge for the clay

instead of digging. The Pullman plant is located on the south side of Chicago at 119th street and Calumet Lake. The lake is four miles long and two miles wide. It is virtually a basin of Lake Michigan, for the water rises and falls with the great lake. Lake Calumet is shallow, averaging from five to six feet in depth. The company dredges from the center of the lake with the same kind of dipper as is used on its steam shovels. The clay is dropped onto scows which, when loaded, are towed in to the clay dock at the plant by means of a

was formed by the combination of the then-existing brick plants in Chicago numbering thirty-one in all. Since that time many have been abandoned, while five or six new plants have been acquired. All the stock in the company is owned by Chicago people. Mr. William Schlake is president; Mr. C. B. VerNooy, vice-president and treasurer, and Mr. Wm. G. Bohnsack, secretary. The offices of the company are at 915 Chamber of Commerce building. Nearly all of the company's plants will be in operation during the time of the



Green Kiln Set by Machine Being Walled.



Large Steam Shovel with Fifty-foot Boom.



The Immense Brick Stack on Illinois Brick Company's No. 30 Plant.

small tug. At the dock the clay is taken from the scows by a clamshell digger holding two yards of clay. The clamshell is dropped onto the clay, closes its jaws and carries it to the granulator. This method of getting in the clay is as economical as by the steam shovel, for it does away with tracks and the moving of the shovel. From the granulator on through the plant the clay goes through the same process as on the other yards.

The Illinois Brick Company was organized in 1900. It

National Convention and Clay Show, and those desiring to visit any of them will be given the privilege.

The National Brick Company.

This company, with its three plants, ranks second to the Illinois Brick Company in production. The plants are located at Weber Station, Maynard, Ind., and Chicago Heights. Common and hollow brick are manufactured, each plant having a daily capacity of 350,000. The highest run, however,

was 340,000. The Weber Station plant is on the new sanitary Wilmette canal.

There are some unusual features at this plant. The spoil clay thrown up on the banks of the canal during the digging is used. A drag line excavator with a 100-foot boom digs the clay and dumps it onto scows which, when loaded, are pulled by tugs to the opposite bank, where the plant is located.

On the other two plants the clay is dug from the field by means of steam shovels. All three yards have the same line of machinery, the Chambers Brothers equipment with a double die outfit, the same as on the Illinois Brick Company's plant. The dryers are heated by means of exhaust and live steam from the boilers, the necessary draft being created by fans. All three plants are equipped with the Penfield setter. The brick are burned with oil, the Weber burner (their ex-

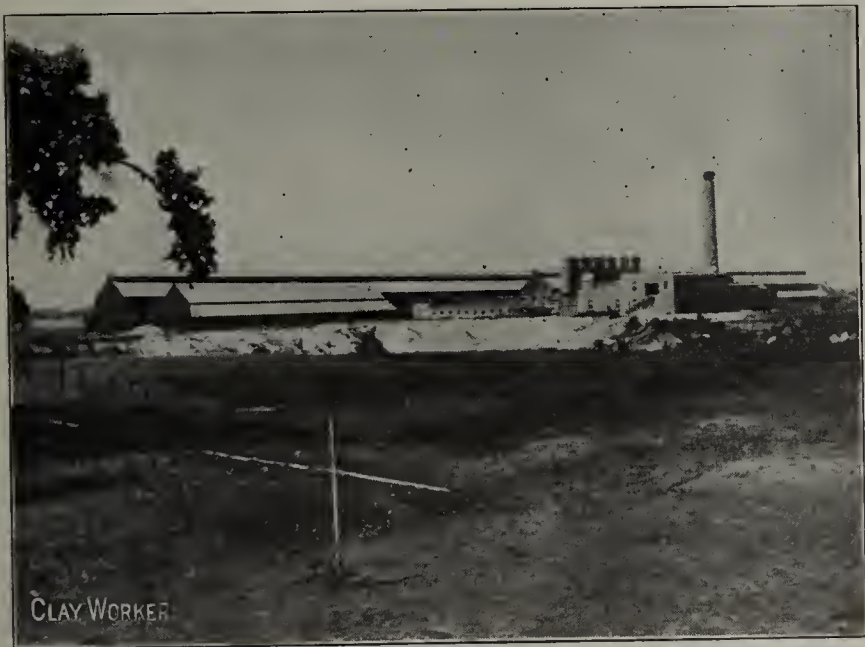
Weber, president; F. W. Labahn, vice-president; Henry Busse, secretary, and Lewis Reimer, treasurer.

The Curtis Brick Company.

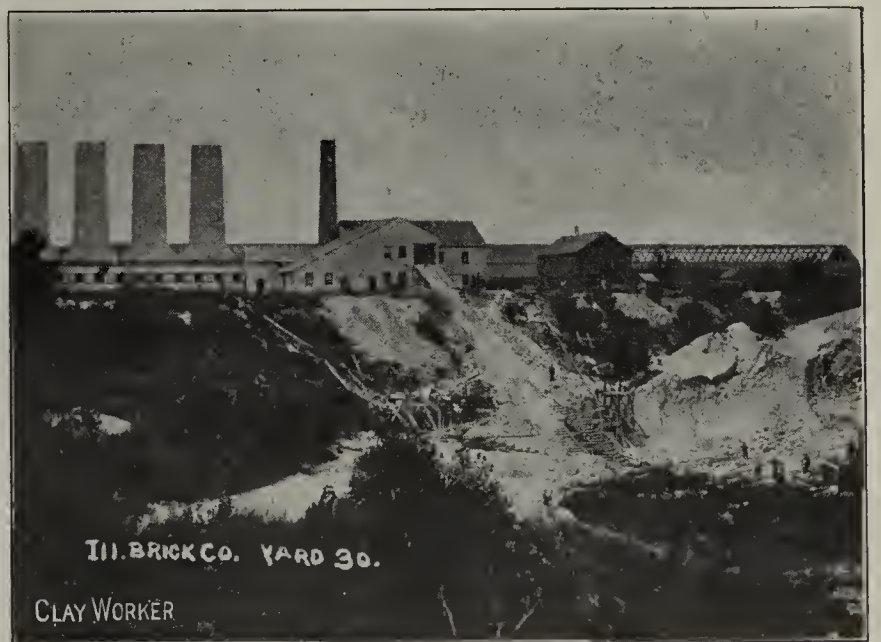
The Curtis Brick Company, with offices at 1115 Chamber of Commerce building, is operating two large common brick plants. Plant No. 1 is located at Grant Park, Ill., on the C. & E. I. railway, and has a daily capacity of 300,000 brick. It is a modern yard in every way and one can readily see that no expense has been spared in making it a first-class plant. The company owns 130 acres of land which has a deposit of blue clay averaging about thirty feet in depth. A sixty-ton steam shovel is used to dig the clay, which is hauled to the plant in dump cars drawn by a ten-ton Davenport locomotive. Approximately 825 tons of clay are required daily. The usual line of granulator, rolls and pug-mill are



The Curtis Brick Company's Fine Yard at Grant Park, Illinois.



The Plant that Made 354,000 Brick in Eight Hours.



View of Illinois Brick Company's No. 30 Plant, Showing Incline.

clusive make and patent) being used. The kiln shed at the Weber plant is all steel construction and has a higher speed crane than on the others. They have the best transportation facilities in the world, being located on ten different railroad lines.

The National Brick Company employs a novel system of clay haulage, known as the Woodford electric control system. The entire hauling is supervised by one man, each clay car is equipped with a motor, a third rail being used. The switching is done automatically. The National Brick Company and the Chicago Brick Company have the exclusive rights of this system in Chicago. They claim it is far more economical than any other clay hauling system.

The officers of the National Brick Company are B. F.

used, and two large Chambers stiff mud brick machines turn out 300,000 end-cut brick in eight hours' running time. The brick are packed onto cars and are left in the dryers from thirty to thirty-six hours before being set in the kiln. The heat for the dryers is furnished by a Murphy furnace, and is blown into the dryers by an eighteen-foot fan, made by the American Clay Machinery Company. The cars are taken from the dryer to the kiln on a triple-track electric transfer car of the American Clay Machinery Company. The Penfield setting machine is installed here. The brick are burned in up-draft Scove kilns, oil being used for fuel.

Plant No. 2 is located at Manteno, Ill., on the Illinois Central railway. This plant has a daily capacity of 240,000 brick, and is one of the best in the Chicago territory. It is

very similar to the plant at Grant Park, and while it has not as large a capacity as that plant and a few others in the Chicago territory, Mr. Curtis will tell you that he considers it the best equipped common brick plant in the state. The only men employed at this plant who are required to work out of doors are the men working around the steam shovel. Even loading of brick into cars is done under the large kiln-shed, the switch track running underneath the shed. The Curtis Company has a capital of \$500,000. Its officers are Senator E. C. Curtis, chairman of the board; V. S. Curtis, president; E. B. Griffin, secretary and treasurer.

The Acme Brick Company.

This factory is located in Chicago Heights and produces 8,000,000 annually. It is a summer plant. The bricks are dried on the yard, set by hand and burned with wood. Mr. Ernest Magul is president.

The Allis Brick Company.

This plant is located at Deerfield, Ill., a suburb of Chicago. It is very similar to that of the Acme Brick Company's plant. The annual production is 45,000,000 brick, burned

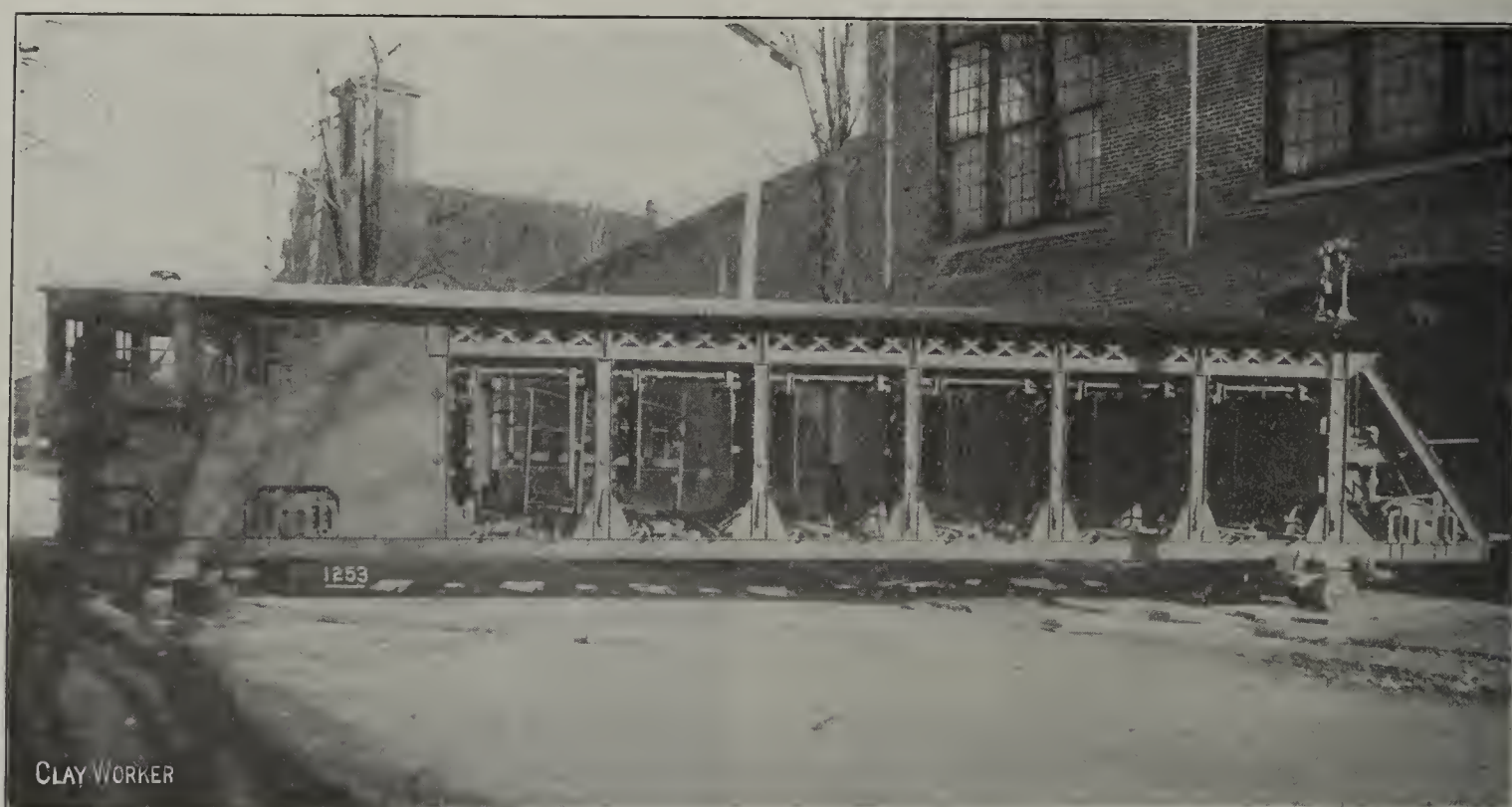
354,000 brick in eight hours. Mr. Neil Sullivan, an energetic young man, had charge of the plant at that time. The yard is about the same in construction as the big Chicago plants. They use a small locomotive in their clay hauling system, taking cars to and from incline. A thirty-arch kiln is used, the burning being accomplished in three to four days. The buildings are all of brick. They have their own shops. The water supply is furnished by a 1,000-foot driven well. The officers are Mr. Thomas Carey, president, and W. A. Sullivan, treasurer. They produce 60,000,000 annually.

The Calumet Brick Company.

This plant is at One Hundred Thirty-fifth and Ashland, in a part of the city known as Blue Island, sixteen miles south of the court house. It was the first plant in Chicago to use the double-column method. The president of the company is Miss Maude A. Weigel; Mr. C. H. Alsip is secretary-treasurer.

The Chicago Brick Company.

This company owns a plant which produces 70,000,000 yearly, and varies from the other Chicago plants only in the



Electrically Driven Transfer Car Which Holds Six Dryer Cars, Used on No. 17 Plant Illinois Brick Company.

with oil. Mr. Chas Schleyer is president and Mr. N. J. Raven, secretary.

The Bach Brick Company.

This factory is located at 2647 Montrose avenue and is an up-to-date plant. It uses the same line of machinery as on the Illinois Brick Company's plants, employing the Penfield setter and burning with oil. Mr. Fred Bach is president.

Builders' Brick Company.

This plant has one feature entirely different from any of the other Chicago plants. It is the only yard which has a permanent kiln bottom. The Scott system of burning and drying is used. They operate a complete line of American Clay Machinery Company's machinery and employ the same methods as the other plants. Mr. F. C. Layer is president of the company.

The Carey Brick Company.

The Carey plant is located on the northwestern edge of Galewood on the St. Paul railway. They hold the record for the largest daily run on any Chicago yard. This record is

fact that the Woodford electric haulage system is used, the same as on the National Brick Company's yards.

The Lake View and Lutter Brick Company's Yards.

These two plants are owned by the same people and make eighteen and forty-five million brick respectively. They are summer plants, the brick dried on the yards and set by hand.

BE A BRICK AND TALK BRICK.

Before you start to the convention, while you are going, and after you get there, be a brick and talk about brick all the time. Give your community to understand before you go there that you are a brick booster from the ground up. Let the people along the road know who you are, where you are going and what you are boosting for. When you are there join with the others and talk clay products until the whole "Windy City" rings with it and tales of it will be told far and wide. It is a great way to help boost the game and make business, and the man that does this continually and enthusiastically will be entitled to classification as a human brick. It is a good class to be in, too.

Written for THE CLAY-WORKER.

CLEVELAND BRICK NEWS.



IT NO TIME during the history of Cleveland has building operations been so quiet as during the month of January just closed. This was due almost entirely to the climatic conditions. Cleveland experienced the coldest winter in thirty-seven years and the temperature in the neighborhood at one time fell to as low as 31 below zero. The result was that only a very few permits were issued, and those mostly for alterations where work could be done inside away from the cold. Business conditions, however, are reported excellent and the outlook for the coming year is exceptionally bright.

Brick manufacturers are doing very little these days, owing to the intense cold weather. In some plants where natural gas is used as a fuel, it has been necessary to shut down because the gas company needed all the fuel it could supply for residence purposes.

In the offices of the brick dealers a good deal of apathy is also shown and the report is general that many of the architects and contractors are lining up work to begin as soon as spring opens up.

Several jobs, each one of which means the spending of almost a million dollars, are to be proceeded with in an active manner as soon as the weather will permit. This includes a couple of skyscrapers, a new city hall and a new art museum. There will also be a big volume of factory and store buildings, according to present prospects.

One of the new buildings just announced has been designed by Architect Harry Cone, Schofield building. It will be the new Catalano building at East Ninth street and Woodland avenue, S. E. It will be a three-story structure with a frontage on East Ninth street of 105 feet and a depth of 50 feet. The front will be of shale brick and terra cotta trimmings. The ground floor will be made up of store rooms, with factory and office space above.

Another new store building will be erected this spring for B. Schatzinger on Ontario street, between Lakeside avenue and Fountain Court. The building will be 104 feet front and about 150 feet deep. The foundations are being put in heavy enough to support a twelve-story structure. The plans for this building were made by Harry A. Cone. It will be of brick with terra cotta trimmings.

G. A. Tenbusch, of the Tenbusch Realty Company, has prepared plans for a \$100,000 addition to the Prospect building, 1110 Prospect avenue, S. E. The addition will be a six-story office structure and will adjoin a fourteen-story building recently erected nearby. Contracts have been let and the work will be proceeded with as soon as the weather will permit.

Another big addition which is to be built is to be erected in connection with the Hotel Euclid property, and has been acquired by the owners of the hotel along East Fourteenth street. The building will have a frontage of 84 feet and a depth of 160 feet and will contain about 100 rooms. It is planned to make the new section strictly fireproof. The street frontage will be faced with shale brick with terra cotta trimmings.

During the past month fire destroyed the old Marshall building at the northwest corner of the public square. Some time ago Mr. Marshall made plans for a twelve-story building on this site, but did not proceed with the work. The fire coming at this time, however, compelled him to go ahead. The new building, which has been designed by Architect W. S. Lougee, is to be twelve stories high and about 125 feet square. Contracts for steel have been let and during the coming month contracts for brick and terra cotta will also be awarded. The building is to be the first section of a big structure which is to fill the entire block between the public

square and West Third street. It is expected that it will be ready for occupancy about a year hence. Wreckers are now busy ripping down the ruins of the burned structure.

The Lake Erie Builders' Supply Company, which represents a number of brick concerns in Cleveland, has overhauled and remodeled the warehouse formerly occupied by the Doan Builders' Supply Company, on East One Hundred and Fifth street, between Cedar and Quincy avenues. This makes four warehouses this enterprising company now maintains in Cleveland. The Lake Erie Builders' Supply Company's brick department reports a very active line of orders for the coming year.

During the past month the Ohio State Builders' Association held its annual meeting in Springfield. Among those present were R. L. Quiesser, of the Quiesser-Bliss Company, and E. A. Roberts, secretary of the Builders' Exchange. A number of matters of interest to builders and contractors were discussed.

One of the interesting corporations of the state the past month has been that of the Conrad Brick and Manufacturing Company of Columbus, Ohio. It was incorporated for \$10,000 under the laws of the state of Ohio. The incorporators are W. D. Brickell, David Schortzler, John A. Conrad, J. M. Adams and David Lehman.

During the past month the Claycraft Brick Company, of Columbus, decided to increase the scope of its work so it increased its capitalization from \$100,000 to \$150,000.

The new superintendent of the Cleveland parks recently appointed to that position, is strongly in favor of paving the park roadways with vitrified paving brick instead of with macadam. Superintendent Alber of the department declares that the use of brick on country roads near Cleveland has clearly demonstrated that brick withstands the wear and tear of automobiles better than the type of pavement at present used in the parks. Alber is now having data prepared on this subject and has asked the city law department to look up the question of the authority of the city to levy an assessment on property owners alongside of boulevards and park roads to assist in defraying the expense of such improvements.

Another matter of interest is that the superintendent of the city department of charities and collections is contemplating the installation of a brick and tilemaking plant at the city farm with a view to having the workhouse prisoners manufacture brick for the city's use. There are several good shale deposits on the farm and, with large quantities of labor available, it is believed that many of the roadways running through the 2,000-acre farm can be paved with brick and that tile can be supplied to underdrain the entire farm.

BUCKEYE.

BRICK ROADWAYS FOR OHIO.

IT NOW SEEMS probable that the next few years will witness a remarkable change in methods of road building throughout the state of Ohio. The idea is becoming more and more prevalent that roads should be constructed of the best materials to be had and in the most lasting manner. Never in the history of the state has there been such general and widespread interest displayed in this subject, and the tendency appears to be growing toward the use of brick as the proper material. It would not be surprising if within the next few years miles and miles of Ohio country roads would be paved with this material, thus furnishing an enormous market for paving block in this section. The matter has been taken up in numerous cities throughout the state at good roads meetings called for the purpose of general discussion, and there is a general feeling that many thousands of dollars will be expended in this way, even during the next year. Wm. P. Blair, of Cleveland, prominently known in the good roads movement, recently addressed an enthusiastic meeting at Norwalk, Ohio. The trend of his argument was

that thousands of dollars of public money are now being wasted by township officials in the building of stone and gravel roads. His talk was illustrated by suitable pictures thrown upon the canvas. He told of roads constructed in the different states under the old method and declared that many of them have cost as much in ten years for repairs as the roads cost originally. Pictures were shown to illustrate the proper construction of brick and stone roads. Mr. Blair declared that Cuyahoga county, Ohio, has more improved roads for its area than any other section in the world. He has just returned from a trip through the southern and southwestern states, where he states that the movement for good roads is as active as in Ohio. Mr. Blair was pronounced in his views that brick is the best material for road building. He advised a careful study of the subject,

THE NEW HOME OF THE L. E. RODGERS ENGINEERING CO.

THE L. E. RODGERS Engineering Co., one of the leading exponents of the drying of clay wares by the waste heat system, has been so successful in their line that new and larger quarters was the natural outgrowth. Their new offices on the eleventh floor of the Stock Exchange Building, 30 North LaSalle street, Chicago, are splendid for their purpose, being well furnished and equipped with all up-to-date conveniences. They have three large well-lighted rooms, consisting of reception room, drafting room and Mr. Rodgers' private office. The furnishings of all three are of the best obtainable, not overly elaborate, but most pleasant and substantial. The drafting room, where three draftsmen are kept



The Splendid Office of The L. E. Rodgers Engineering Company, Chicago.

and prophesied that all who do so will come to the conclusion that the brick roads are the best and most economical, even if they do cost more in the original construction. He placed the life of a properly constructed brick road at eighteen years, during which time the road will not need the least particle of repair. A similar view is being advocated by good roads enthusiasts all over the state and it is probable that as a result of this sentiment Ohio will, in the next few years, expend millions of dollars in the construction of brick highways.

The natural wear on clayworking machinery is hard enough, without having it augmented by neglect or abuse. The answer to this is, overhaul your machinery, keep it in order, and see that it does not suffer from either neglect or abuse.

busy all the time, is equipped with all paraphernalia needed, including drawing tables, files, blue printing apparatus and a library of reference books. The reception room is unusually inviting, while Mr. Rodgers' private office is exceptionally cozy. One feature of this room is a large filing cabinet in which is kept all contracts filled by the firm the past year. Indeed, the entire office, with its conveniences and facilities, speaks well for the substantial condition of their business. Mr. Rodgers has worked diligently to gain the confidence of his customers, who, without exception, are well satisfied with the Rodgers drying system. This firm was the pioneer in the installation of waste heat dryers and has to its credit the drying of most of the brick of western manufacture, some of the largest clay plants in this country using the Rodgers system. They are at present installing their dryers on two of the largest plants in the East. Mr. Rodgers is to be congratulated

on what he has accomplished and the prospect for an increased volume of trade during the coming season. The latch string to his new office is always out to visiting clayworkers, and those who will attend the coming national convention are requested to call, if but to say "Howdy." A cordial welcome will be extended to all.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

AS IT WAS impossible to give in the last issue of THE CLAY-WORKER a short review of the building condition in the Pacific Northwest, on account the official figures were not as yet compiled, the following will show the activity of the different cities in this section last year. The figures herewith presented were taken from the "Pacific Builder and Engineer:"

	VALUATION.	
	1910	1911
Seattle	\$17,163,080	\$ 7,164,266
Portland	20,886,202	19,152,370
Tacoma	2,685,051	1,707,644
Spokane	5,833,484	3,314,788
Vancouver, B. C..	13,150,365	17,652,642
Victoria, B. C....	2,273,045	4,018,415

Seattle gives promise of getting back into her old time form as regards building for 1912. Everything seems to be



The L. E. Rodgers Engineering Company's Reception Room.



The Well Equipped Drafting Room.

on the upgrade again, and it is certain that the building operations will be a great deal larger than in 1911, and that they will surpass the record years of 1909 and 1910. Among the buildings which are contemplated are the Cobb-Healy building, the Clemmer theater, New Pantages theater, and several other large ajariments.

Probably the best way to judge the construction work in Tacoma will be by the review of the year just passed. At present the outlook is as good as the year just passed, and architects say it is better than last year. There is much building in the contemplative stage which only takes a touch to set it going.

Regarding the outlook for Portland, a comparison of the building operations for 1900 with the last year is quite interesting. In 1900 there were issued 392 permits, with a valuation of \$944,985, while the total permits in 1911 were 7,886, with a valuation of \$19,152,370. On account of the changes in the building laws governing large buildings, which took effect January 1, 1911, a number of permits were taken out in 1910 to enable to build under the old laws, which explains the falling off in 1911 over 1910.

Vancouver, B. C., climbed from fourth to the second place among Canadian cities in building in 1911, and occupies

second place among the cities of the Pacific Northwest. The indications are that the building in 1912 will exceed last year considerably.

The outlook for Spokane and Victoria is very promising, and in effect both cities have many large buildings in contemplation for this year's building season.

That the clayworking people are getting their share of the building business, and that the publicity which is given to clay products in general is best illustrated by the data obtained regarding the building of kilns for drying lumber by lumber and saw mill companies. Of the sixty-three dry kilns constructed in the last year in this section by these concerns, only twenty-one were of wood. Thirteen were of brick and eight of partition tile, which makes twenty-one for clay products, and the balance of twenty-one were built of concrete. Therefore, the fireproof part played a great role in this construction, as two-thirds of the kilns constructed were fireproof. So we can take it that even the lumber people admit the superior application of clay products for construction over their own lumber, sawed and planed by themselves.

The Standard Clay Company, of Tacoma, is a new company organized to take over the plant and the business of the Little Falls Fire Clay Company, which went in the hands of a receiver last fall. Mr. W. S. Dimmick, who acted as receiver, will be general manager of the new concern.

Mr. S. R. Blackwell will be president, and the general office will be located in Tacoma.

A new clay deposit has been reported found by John Anthony, near the mouth of the Wallowa river. It is claimed that it is very plastic clay, and is now being tested as to its commercial value.

The Baker Fire Clay Company, of Baker, Ore., has shipped a car of twenty-two tons of their material to the Newberg Brick Company, of Newburg, Ore., where it will be used to improve the quality of their output.

The Far West Clay Company, of Tacoma, has finished its new addition to the dryer, and is now operating forty tunnels. It has also changed its fuel and is now using fuel oil in all departments.

The first paving brick contract of any size was let recently in Portland. The street committee awarded the contract to Montague-O'Reilly Company to pave the Fourteenth street district with vitrified brick to the amount of \$71,487.00.

The State Penitentiary of Oregon made 1,648,000 brick in 1911. According to the published data the cost of manufacturing these brick was \$3.27 per 1,000, and were sold for not less than \$9.00 per 1,000 to private parties.

Jan. 30, 1912.

SIWASH.

ANNUAL CONVENTION OF NORTHWESTERN ASSOCIATION.

THE FOURTH annual convention of the Northwestern Clay Association was held in Minneapolis Monday, February 5, at the Hotel Raddison. The attendance was not as large as was expected, but, considering the short time of notice given, it was very good. In addition, it included a wider territory than was heretofore represented, extending to Hebron, N. D., Grand Forks, N. D., and Big Stone City, S. D., as well as a number of Minnesota points. The association, at its business meetings, devoted a great deal of attention to the rate proposition. The success of the Wisconsin association in securing an adjustment of rates through the state, encouraged the association to take up a similar move. Owing to the situation of there being before the Supreme Court of the United States at this time, a case involving the Minnesota rates on commodities, there was some hesitation in presenting the matter very strenuously. If the decision of the lower court should be upheld, the right of the state to make rates which could in any manner affect interstate rates, would be denied. The lower court practically held that in making interstate rates, if they were such as to affect interstate rates, then it was beyond the jurisdiction of the state. This almost throws the state out of the running on rate-making, for it is almost impossible to institute a rate through the state which will not affect rates immediately beyond the state line. There will doubtless be an early decision in the case before the Federal Supreme Court, and upon its outcome rests the standing of state rate-making hereafter. If the state loses, it means that all future rates must practically be made through the Interstate Commerce Commission.

E. H. Cobb, president of the organization, called the convention to order and, with a brief word of greeting, welcomed the members. Secretary Axel Anderson read the minutes of the meeting of a year ago, going into rather full detail in his review. Committees were named to audit the financial statement of the secretary and the treasurer, but the latter was snowbound en route and did not reach the meeting during the day. His accounts were referred to an audit by the executive committee. The committee on nominations was named as follows: F. J. Nixon, of Duluth; F. Leutz, Hebron, N. D.; Harry H. Farnham, Princeton, Minn.

Owing to the absence of the principal speaker, who was to discuss the matter of current freight rates, Hon. Thomas E. Cashman, of Owatonna, Minn., there was a desultory talk on rates, and frequent instances were cited of injustice which was worked. It was stated that the rate from Mason City, Iowa, to Minneapolis was five cents, while from Austin, Minn., forty miles nearer, it was higher, until an adjustment was effected very recently. Other instances were cited where Mason City had the advantage, as to South Dakota, through southern Minnesota, getting a lower rate than do industries in southern Minnesota. Wisconsin rates were also quoted to show that it was cheaper to ship from outside Minnesota than between points within the state. It was stated that the railroads have many commodity rates to certain points which cause a lower rate of rates than are available to other points, but that since the Sanborn decision in the lower Federal Court, upholding the railroad rates, they are not making any more commodity rates. On the other hand, it was insisted that if discrimination could be shown, as it generally could, there was a case for submission to the Interstate Commerce Commission, regardless of whether it occurred within the state or outside.

S. G. Johnson urged that something should be done toward instituting a short course at the state agricultural schools in bricklaying, where those with some aptitude in the work could improve their skill and become bricklayers. The scarcity of bricklayers is causing great trouble to those interested in brick work. A discussion followed upon the needs of trade schools, and the needs of better mechanics. Instances were cited of poor bricklayers who could not earn over half the usual wages, but they went to the cities and

joined the unions, whereupon they commanded the regular union wages of six dollars a day.

The Afternoon Session.

The nominating committee made its report first, recommending the re-election of all the old officers for the ensuing year as follows: President, Edward H. Cobb, Minneapolis; vice-president, A. C. Ochs, Springfield, Minn.; treasurer, R. B. Hinkly, Luverne, Minn.; secretary, Axel Anderson, Minneapolis. Following this, there was a resumption of discussion of the rate situation in which A. C. Ochs, of Springfield, cited the rates from Mason City, Iowa, to Minneapolis of five cents, against the rate from Springfield of seven cents. He proceeded with a general comparison of distance rate charges for Minnesota and for Wisconsin under the rates recently instituted. He declared that perhaps the Mason City rate was too low, but if it were it should be raised and a square deal extended to all concerned. He argued the object would be a general benefit to consumers and all if there were more equitable rates made.

M. C. Madsen, of Hutchinson, Minn., suggested that apparently clay manufacturing plants are not desired in Minnesota or they would be given fairer treatment, and it seems to be desired to make all clay wares in Iowa, and the Minnesota plants had better close up.

F. Leutz, of Hebron, N. D., thought the matter should be taken up before the Interstate Commerce Commission to secure an adjustment of rates. They had found the great trouble to lie in securing shipments on two short hauls, when they had to pay the high rate for short hauls for both roads. Under the Wisconsin arrangement, they secure the rate for the combined haul, plus one cent for transfer charges, and he thought that the same thing should be sought for the association territory.

C. J. Swanson, of Minneapolis, a member of the last legislature, told of the reasons why the distance tariff before the last legislature failed, because, as drawn, it would work hardship to as many communities as it would benefit. He thought that if the question were taken up with the railroads direct and an adjustment sought, they would grant it in many instances.

The outcome of the whole debate was the appointment of a committee to work out the question of freight rates. This committee was named as follows: A. C. Ochs, chairman, Springfield, Minn.; R. B. Hinkly, Luverne, Minn.; John Lowry, Duluth, Minn.; Lewis Campbell, Grand Forks, N. D.; F. Leutz, Hebron, N. D.; G. H. Atherton, Big Stone City, S. D., and S. W. Vance, Crookston, Minn.

W. D. Gates, president and general manager of the American Terra Cotta and Ceramic Company, of Chicago, spoke on the general topic of "Talking Business." He referred to the benefits from the association meetings and declared that they were not confined to the papers and discussions which go on in the meetings, but often there is much more derived from the individual conversations in which experiences are exchanged and experiments are told. The interchange of such experiments and the more common use of general information serves to help all concerned. It helps to save time and money and to set many a perplexed individual right in his efforts to produce a good, satisfactory article. He declared that the mixture of clays must be studied and watched. One might possess the best fire clay available and make a very poor building brick, for the better fire brick material will not stand the weather. He related different discoveries in scientific experiment and also discoveries which came by accident. He urged a wholesome enthusiasm in clay wares, a firm belief in them and a general willingness to urge them freer than many seem able to do. He told of an attempt which was made to induce the government to use brick and terra cotta in postoffice buildings. The committee waited on the supervising architect in Washington who said he would be glad to use them in postoffice build-

ings, but when he attempted to do so, people complained, especially in small towns, and declared that they wanted a first-class building—a stone structure. And so the clay and brick manufacturers sit still and allow Bedford stone to come in and monopolize the business. He urged that they believe in the business, talk it and push it, and they will then extend the business. By increasing the use of the material, it will not allow so much time in which to cut prices. He complimented the good work of the Building Brick Association of America in its advertisements of brick construction. Members were urged to keep up-to-date in the matter of styles and favorites in brick. The time was when a brick was desired to be as smooth and sharp-edged as possible. But now the favorite is a rough-faced brick which offers a much better chance. He urged that the old idea of secrecy regarding the conduct of a plant was being done away with, and that there is nothing to be gained in that sort of methods anyway.

C. C. Stoll, of Chicago, representing the Clay Products Exposition, outlined the plans of the exhibit, and how it was based upon the intention to benefit clay wares as a whole. It is not a money-making scheme, but is intended wholly as a benefit to manufacturers of all clay wares. The promoters of the enterprise hope to get their money back. The displays will be of interest to architects, engineers, contractors, city officials and home builders. The sanitary division of the exposition will display the latest and most approved methods of sanitation as well as indicate some inherent weaknesses of other materials. The drain tile exhibit will show specimens of tiles which have been in the ground for many years and are still in first-class condition. He told of examinations of silos northwest of Chicago during the cold winter of 1910-1911, when wood silos had frost eighteen inches thick in the ensilage; cement silos had fourteen inches of frost and a silo made of hollow clay blocks with two holes had but three inches of frost, the thermometer standing at twelve below. Season passes will be sent to all architects, contractors and builders in order to secure their attention to the show. There is a competition under way for plans for a \$3,000 bungalow to be constructed wholly of brick, and these plans will draw many architects and owners. A prize of a brick dwelling is to be erected by the Chicago brick manufacturers, to be given to the one holding the winning ticket, which will be built in Chicago. Mr. Stoll urged the association to take space and make a display at the exposition.

Following Mr. Stoll's talk, it was stated that there would be individual displays at Chicago by the Twin City Brick Company, of St. Paul, and the Hydraulic Press Brick Company, of Minneapolis, and the Red Wing Sewer Pipe Company, of Red Wing.

The report of the resolution committee was presented and the following resolutions adopted:

Whereas, The railroad rates in the states of Minnesota, North and South Dakota are inequitable and discriminatory upon brick and clay wares to a very general extent, notably so in that industries out of these states have equal and better rates than are granted to similar industries in these states; therefore, be it

Resolved, That this association go on record as strongly in favor of a general revision of the freight rates to the end that the brick and clay manufacturers of Minnesota, North and South Dakota may have an equal chance for their product with other industries shipping to a greater distance. We urge upon the forthcoming legislatures to pass such legislation as will remedy this situation. We also recommend that the matter be referred to the committee on freight rates to present the entire situation to the State Railroad and Warehouse Commission, and the Interstate Commerce Commission to secure an adjustment of clay rates and a distance tariff upon clay wares in these states.

Whereas, The scarcity of skilled mechanics in bricklaying is pronounced and is growing steadily worse, this association urges upon educational authorities in charge of manual training and industrial education, that they provide courses in bricklaying as being needed quite as much as any other line which has been taken up.

Resolved, That this association favors forming a Northwestern Building Brick Association to promote publicity and wider knowledge of brick and clay construction in all differ-

ent lines, including clay silos, to develop our own field, the cost to be borne proportionately.

Resolved, That this association make arrangements for a joint display of its wares at the forthcoming Clay Products Exhibit in Chicago, March 7-12.

Resolved, That the thanks of this association are extended to the management of the Hotel Radisson and to the Minneapolis Commercial Club, for the many favors shown during our sessions.

Resolved, That the retiring officers be commended for their good and efficient work during the past year.

The question of forming a Northwestern Building Brick Association drew forth much comment. It is intended to be operated along the lines of the national association. The work of the latter is felt to be not benefiting the northwest, as most of its advertising is done in the east, and the answers from this territory are comparatively few. The question of financing it and how it should be handled was discussed. It was the idea of the committee that it should be handled through the individual advertisers pushing their advertising along more comprehensive lines, and to formulate a course of advertising to be used. A committee was provided for to work out such a course, to report not later than the Chicago show. The committee consists of G. H. Atherton, Big Stone City, S. Dak., chairman; Axel Anderson, of Minneapolis, and M. C. Madsen, of Hutchinson, Minn. Over \$100 was subscribed for maintaining a display at the clay show and the meeting adjourned.

The Banquet.

The annual banquet was served in the Radisson hotel and was well handled. The hotel is entitled to credit for good work in serving, and good taste in arranging the details. The head table was set in a sort of crescent shape with two arms extending from the curve.

Governor A. O. Eberhardt, present governor of Minnesota, and prominent in the work of fire prevention, was the first speaker. He was given the topic of "Fire Prevention." He declared that fire prevention depends largely upon the work of clay manufacturers making their wares so cheap that they will be within the reach of all, and their use will be more and more common in dwellings as well as in store construction. He impressed upon all those present the terrible waste by fire, amounting to nearly \$1,000,000 a day. This country is burning up about twelve times what they are burning in Europe. The rate in Minneapolis is about \$6.80, while in Europe it runs from 25 to 50 cents. It is essential in building to take into consideration their character and use. He was opposed to the erection of immense skyscrapers and hoped the time would come when they would no longer be built to forty-five and fifty stories. Such structures have small cities in themselves which call for special provisions for transportation and handling the people working in them. There are three things which are essential in cutting down the fire waste—first, by education. Many people think that the fire losses are paid by the insurance companies and by the rich men who pay such sums to the companies. But he declared that the enormous small payments of the poor amount to more than the larger ones of the rich, for practically all of the poor man's property is insurable—his house, furniture, etc., while of the rich man's property, there is much that is not insurable—lands and other forms. The most effective way of preventing fire is by convincing people that the largest losses fall upon the poor. A second method is by the exercise of more caution against chances of fire. Children in public schools should be instructed against careless handling of fire. There must also be dealing with the dishonest insurance agent who over-insures property, which should be a crime. The agent who does this is a participant in the possible crime, and offers a temptation to a man who may be honest, but becomes tempted because of a need of money. There should be more effective laws against arson. The state is prosecuting several cases of arson, but it is very hard to establish a case. The sentiment of the community is too often in favor of the accused. Referring to railroad rates, he told that the State Railroad and Warehouse Commission had many cases up where the life of an industry depended upon getting a

better rate from the roads, and it was almost always possible to secure it. He suggested laying before the commission cases where adjustments were desired and before the roads themselves, believing that many times the desired adjustments would be granted, if it could be shown that they are necessary to give the industry a fair chance in competition. He felt that tile roofing should be so cheap that it would supplant shingle roofs, and that would be the solution of the fire problem in the residence district. He complimented the organization on meeting together and exchanging experiences, and regarded the organization which does not get together with other branches as unprogressive.

A. A. Pollard, a Minneapolis architect, responded to "Clay Products From an Architect's Point of View." Mr. Pollard reviewed the history of brick and clay, and then declared that clay is always good, and whenever it seems to be poor, the fault is not with the clay itself but with some impurity within it, which prevents its working homogeneously. He urged against knocking concrete, which has its use, but it also calls for a great deal of clay ware in connection. The clay man has the biggest proposition on earth. There is hardly a country which does not possess clay. There is no possibility of its being monopolized. He cited reports from 128 cities on fireproof construction; 61 per cent were using burned clay products. He declared that it was not the original intention of architects to use enameled ware for the exterior of buildings in such climates as Minnesota's, but that it was to be used on the inside for sanitary reasons. He cited that in the time of Phidias they used a kind of terra cotta around wood beams. The ancients used clays widely. It yields to form and has a good and enduring color. Clay floors are enduring. In Europe there are floors which have been in use for hundreds of years, where stone floors have been completely worn away. Tests have been made of the wear of clay, stone and other materials, and clay has been found to endure constant wear better than almost anything except rubber, which in its yielding did not wear away, while unyielding stone did wear away.

James G. Houghton, building inspector of Minneapolis, spoke on "The Fire Zone" which has been proposed in Minneapolis, and started on the tremendous losses by fire. All fires, he stated, were the result of ignorance, carelessness or greed. Fire losses in Minneapolis in 1911 were over \$7.00 per capita and there have been some heavy losses in the present year. He related that long before the present rage for fire prevention had been heard of, his department had started an agitation before the city council to secure greater restrictions in building as a guard against fire. In 1901, his annual report showed a recommendation for more stringent laws for the establishment of a fireproof district in the business center, favoring a subdistrict there to be of wholly fireproof construction. In 1902, he urged a revision of the building code. In 1903 the council passed a new building code, but without the subdistrict which was urged. Afterwards such an ordinance was introduced separately, and was killed in committee. And last March there was established by the council the fire zone, which has been recommended for these several years. Rehearsing the proportion of construction of the city which is fireproof, he finds that in 1905, it was 22 per cent; 23 per cent in 1906; 23 per cent in 1907; 17 per cent in 1908; 26 per cent in 1909; 28 per cent in 1910, and 41 per cent in 1911. When owners come to realize that it does not pay to construct firetrap buildings, they will do more fireproof construction. Unfortunately, there are those who would prefer to pay more rent for a non-fireproof building with flashy appearance than for a fireproof structure which was less showy. He believed that it pays to build fireproof, in the saving in insurance and the greater security to life and property. He told of one factory building which was burned and was rebuilt of fireproof construction, where they saved \$12,000 a year in insurance through having a fireproof structure. Low rates on fireproof apartment buildings would be a good investment through the saving in insurance alone. In some instances the saving in insurance the first year will pay for the extra cost of fireproofing. Some materials are called fireproof, however, that are not so when it comes to the test.

Louis Campbell, of the Red River Valley Brick Corpora-

tion, Grand Forks, N. D., speaking upon the necessity of co-operation, urged co-operation in governmental affairs, co-operation in the new movement toward encouraging the "back-to-the-farm" movement, and many other things. He favored the agricultural schools, and the trend to better farming. He urged co-operation with the railroads, the co-operation there with the owner of the roads, the user of the roads and the employes of the roads. And he closed by urging that more business men take part in public affairs and public office, because of the need of business men to handle business problems.

G. H. Atherton, of Big Stone City, S. D., told of clay block versus cement block silos. He declared that the silo question interested all, directly or indirectly, since it saves the farmers thirty per cent of the value of his corn for feeding purposes. The approximate cost of clay silos he figured at \$315, or \$1.79 per ton for four-inch walls for a 180-ton silo. He found that they are far more satisfactory than cement or wood stave silos, give better results and are lasting, free from cracks.

A most interesting address was that of Harold Johnson, of Minneapolis, of the National Fireproofing Company. Mr. Johnson was down for "The History of Hollow Tile Development," and it was really history which but few present knew anything of. His father, George Johnson, an Englishman, was the inventor of the hollow tile system of construction in the early days. He was located in Baltimore, and engaged in the cast iron business, having worked up a good business in the production of cast iron fronts for store buildings, the fronts, columns, cornices, mullions, caps and other pieces all being of cast iron. Everyone was happy, for all knew that iron would not and could not burn. So they were happy in their cast iron fronts and plumed themselves that they had a genuinely fireproof construction. But their dream was disturbed. An early day fire in Baltimore, approaching a very serious conflagration, swept through the business section. And all those beautiful cast iron fronts, with the cornices, caps, mullions and other parts of cast iron, were warped and twisted into wrecks. The business section was wrecked and with it was wiped out the prestige and standing of the cast iron front. These conditions forced Mr. Johnson, Sr., to a serious consideration of some method of construction which would protect iron construction. And out of this devastation was developed the system of fireproofing. Mr. Johnson showed the original patent for fireproof construction which was granted his father in 1868, long since run out, with its design of fireproofing. An odd fact in connection with this narrative was the fact that Mr. Johnson's researches were directed to the end of producing a fireproof construction for elevators, which were about the last thing in construction which were really constructed of fireproof tile. This early day system of fireproof construction also led to the construction of skyscrapers of wood beams, covered with fireproofing, and the development from that. The Equitable building in New York which recently burned, was one of the structures which grew out of Mr. Johnston's system of construction. A brother of Mr. Johnson also devised and patented nearly seventy different forms of arches. In tile elevator construction, to which the elder Mr. Johnson was devoting his energies, within a few years a number of them have been erected, some in Minneapolis. At Port Arthur, Ont., is the largest tile elevator in the world, having a capacity of 7,000,000 bushels.

Mr. Johnson also displayed a most interesting relic, being a piece of ancient Roman brick which he secured from the walls of the Coliseum at Rome (when the gendarme wasn't looking). The Roman brick were twenty-four inches long and true as a die. Now when a factory is asked to get out an order of twelve inches, they complain about it and have to make a great excess in order to produce the required quantity. But he watched his chance and with twenty centuries looking down upon him, secured the bit of ancient Roman brick which shows the fine texture and good work, although the piece itself is but about three inches long and something more than an inch thick.

F. Bogk, of the Ricketson Mineral Paint Works, Milwaukee, extended greetings.

Senator F. Leutz, of Hebron, N. D., made a brief word of greeting.

A. C. Ochs, of Springfield, Minn., was called upon to speak upon clay block silos, on which he has had such conspicuous success. He told of making the silos with two air spaces, and the joints tightly sealed, and the whole plastered within, so as to exclude all air from without. The air spaces must be closed and made dead air spaces. If the joints are not tight closed, there will be a bad place around the break where the silage will be bad. He did not sell the blocks alone, but in connection with the system. If the would-be purchaser did not have men available to put up the silo as it should be done, he sent out men to do it, who could do it right. And there are no complaints. Over fifty silos have been built. Agents say that there is no trouble to sell them and the only question is that of getting the blocks. The blocks have to be made in the fall, so they can be hauled in the winter, by the farmers, who have the time, and the roads are in shape.

T. WIN.

Written for THE CLAY-WORKER.

PITTSBURG BRICK NEWS.



PITTSBURG INDUSTRIAL Development Commission, realizing the advantages of an adequate exhibit of Pittsburg's industries at the Clay Show in Chicago next month, is urging local manufacturers to join in making Pittsburg's display one of the features of the big exhibition. Especial efforts are being made to have a fire brick display in keeping with the magnitude of the industry in the Pittsburg district.

The commission anticipates hearty co-operation among the manufacturers in calling attention to Pittsburg as a center for clay products. Efforts are being made to have Pittsburg refractory interests join in a display which shows that in both the output of refractories and in the use of materials Pittsburg leads America.

It has been suggested that all the products be given a practical demonstration, including fire brick of all kinds as well as stove and furnace lining, cupalo lining, acid tanks and glass crucible glass retorts.

It is estimated that 40,000,000 gray vitrified brick will be required to complete the group of buildings planned by the trustees of the University of Pittsburg. Three of the buildings have been completed while two other structures are in process of construction.

The contract for the brick to be used in the construction of the Cleveland Leader building has been awarded to the Kit-tanning Brick and Fire Clay Company. The same company also is furnishing the brick for the new twenty-six-story building now being erected for the First National Bank of Pittsburg.

The Clay Product and Permanent Home Exposition, to be held in Chicago, Ill., has appointed Sherman Ford, of Pittsburg, exposition commissioner for this territory, which comprises Pennsylvania, Maryland and Delaware.

The National Builders' Supply Association will make application for a charter at the April term of the Allegheny County Court, at Pittsburg. Charles Warner, Henry A. Moore, Ralph Dinsmore, James F. McNaul and Lawrence A. Williams are named in the application, and the object of the association is to promote closer acquaintance and freer exchange of thought among its members. The association is also for mutual protection. A periodical will probably be issued, by which dealers in and manufacturers of building materials will be informed of matters pertaining to the industry. The organization will co-operate with other similar associations and intends to increase efficiency and economy in the conduct of the builders' supply business.

The Sligo Fire Brick Company names Frank B. Pope, Joseph C. Bily and George W. Kilpatrick in their application for

a charter which will be made on February 19. The application mentions the object of the corporation, which is to mine, quarry and excavate for fire clay and other clays and limestone, sandstone and other substances, the manufacture of the same into brick and the sale thereof. J. J. N.

THE MATHEWS GRAVITY CARRIER COMPANY'S NEW HOME.

WE TAKE pleasure in announcing an event which takes on considerable importance in view of the past progress, present status and future prospects of the industry involved. We refer to the Mathews Gravity Carrier Company and their removal this month from St. Paul, Minn., to Ellwood City, Pa.

In referring to this concern we are led to speak more than briefly and in a manner which will convey our good will and esteem for an institution which, by sheer force of merit, honest and businesslike methods, has gained a pre-eminent position in the business world.

Not many years ago this company put on the market a simple invention known as a "Gravity Carrier," designed to convey by natural gravity almost any kind or class of merchandise, such as boxes, barrels, brick, lumber, shingles, etc., over any desired distance rapidly and safely. The idea was so simple and yet so much needed for this very work that it at once attracted attention and rapidly came into prominence and use, as it was just the thing needed to save handling expense and expedite the transportation of articles between points in industrial plants, shipping, warehousing, etc. In the course of time other mechanical handling devices were devised for use with the gravity carrier, such as automatic receiving and discharging elevators, gravity roller spirals, metal spiral chutes, etc., and these devices are now in great demand throughout this and foreign countries.

Steps had to be taken to take care of the growing business, which led to the establishment of branch factories in London, England, and Toronto, Canada. This proved to be only temporary relief, however, and last year it became apparent that an extensive enlargement of the main factory would be necessary.

In this connection the question of location came up, and after careful consideration it was decided to remove the business to Ellwood City, Pa. Pursuant to this decision, contract for a modern factory was let and completed February 1 of this year, the company occupying the same shortly after that date. The new building, together with additional special machinery, provides facilities for doubling the output, also affording commodious and convenient quarters for the augmented office force.

The new location secures to the Mathews Gravity Carrier Company important advantages, chief of which is the saving in transportation on raw steel material and other supplies, and the reduction of factory costs in various ways. Ellwood City is also a better and more natural marketing point for the product of this company.

We congratulate this progressive and aggressive firm and trust that this year will serve as an introduction to an era of continued prosperity and uninterrupted progress.

We hope soon to be able to give our readers an illustrated and descriptive article covering the new factory, mechanical equipment and the nature and usefulness of their devices as applied to the trade.

TO CORRECT THE TIPPING HABIT.

A strong organization of traveling salesmen is going after the tipping evil and it is said they are to have the co-operation of the waiters themselves in insisting that waiters be paid by the hotel managers and not by the tips from the public. It is a good idea in the abstract, but it is going to be a hard proposition to carry through.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Finds Bleininger's Book of Great Value.

Editor CLAY-WORKER:

Kindly send us another copy of Professor Bleininger's book, "Effect of Heat Upon Clays," as the one you mailed us with THE CLAY-WORKER was read by the writer and turned over to our head burner, and is the best pamphlet I have ever read upon the topic, and as I think it will be of great value to our burner, we wish to have another copy for the office. Enclose herewith check for \$2.00 for same.

Massillon, Ohio.

M. MC EVERHARD,

Read The Clay-Worker for More than a Quarter of a Century.

Editor CLAY-WORKER:

I enclose \$2.00 to renew my subscription to THE CLAY-WORKER. Have been waiting for a bill from you. Perhaps you think we old veterans have paid enough to have it free. I think I subscribed first about 1886, and have found it a paying investment. Have had a good trade the past season.

Yorketown, N. J.

F. D. HAINES.

Belt Dressing for Brickmakers and Brickmasons.

Editor CLAY-WORKER:

We make a belt dressing for canvas belts by putting twelve pounds resin in a five-gallon can and put it on a hot lid on the kiln till it is melted. And by pouring a little of this on an old dry belt while it is running will make it do its work. And by filling the fingers and thumbs of a pair of canvas gloves with the dressing and using them while laying brick in cement slush will keep the hands from getting sore, and a little coal oil will remove the dressing from the hands.

Hope this will be of interest to THE CLAY-WORKER readers.

W. A. NICOL.

Michigan Brickmaker Has Good Prospects.

Editor CLAY-WORKER:

Enclosed please find express money order for \$2.00 in payment for my subscription for THE CLAY-WORKER for twelve months, ending January, 1913.

We had a very good year in 1911 and expect as good, if not better, this coming year. This last year has put several large buildings under construction in this city

I expect to meet you at the convention in March.

Yours very truly,

Kalamazoo, Mich., Jan. 25, 1912.

M. BATES.

With the Texas Brickmakers.

Editor CLAY-WORKER:

The coming season for brick in Central Texas is not looking very bright at present and the Austin plants only made about two and a half million brick each, compared to four or five million they usually make. A nice order has just been filled by one of these plants for two hundred and fifty thousand brick to be used for power house on New Colorado dam.

The plants in and around Austin usually stop brickmaking about the end of August for lack of labor. From then on till the middle of October the negroes and Mexicans are away picking cotton, and about the end of August there are usually

enough hands to make brick until frost comes, but no bricks have been made in the district since August, 1911.

The brickmakers in this section are hoping for more business, especially if the new penitentiary is brought to Austin, as has been talked of, and it is almost certain that the new postoffice building will be started this year, so trade will probably lighten up as the season advances.

There are no red brick plants within quite a distance of the capital, as the Smith plant, in Elgin, has been closed down for lack of raw material. The same firm is going to erect a new plant at Lalino.

The San Antonio plant made about two and a half million last year, against their usual output of about four million, and although the Seguin plant has made about the usual amount of dry press brick, they have done very little with the stiff mud.

There are a great many buildings, mostly residences, being erected in central and southern Texas, but they are mostly frame, a few brick veneer, with only an occasional brick house.

The Fort Worth plant did not have a very busy year in 1911 and have a lot of stock on hand yet.

The El Paso Press Brick Company are having great success with their hollow ware and are sending hollow block as far north as Dallas and as far east as Port Arthur and Beaumont.

M. V. R.

Building Situation at Atlantic City.

Editor THE CLAY-WORKER:

Atlantic City, the premier seashore resort of the country, after reluctantly disposing of the great throng of pleasure and health-seekers that crowd her hotels and promenade, always experiences a building boom in the fall and winter months.

The year just past has been no exception and the building department proudly exhibits its long list of permits.

On Atlantic avenue, the Boardwalk and in the exclusive cottage section of Chelsea the building has surpassed all late previous years. Apartment houses, hotels, theaters and cottages are increasing in great numbers in this world-famed resort. And it is an encouraging fact to the adherents of clay construction to note the increase in the use of brick and tile for the larger type of buildings. Two large theaters on Atlantic avenue are being built to be opened early in the spring, one of brick and one of hollow tile. On the Boardwalk the famous old Windsor Hotel and Cafe is being razed to make way for the latest venture of the Ritz-Carlton Company, of London. The Dennis is also adding again to its already large capacity.

Many wealthy and retired business men and manufacturers of New York and Philadelphia have selected Chelsea as their summer residing place, and their homes are models of architect and construction. While frame is the prevailing style, the tendency is leaning more and more to the more substantial materials of stone and products of clay. The latest in cottage construction will be that of Mr. C. A. Daniels, the prominent rubber manufacturer of Philadelphia, who has plans out now for a magnificent cottage of tile, to be finished throughout with mahogany and quartered oak.

Plans are also out for the construction of another ocean pier, engineered by the venerable sage of amusements, Captain John L. Young, in whose cottage, 1,000 feet over the ocean, President Taft ate luncheon when in this city to address the National Christian Endeavor Society. This pier will extend 2,316 feet into the ocean and will be the third constructed by Captain Young and the sixth large ocean pier for the resort.

The Somers Brick Company ran full blast up to the end of the year and their output ran short of the demand for common brick all the year. They will continue to operate until the weather prevents burning. The introduction of oil burning process will greatly assist in supplying the demand

during the coming year, and the best year in the history of the firm is looked for in 1912.

This company has just completed a shipment of about 300,000 No. 1 red brick to the Whitney Glass Works at Glassboro, N. J., who are installing a large glass bottle blowing plant.
R. W.

Washington Entitled to Special Mention.

Editor Clay-Worker:

On page 528 of your November, 1911, issue, we note a table of statistics covering clay products of the United States for the year 1910. The table is extremely instructive, and shows that our industry has prospered well during that year.

We of the State of Washington are naturally interested in the progress of the various industries of our State. Under the heading of vitrified brick and block, we note that Washington is included in "Other States." We note further that States manufacturing as little as eight and a half millions vitrified brick are listed independently. It so happens that our company alone manufactures in excess of fifty-eight millions of vitrified paving brick per year, and we feel that it is only fair to the State that it be separately listed in future tables. We note, further, that the average price per thousand for Washington is given as \$18.27; this is somewhat too high, as the prevailing price here is between \$16.50 and \$17.00 for the average run of this class of brick. Outside of the manufacture of a considerable quantity of these brick, the State of Washington has a large number of high-class brick pavements, and we feel you will agree with us that it should receive individual mention.

Furthermore, the value placed on sewer pipe and architectural terra cotta manufactured in this State should be raised considerably for the year 1911 above the values given for the year 1910.

In case there is any specific information you desire that we are in position to give you, do not hesitate to call upon us.

With best wishes for a prosperous New Year,

Yours very truly,

DENNY RENTON CLAY & COAL CO.

By Walter B. Baer, Assistant Secretary.

Seattle, Wash.

Concrete Pipe Not to Be Used in Kansas City Sewers.

Editor Clay-Worker:

In your issue of December, 1911, it was stated that the Committee of Investigation at Kansas City had made up its mind to admit the use of concrete pipe for sewers under rigid specifications.

The fact appears, however, that no decision has been or could have been reached, and that the cement interests are still endeavoring to present reasons why it should be admitted.

The hearings were resumed on December 28th, at which time Mr. W. B. Phillips, of the Ash Grove Lime and Portland Cement Co., read a paper in rebuttal of the data previously presented by Mr. Geo. H. Tefft, of the W. S. Dickey Clay Mfg. Company.

Mr. Phillips made no attempt to deny the many instances of concrete sewer failures cited by Mr. Tefft, but endeavored merely to explain them and to throw mud at the engineers who had reported them.

Having disposed of Geo. W. Fuller, sanitary engineer, formerly of the firm of Hering & Fuller; of Edward Orton, Jr., ceramic engineer of the Ohio State University; of the men in charge of agricultural experiment stations of Colorado and Montana as mere theoretical professors without practical experience, Mr. Phillips read a catalog of some hundreds of towns in Germany where concrete sewers are used.

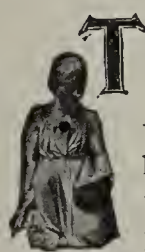
Returning then to the United States he explained all the failures of concrete sewers on the grounds of improper materials, improper mixtures, improper methods and so on, down the long list of improprieties of which even the best of concrete is guilty when used for sewer pipe. He produced fragments of concrete sewer pipe taken from El Paso sewers

which he admitted had been thoroughly scrubbed before presentation, but which nevertheless retained a sufficient coating of calcium sulphate to run off on the committee's hands and illustrate the action of sulphuric acid derived from the hydrogen sulphide of sewage upon Portland cement. He dismissed the El Paso case with the happy observation that it involved only three hundred feet of pipe anyhow, and that the disintegration of the line was caused by the tar in the oakum gaskets in the joints. The committee was greatly enlightened (?) but the decision is yet to be given.

G. H. TEFFT.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO



THE WINTER has been an exceptionally severe one and has no doubt interfered materially with building plans in this section. In Toledo proper there has been considerable work going on, but it has not approached what was anticipated. Much work that would have been completed during the past few weeks has been postponed for warmer weather. Despite the cold season, a fair showing has been made and a fair seasonable market for building brick has prevailed. During the month of January in Toledo there were 69 permits issued by the office of the city building inspector for new structures valued at \$114,435, as compared with 77 permits of an estimated valuation of \$105,306 during the corresponding month last year.

The paving block industry appears to be enjoying a normal condition, and the coming year will probably be an improvement over the past season. Smaller towns and cities will be in the market for considerable of this material, a large amount of municipal legislation being already under way. Sewer pipe and tile manufacturers report a fair business for this season of the year. Extensive road work is in sight for the coming summer and the prospects are for some good business. In fact, clayworking industries are fairly busy developing new business and getting ready for increased trade. The whole situation carries a very healthy business tone and general satisfaction prevails among dealers and manufacturers.

The Hydraulic Press Brick Company has opened a branch office in Toledo, with rooms at 952 in the Ohio building. While the concern has operated a manufacturing plant here for some time and has had a factory office, the bulk of its business has been carried on from the Cleveland office. The new Toledo office will be in charge of C. W. Irwin, who is already in control of its local affairs. Mr. Irwin comes to Toledo from St. Louis, where he held the position of secretary and sales manager of the National Press Brick Company. He will make a specialty of promoting the use of high-grade face brick in the building business here.

George Champe, a Toledo engineer, is preparing plans for brick paving at Genoa, Ohio, estimated to cost about \$40,000. The work will be done the coming summer. Main street will be paved the full length.

The Akron plant of the American Sewer Pipe Company has again started operations after an idleness of about three years. The plant furnishes work for about 150 men.

Brick paving is in high favor at Painsville, Ohio. The city will construct about four miles of brick pavement in the spring at a cost of about \$50,000. The brick will be laid on five-inch concrete foundation.

The plant of the Fox Clay Products Company, located in West Toledo, was recently sold by Deputy Clerk J. W. Wilson, of the United States Court, for \$12,000 to George E. Dixon, of this city. The concern, which was engaged in the manufacture of brick and hollow tile, became involved in financial difficulties about a year ago, from which it was unable to extricate itself. W. G. Nichols was appointed receiver at that time. What will be done with the plant by the purchaser is a matter of conjecture, as his plans have not been made public.

T. O. D.

THE MANUFACTURE OF SAND-LIME BRICK IN EUROPE.

By P. L. Simpson, Chicago, Ill.

Paper Read Before the Sand-Lime Brick Manufacturers' Association at their Convention at Grand Rapids, December 5 and 6, 1911.

PART TWO.

MY INVESTIGATION of the sand-lime brick industry in Europe did not really begin until I had arrived at Berlin, which is the real center of the sand-lime brick manufacture. I am pleased to state that I was quite successful in obtaining the proper introductions and entree to five different works in and around Berlin. These introductions were due largely to the courtesies of the "Ton-Industrie Zeitung." That newspaper is the leading organ for the sand-lime brick industry in Germany. It is a remarkable publication, having three issues per week, and their staff consists of a complete corps of editors, representing the various interests, the sand-lime brick department being in charge of Mr. B. Krieger, and I can fully attest to the uniform courtesy extended to me by that gentleman, and also Mr. Waidner, of the cement and lime department. That gentleman showed



Home of Mr. Mohnike, Superintendent of the Berliner Kalksandsteinwerke.

me through the establishment, which was well worth seeing. They have an immense laboratory with fourteen chemists at work testing all manner of material for the production of brick of all kinds and clay goods in general. There is no disposition of that newspaper to sidetrack or to minimize the importance of sand-lime brick manufacture. As a matter of fact, it would be exceedingly strange if they would not recognize an industry that has upwards of 350 different plants making sand-lime brick in Germany. It is of great importance, however, that a paper of the prominence and influence of the "Ton-Industrie Zeitung" should follow up every possible item in connection with the development and production of the sand-lime brick business.

Mr. Krieger gave me an introduction to a gentleman who is recognized as the foremost authority on the technic of sand-lime brick in Europe. That gentleman is Mr. George Beil. I was pleased to meet the gentleman in Berlin and to have a lengthy conversation with him, and I was quite impressed not only with the knowledge of the business that the gentleman has, but his uniform courtesy to a complete stranger to him, as I was, it being sufficient for him that I represented a member of this Association and also, to some extent, the sand-lime brick industry in this country.

There is one part especially of my conversation with Mr. Beil that I desire mentioned here. You will notice that a table given by Mr. Robert Brand, of Perth, Scotland, giving the crushing strength of his brick, states the base

area of the samples. I can not recall a table showing the strength of brick before in my reading that gives the base area of the brick tested. It has been generally considered by manufacturers in America that the strength of the brick made in Germany was very much inferior to those made in this country. Mr. Beil, however, stated that the cause of this impression was due to the manner of testing our brick in America. We test the brick for crushing strength on its flat, using the surface of the whole brick, but this is not the method in Germany and France, and possibly other countries in Europe. In Germany, they divide the brick in two and place one-half above the other, the joints all being made solid by plaster of paris or sulphur. By halving the brick, it makes a difference, according to Mr. Beil, of thirty per cent in the result. Thus, if the brick is tested as it is in this country, namely, with the entire area of the brick, and it would show a strength of 4,500 pounds to the square inch, by cutting it in two and testing it as they do in Germany, the strength apparently would be reduced about 1,350 pounds. Mr. Beil, therefore, desires to have this understood, especially by this Association, that in comparing the strength of brick made in Germany with those made in this county, that the difference in the method of testing should be taken into consideration.

Mr. E. Leduc, author of the "Essais Sur le Silico Calcaire," pages 19 and 21, uses a round sample of sand-lime brick in arriving at crushing strength. His rule is to use



Unloading Sand-Lime Brick from the Barges at Charlottenburg.

the cylinder the height of which was exactly equal to the diameter, and Mr. Leduc goes to considerable trouble to obtain this condition. I was very glad to receive this explanation from Mr. Beil, so as to make it possible for me to use my influence in correcting this unfair and unjust comparison.

In Germany, there is an institution known as the "Verein der Kalksandsteinfabriken," which is a union of sand-lime brick manufacturers, and which maintains a regular office in Berlin for the purpose of promoting the industry in Germany. The essential requirements for admittance to that union is to produce brick having certain strength and quality. That strength is 140 kg. per sq. cm., which is equivalent to nearly 2,000 pounds to the square inch.

Mr. H. Buchartz, of the department for the examination of building material at the Royal Bureau for testing material, at Gross-Lichterfelde-West, makes the following statement in his book on sand-lime brick, published in 1903: "Experience has proven that with a practical equipment and proper method, no difficulties arise to manufacture sand-lime brick with a strength of 140 kg. per sq. cm. Therefore, the association of sand-lime brick manufacturers put its members under obligation (in 1903) to manufacture sand-lime brick having a minimum crushing strength of at least 140 kg. per sq. cm. Many factories, however, produce sand-lime brick with a crushing strength up to 300 kg. per sq. cm. and even more."

The Sand-Lime Brick Association also uses for its own protection a trade mark which is an equilateral triangle

with the words K. S. V. printed therein in large letters. These letters indicate the initials of the name of their association, namely, the "Vereins der Kalksandsteinfabriken," and this trade mark is printed on the envelopes and letter heads of the association, and is sometimes stamped on the bricks. The members of the association are, therefore, under obligation to produce sand-lime brick with this minimum crushing strength, and should a manufacturer fail to fulfill this requirement, he forfeits the right to use the trade mark until evidence has been furnished to show that the standard has again been reached. The annual dues paid by each member is based upon the quantity of brick produced. From one to ten millions production, the dues are twenty marks per million; from eleven to twenty millions, twelve marks per million; from twenty-one to thirty-five millions, six marks per million; the maximum is 410 marks per year. The various committees appointed by the association are:

1. Committee on new processes, machines, etc.
2. Committee on rules and regulations.
3. Committee on publications.

The association has been one of great influence in the development and improvement of the sand-lime brick industry, not only in Germany but all over Europe. Its active membership, each one representing a sand-lime brick factory, consisted, in June, 1910, of seventy-eight members. There are sand-lime brick factories even in Berlin that are not eligible for admission into the union, for the reason that they are not complying with the requirement of the association in regard to the strength of their brick. In all fairness, however, and after a thorough examination of at least one of these outside concerns, I found that the fault was not due to their process or their machinery, but to their sand. In fact, one of the best plants I visited in Germany was outside of the association and produced a brick that was not up to the standard in strength, but they simply had been unfortunate in selecting a location close to market of course, but with a sand that was very inferior, and, therefore, an inferior production was the result.

Touching on the question of lime, fortunately for Berlin there are immense deposits of limestone at Kalberge, near Ruddersdorf, which is about thirty miles from the city and accessible by water. It is a lime somewhat hydraulic in its nature, having a considerable percentage of silica in its composition, but quite free from magnesia.

This lime is burnt in continuous kilns of the Hoffman type. Very large works have been erected at Kalkberge and one prominent brick works in the neighborhood of Berlin burns its own lime. I refer to the Berliner Kalksandsteinwerke—Robert Guthmann. They have a twenty-six-chamber continuous kiln, Hoffman type, burning 100,000 kg. of lime per day, which is equal to about 110 tons.

Through the courtesy of the secretary of the Union of Sand-Lime Brick Manufacturers, I was enabled to obtain the entree to three of the five sand-lime brick works that I visited in and around Berlin. These three establishments represented three different processes. The first works I visited was erected about eight years ago. The sand was of good quality and the lime was obtained from the neighboring limestone deposits at Kalkberge. The characteristic of this establishment was mainly the method of treating the lime, which is known in Germany as the "Loesch-trommel," or slaking-drum process, and which consisted in this particular case in slaking all of the lime and one-third of the sand in a slaking drum. This makes an excellent basis for the remainder of the sand to be mixed later in a wet pan. These works have two double-mold rotary presses, each making 32 bricks per minute, or an average of 18,000 per day, each running ten hours per day. Caustic lime was pulverized to about 60 to 80 mesh, which was not as fine as the superintendent would have desired. My impression of the

plant was excellent, although in some respects it was not ideal, because there was some guess work in the process, inasmuch as the uniting of the remaining portion of raw sand with the drum mixture was done by two men shoveling both the drum mixture and the raw sand into an elevator to be elevated to the wet pan. Notwithstanding this drawback, however, the plant was well managed. Everything was in fine order, and with this defect corrected, which was acknowledged by the superintendent as being a defect, the plant would certainly be an excellent one. The slaking drum idea appealed to me as being correct in principle, free from dust, systematic and in many respects an improvement over some of the other plants that I subsequently visited.

The next establishment that I visited in the same neighborhood was based upon the purely silo process. In this case the raw sand and pulverized lime was automatically measured, although the means of performing the measuring of the sand and lime did not appeal to me as being first class, same means having been in use in some works in this country which afterwards proved a failure. They seem, however, to stick to the idea. Aside from this the works were well built and especially the silos appealed to me as being most substantial. Wooden silos seem to be a thing of the past in modern plants in Germany, and the silo I saw at the works under review was constructed of steel, supported on substantial cast iron posts and emptied automatically and regularly. They had upright presses in this plant, using three men for off-bearers. One man was busy putting in a sheet steel pallet, and the other two men taking the brick off the pallet, as delivered by the pallet handler. This seemed to me one man too many at each press. They have five hardening cylinders and keep their brick in the cylinder for twelve hours, at a pressure of eight and one-half atmospheres. Please note the twelve hours in the cylinder, as it would seem to me to be the tendency in Germany to increase the time for bricks to remain in the hardening cylinder, and also to increase the pressure.

The next plant I visited was again indifferent. In this case they had the "Loesch-trommel," or slaking drum, but the lime only was slaked without any sand being added. This process did not appeal to me as being an ideal system. The contents of the slaking drum were dumped into a bin below, and which caused a terrible dust all over the works. In fact, it was the dustiest works I visited. Quite a quantity of the lime blew out of the slaking drum when the pressure of steam rose up to the point where it was necessary to relieve the pressure. A pipe led from the slaking drum to a separate room some distance away, where an attempt was made to collect the lime blown from the slaking drum into that room, but the outfit and its operation appealed to me to be quite awkward and anything but ideal. Then again, another bad feature of the works was the amount of guess work used in adding the amount of lime to the sand. A large proportion of the sand was gravelly. The stones were taken out by a revolving screen, and was conveyed on a shaking conveyor to an elevator, and while being conveyed a man shoveled the lime onto the sand according as, in his judgment, would be necessary. This was the most unique specimen of guess work I ever saw in any sand-lime brick factory, and I was surprised that such a method was used in a representative plant. Notwithstanding these drawbacks, which were very conspicuous, the plant made fairly good brick and was evidently a money maker, as the production was about twenty-five millions per year. The sand, however, was excellent, which no doubt had a corresponding effect on the quality.

The next plant I visited was, in my opinion, an improvement, in some respects, to any of the others that I had examined. In this case all of the sand went through the slaking drum. One-half or the sand was used with all of the lime, and after the lime was slaked in the slaking drum, the remaining portion of the sand was added. This plant, however, was handicapped by poor material, and the poor brick resulting from their poor sand excluded them from the

union. At all events, this was the reason I received for their not being in the union. The material, after passing through the slaking drum, is siloed for a short time, but in this case the silo or bin was a wooden one, which was not exactly in accordance with the best practice.

Now, it was my privilege and great good fortune to obtain permission to visit the largest and best known sand-lime brick works in the world, namely, that of the Berliner-Kalksandsteinwerke, Robert Cuthmann. Their works are at Neiderlehme. They have twenty upright presses, each making two brick at each pressure, but only two men in this case were used as offbearers for each machine. I was taken around the plant by Mr. Mohnike, the works manager. The locomotive brings ten dump cars, each containing about two cubic yards of sand, from the sand deposit—the cars being of the bottom-dump type—and in less than five minutes they are emptied into the cellar below the track, to be shoveled into the elevators leading up to the mixers. The lime is pulverized to the requisite fineness and united with the sand, both being automatically measured. This plant has adopted the silo process. There are eight silos in the plant built of steel in a most substantial manner, each containing enough material for 80,000 German size bricks. The siloed material received its proper quantity of water in the wet mixer and emptied in buckets, which run on an overhead track, and are emptied into the different bins located above each press.

There are two cylinder rooms, one containing eleven, and the other nine hardening cylinders, the size of same being 20 metres (about 65'-6") long, by 1 M 80 (about 70¼") in diameter, each cylinder containing 13 hardening cars, and having a capacity of 9,000 brick, German size, which is 250 MM long by 120 MM wide by 65 MM thick, or 9 7-8" x 4 3-16" x 2 11-16".

A very interesting feature of the works are the two very large transfer rooms, each of them over 80 feet wide and containing a transfer car about 75 feet long. These transfer cars hold all the contents of a cylinder, and also the locomotive that hauls them, either out of the cylinder in the case of the hardened brick, or into the cylinder in the case of green brick. When the bricks are hauled out of the cylinder by the locomotive, they are run down to the wharf. The bricks are at this point unloaded and sorted from the hardening cars and packed into barges, each containing about 100,000 brick. These boats are then towed to the receiving and shipping station at Charlottenburg, Berlin. In the event that there are no barges on hand into which to load the bricks, they are stored on the yard, to be eventually shipped when necessary. When the barges reach Charlottenburg, the bricks are then unloaded into truck or wagon frames. These are made of steel and arranged so as to be hoisted by electric cranes. Each frame contains about 1,100 brick, which is the established unit. There are about six of these cranes that can be applied when necessary. They all overhang the river and an empty frame may be attached to each one of them, same being lowered down into and loaded from the barge, then hoisted up and run over to the point to be lowered onto the wagon bed and then to be hauled to the building. These six cranes cover about the length of the barge and, therefore, the unloading of the boat is accomplished in a very short time.

While in some respects, especially at the unloading and receiving depot at Charlottenburg, this method of handling is ideal—I refer especially to the loading of a unit of brick onto portable steel truck frames—yet it is in the loading of the barge at Niederhelme and the unloading of the same into frames at Berlin where a great saving of labor could be effected.

At the docks at Niederhelme, the bricks as they are sorted are run down a runway to the hold of the barge, where they are caught by the loaders and packed. Then again, where the barge reaches its destination, manual labor is again necessary to load the bricks from the barge onto the steel truck frames; also when it is required to store the bricks on the yard, which frequently happens, another double loading is required, making in that case four separate loadings of the brick. Further, when it is required to store the brick at the receiving depot at Charlottenburg, a further double loading is necessary, so that when this extreme case

happens, the same brick are handled by hand six different times. This would seem not only to be a waste of labor, but every time a sand-lime brick is handled, or any other brick for that matter, they are apt to be chipped and many poor brick produced, that otherwise would not be the case.

Now, if such a method as the Penfield brick-handling system were adopted, the labor of handling the brick would be reduced at least one-half to two-thirds. Just imagine what a saving would be affected by such a system, especially in a yard where there are 440,000 brick manufactured daily, as is the case in the works under review.

It may be interesting to detail to you as briefly as possible how such a great saving can be effected, and which will at the same time give you an insight into the merits of the Penfield brick handling system. First of all, the bricks could be sorted off the hardening cars at the wharf and packed into the necessary units, which in this instance is 1,100 bricks, these units having the proper length, width and height as may be required to fit the steel truck frames at the receiving and loading depot in Berlin. The Penfield brick handler would then lift each unit by an electric crane, which, of course, would have to be erected at the wharf, these cranes to be designed with projections overhanging the scows on each side of the pier. These units would be lifted by a brick handler and lowered down into the hold of the scows; when the latter reaches the receiving depot they would be in exactly the same condition as they were when loaded, and would then be lifted out of the barge by the electric cranes and lowered either on to the bed of the wagon to be hauled to the building, or placed into the storage room at the depot. The unit, you will notice, remains intact from the time the bricks are sorted at the wharf at Neiderhelme, until delivered at the building in Berlin. Further, when storage is necessary on the yard, the unit is still preserved after the bricks are sorted and may be piled on the storage ground by cranes, and it would not be necessary to cover so much ground as is now the case, because they could be piled as high as a crane would permit. One can at once realize how great a saving can be effected in handling brick in this way.

Now, to sum up my impressions of the sand-lime brick industry in Europe and especially around its chief center of Berlin, Germany:

First—From personal observation and from all information that I could gather from experts in the business, I concluded that the pre-hydrate system was gradually being eliminated from up-to-date practice. There are no new works installing the process and works that are still using it are gradually abandoning it. I interviewed Mr. Beil at his office in Berlin in this way: Which is your preference in regard to the following five different methods of making sand-lime brick:

"A"—Hydrating the lime in slaking tubs under brick cars in cylinder.

"B"—Hydrating the lime in a slaking drum without sand.

"C"—Hydrating all of the lime with part of the sand in a slaking drum, afterwards adding the remainder of the sand outside of the drum.

"D"—Hydrating all of the lime with part of the sand in a slaking drum, afterwards adding the remainder of the sand inside of the drum before latter is emptied.

"E"—Hydrating the lime with all of the sand in silos.

Mr. Beil, without hesitation, stated that the two latter methods were the only proper and correct systems to install.

The attitude of the experts I talked to in regard to the method of slaking the lime in hydratic boxes underneath the brick cars in the hardening cylinders, was that it was unreliable, wasteful and entirely out of date.

Second—All of the latest works erected in Germany, as far as I was able to find out, were recognizing the principle of the thorough mulling and kneading of the sand and lime mixture by using wet pans where the mixture receives the final water, and all of the grinding incidental to the system.

In all the works in Germany that I visited, no face brick were made. All of the production is common brick, but a hard, solid body is requisite and always aimed at and, therefore, the use of the wet pan to attain this object is thoroughly appreciated in Europe as well as in this country. I

was much pleased to note that the necessity for using a wet pan in the proper preparation of the material, which is in accordance with the latest ideas in this country, is also recognized abroad as well as here.

Third—I was also much impressed by the fine management of the different works I visited. I can account for this by the further impression I received that the industry is in the hands of high grade men, those having charge of works and experts in general with whom I came in contact and had the good fortune to meet, were all unusually able and finely educated, and the courtesies shown to a stranger like myself showed that they were gentlemen both by nature and by training.

I was glad to meet such men as Messrs. Beil, Krieger, Waidner, Brockhous, Mohnike, Michel, Brand, etc., and I may say here that these men are among the leaders in Europe, having the present and future interest of the sand-lime brick industry in charge.

I purposely stopped off at Paris on my way from Berlin to Paris to interview Mr. E. Leduc, author of the work "Essais, Sur le Cilico Calcaire," but I was unfortunate in not seeing him, as he had left Paris to take charge of a Portland cement factory at a point somewhere near Nice, in the south of France. I mention this because there is great respect shown the name of Leduc in Germany, so much so that Mr. Krieger, of the "Ton-Industrie Zeitung," has translated his work on sand-lime brick into the German language. No one in Europe has gone into the subject with greater care theoretically than Mr. Leduc. I visited the "Conservatoire National des arts et Metiers" where he did his experimenting work, and was introduced to his successor, whom I was glad to meet and he stated that he expected to follow up the valuable work of his predecessor.

Fourth—I was also impressed with the great care shown by the owners of the various sand-lime brick works in looking to the comfort of their men, in providing proper dwelling houses and pleasant surroundings. This was best illustrated perhaps at Niederhelme, where the workmen have pleasant homes to live in. Mr. Mohnike, the works manager, has a beautiful home of very fine architecture, which you can see by the photograph attached to this paper. The water tower of the Robert Guthmann works is one of the most artistic of any I saw in Europe. It is modeled after a celebrated tower in Constantinople and is about 160 feet high by about 35 feet in diameter, and is built of sand-lime brick. Mr. Edison's latest dictum and poor opinion of German architecture was not my impression. No one could sojourn in Germany, visiting such cities as Nuremberg, Munich, Frankfort, Dresden and Berlin, without being greatly struck with the artistic character of the architecture.

Finally, I am glad to be able to state that the sand-lime brick industry is thoroughly established in Europe, and has a splendid future before it.

Written for THE CLAY-WORKER.

BLOOMINGTON, INDIANA, BOOSTERS.

WITH commendable enterprise the Commercial Club of Bloomington, Ind., engaged the Hon. W. S. Blatchley, ex-State Geologist, to make a report of the shale and clay deposits in the vicinity of their city and in Monroe county. This report, in pamphlet form, is printed for distribution. The following extracts show that there is good material there for clay goods:

"The clays and shales in Bloomington suitable for manufacturing and named in the order of their importance are: (a) Knobstone shales; (b) Mitchell-Huron shales; (c) surface clays."

The Knobstone Shales.

The Knobstone shales, when not too high in silica or sand, form an excellent raw material for the making of ordinary and pressed front brick, vitrified brick for street and road paving; sewer pipe and drain tile of large size. They are at present being utilized on a large scale for these products at

the following places in Indiana: At New Albany, for the making of both ordinary and pressed front brick; at Medora, Jackson county, for vitrified brick; at Martinsville, for the making of ordinary and vitrified brick; at Brooklyn, Morgan county, for drain tile of large size and for pressed front brick; at Crawfordsville, for vitrified and pressed front brick; and at Attica, for the same products.

The Knobstone forms the surface rocks of the greater part of Morgan and all of Brown counties. In Monroe county it occurs in a strip four to eight miles in width along the eastern border, with regular outcrops westward along Grifey's and Bean Blossom creeks to near Stinesville. For the most part the Knobstone in Monroe county is too high in silica or too distant from transportation facilities to be successfully utilized in the making of clay products. However, in the north halves of Sections 2 and 1 (9 N,—1 E) close to the Monroe-Brown county line and about eight miles northeast of Bloomington, the Indianapolis Southern Railway has exposed by cuts large deposits of the finest grade of Knobstone shales. One of the best of these is in the slope of a hill, the cut being several hundred feet in length and thirty feet deep. The shale, exposed to the full depth of the cut, is a soft gray, unctuous material, wholly free from grit, and resembling closely in appearance the better grade of the coal measure shales, forty miles to the west. Less than a year after being exposed, the sides of the cut had everywhere weathered into small, quadrangular pieces, which indicates that the shale can be easily ground and the resulting clay worked into any desired shape.

Analysis shows it can be burned into paving brick of superior quality, the percentage of clay base and fluxes, which are the important features, varying less than one and one-half per cent from the standard, or less than one per cent from that utilized for paving brick at Medora. The renowned "Poston block" manufactured at Crawfordsville and Martinsville, Ind, and used in part for paving around the square at Bloomington, are made from the same kind of Knobstone shale. They have been found to be harder and more durable than many of the pavers made from the coal measure shales to the westward.

For the making of dry pressed front or ordinary stiff mud building brick, the Knobstone shale along the I. S. railway can not be excelled, as it will burn to a very handsome dark cherry red in hue, and the grain and structure will be much more uniform than those of any brick made from surface clays. It is also very probable that the best of sewer pipe and drain tile of large size can be made from this shale. Similar tile are being made from it at Brooklyn, Morgan county. The sewer pipe may not be as easily glazed, but in all other respects will be the equal of those made from the coal measure shales at Brazil and Mecca, Ind.

Mitchell-Huron Shales.

Between the top of the Mitchell limestone and the lowermost of the Huron sandstones there often occurs on the slopes of the hills west of Bloomington deposits of a soft gray gritless shale known locally as "soapstone." To these the name of "Mitchell-Huron Shales" is given, since they intervene or are intercalated between the uppermost and lowermost of those two formations. One of the largest of these deposits of shale occurs about six miles southwest of Bloomington. Here the shale is exposed in a number of places on the southern and eastern slopes of one of the highest hills in this vicinity. It is a very fine grained material, wholly free from grit or foreign products, and weathers freely into a very plastic and easily worked clay.

Have you noticed that electric transmission is becoming an important factor in the clayworking industry and that every time you read about the equipment of a modern plant there are electric motors mentioned?

THE ELK FIRE BRICK COMPANY CELEBRATES ITS ANNIVERSARY BY GIVING A BANQUET AND SMOKER TO EMPLOYEES.

THE CHIEF INDUSTRY of St. Marys, Pa., and one that is carrying the fame of that town beyond state lines, is the Elk Fire Brick Company, which, though young in years, having been established in 1902, has gained an enviable reputation for the quality of fire brick made. The officials of the company appreciate the fact that its success is due in no small degree to the loyalty and intelligence of the employees, and this appreciation finds expression in kindly consideration for the welfare and pleasure of the employees. It is the custom to celebrate the anniversary of the company by an annual love feast. This event of events to the employees occurred December 30, and took the form of a banquet, smoker and social festival, the ladies participating in the latter feature. The officers of the company escorted the employees, numbering one hundred and forty, to the banquet hall, where an orchestra rendered popular music while an excellent dinner was served by the Ladies Aid Society of the Sacred Heart church. At each plate was placed a colored photograph of the company's plant and a neatly printed souvenir menu, which contained a neatly printed alphabetical list of the employees and the officers of the company. After the dinner each participant was presented with a clay pipe, bearing the inscription, "Elk Fire Brick Company, December 30, 1911." Vice-president Ramsey, who acted as toastmaster, asked all present to smoke the "pipe of peace." After doing so, cigars were passed and a "speechfest" followed, then a flashlight picture was taken of the party, which adjourned to a neighboring ball room where they were joined by their wives and sweethearts, who had been enjoying a theater party during the smoker, and dancing completed the evening's entertainment.

The Elk Fire Brick Company was organized in 1901 and incorporated December 9, 1901, under the laws of the state of Pennsylvania, and the factory was built during the winter of 1901-02. The first brick were made at this plant during June, 1902. The plant at that time was very small and had a capacity of only one car per day and all of high grade fire brick and shapes. The factory did not operate very steadily until the fall of 1904, when the management changed hands and a new organization took charge. Since that time the St. Marys factory has grown rapidly each year until the capacity of this plant is seven times as large as in 1904 and is making more additions now which will further increase the output. During this seven years the factory has never closed a day except for repairs, and operated at full capacity all the time.

The buildings were all constructed of wood in the beginning, but each year the management tears down part of the original buildings and replaces them with brick and steel construction, so that by the end of 1912 almost all of the old factory will have been replaced with new and modern buildings, and will then be one of the best equipped and most modern fire brick plants in the United States, if not in the world. The company is constantly improving the facilities to make the work nicer and easier on the help, and there is scarcely a man working at this plant who needs to work either in the hot summer sun or the cold blasts of winter. The management is getting out plans for a modern bath room and wash room, in which will be located steel lockers for the men to hang their clothing in while at work and keep their dinner pails away from dust and dirt. It is their constant aim to make every improvement to better protect the laborers from danger of injury while doing their duty and as a result not one man has been seriously injured while at work for this company.

In addition to the works at St. Marys, Pa., this company took over the plant of the Daguscahonda Face Brick Company in January, 1909, and has made it into a fire brick

factory, which has also operated without a day's delay except for repairs during these three years, and are making many improvements at that factory and will double the capacity there during the year of 1912. These two plants give this company a capacity of about ten cars of fire brick and shapes per day. The company is making plans to build another factory this year either in Clearfield county or Clarion county, Pa. These three plants will place the Elk Fire Brick Company in the field as one of the largest manufacturers of fire brick and shapes in the United States. Their various kinds of machinery and different grades of fire clay enable them to produce any grade necessary for any class of work, and having three plants will give them output enough to handle any size of orders.

This company maintains its own engineering department and does all kinds of such work for their customers when desired, and will furnish plans and specifications for all kinds of construction.

The general offices of the company are located at St. Marys, Pa., and the officers and men in charge are as follows: J. D. Ramsay, president and general manager; C. W. Clewell, assistant to president; J. F. Vollmer, vice-president; W. G. Bauer, treasurer, and D. J. Driscoll, secretary and counsel.

EXPERIENCE WORTH HAVING.

That experience is a dear teacher is axiomatic. Those who can profit by the experience of others are very fortunate, for thereby success and profit may be realized where otherwise failure and loss may be one's portion. With this self-evident truth in mind, we are pleased to direct our readers' attention to the advertisement of the Ed. H. Callaway Engineering Company on page 340 of this issue. Few men are better known to those engaged in the clay business throughout the United States than Mr. Callaway. He has an intimate knowledge of the various clay industries, brick-making in particular, gained by actual experience of many years, during which he has gained a most enviable reputation for skill and competence in the planning, erecting and operating brick and tile plants. The fruits of these years of experience he now offers to those desiring same, and those who are figuring on erecting new plants or rebuilding old ones will profit by consulting and advising with him in that connection.

THE DUNN WIRE-CUT-LUG BRICK GROWING IN FAVOR WITH ENGINEERS.

Readers of THE CLAY-WORKER who are interested in brick pavements, and their name is legion, will find food for thought in the ad of the Dunn Wire-cut-lug Brick Company, on page 362 of this issue. City engineers generally are conceding superior merits of brick pavements and are in a receptive mood for further information that will strengthen this good opinion. As an evidence of this we publish a letter from Engineer Douthitt, which is self-explanatory. Mr. Dunn writes that the published list referred to was given to the printer before receipt of advice that Waukegan had agreed to include the Dunn wire-cut-lug brick in their specifications.

City of Waukegan Will Use Dunn Wire-cut-lug Brick.

The Dunn Wire-cut-lug Brick Company, Conneaut, Ohio:

Gentlemen—I notice in your advertisement in THE CLAY-WORKER that in a list of cities which you give as allowing the wire-cut-lug brick to be used, the name of Waukegan is not in that list. Some time ago you wrote me in regard to these brick and I agreed to allow them in our specifications. At the present time I am writing a new set of specifications and specifying the corner radius of the blocks. I did not allow over one-eighth of an inch radius except in case of cement filler, where I allowed one-sixteenth of an inch. You can see from this that the preference is given to a wire-cut brick, and I would like to have the name of Waukegan included in this list.

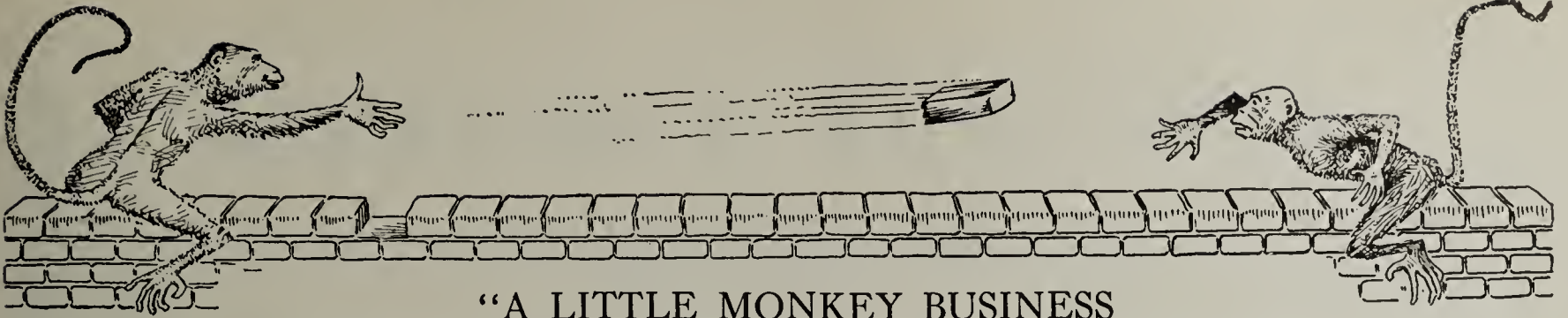
(Signed)

January 24, 1912.

Yours very truly,

M. J. DOUTHITT,

City Engineer.



"A LITTLE MONKEY BUSINESS NOW AND THEN IS RELISHED BY THE BEST OF MEN."

HIT OR MISS.

You shovel till your back is sore;
Then, much to your surprise,
It goes and snows a whole lot more,
To give you exercise.

—Chicago News.

A Foxy Scheme.—"Tommy, if you'll saw some wood I'll tell you what I'll do."

"What's that, dad?"

"I'll let you have the sawdust to play circus with."—Washington Herald.

THE POLICEMAN'S FAULT.

Magistrate (sternly)—Didn't I tell you the last time you were here I never wanted you to come before me again?

Prisoner: Yes, sir; but I couldn't make the policeman believe it.—Exchange.

SHE WOULD KEEP IT DARK.

A Scottish parson, still on the under side of forty, was driving home from an outlying hamlet when he overtook a young woman. He recognized her as a maid of all work at a farm which he would pass, so he pulled up and offered her a lift. Mary gladly accepted his offer and they chatted pleasantly all the way to the farm gate.

"Thank you, sir," she said, as she got down.

"Don't mention it, Mary. Don't mention it," he told her, politely.

"No, I won't," Mary obligingly assured him.—Exchange.

ONE THING THE MEN CAN DO.

While in Richmond recently, for the performance of "Rebecca of Sunnybrook Farm," Kate Douglas Wiggin was asked how she stood on the votes-for-women question.

She replied she didn't "stand at all," and told a story about a New England farmer's wife who had no very romantic ideas about the opposite sex, and who, hurrying from churn to sink, from sink to shed and back to the kitchen stove, was asked if she wanted to vote. "No, I certainly don't! I say, if there's one little thing that the men folks can do alone, for goodness' sake let 'em do it!" she replied.—Buffalo Commercial.

THE AMMUNITION WAS BAD.

The brawny Irishman craned over the big glass case in the chemist's shop, and eventually managed to locate the diminutive proprietor.

"Wud ye plaze give me somethin' to kill moths?" he asked, and was promptly supplied with a packet of camphor balls.

"Good-day, sir," said the businesslike chemist briskly. "I hope I shall soon have the pleasure of seeing you again."

He saw him again quite soon, but, as it happened, it was with no particular pleasure.

"Ar-re you th' mooney-faced little imp that sowld me these

balls?" shouted the Hibernian, rushing in later on in the day.

In his nervousness the man of pills said that he was.

"Well, thin, howled the Irishman, "jist you come home wid me, an' if ye can hit a single moth wid wan iv these little haythen pellets, I'll spare ye th' thrashin' ye'll git otherwise, say nothin' about th' lookin'-glass an' ornaments meself an' the missis broke."—The Lumberman.

A NEAR INVITATION.

Two Irishmen were discussing the death of a friend.

Said Pat:

"'Sure, Casey was a good fellow.'

"'He was that,' replied Mike. 'A good fellow. Casey.'

"'And a cheerful man was Casey,' said Pat.

"'A cheerful man was Casey, the cheerfulest I ever knew,' echoed Mike.

"'Casey was a generous man, too,' said Pat.

"'Generous, you say? Well, I don't know so much about that. Did Casey ever buy you anything?'

"'Well, nearly,' replied Mike, scratching his head. 'One day he came into Flaherty's bar-room, where me and my friends were drinking, and he said to us: "Well, men, what are we going to have—rain or snow?"'—Washington Post.

MORE POLITICS.

It doesn't take some young sons long to get into the game. Senator Kern, of Indiana, has a young hopeful, Billy. He is seven years old.

"Well, Billy, what was doing at church today?" Mr. Bryan's former running mate asked.

"More politics," was the answer in a resigned tone.

"Politics in church?"

"Yep! Rev. Smith mentioned your name."—Judge.

COST OF FATTED CALVES.



"I want to tell you, sir, that this panic don't affect the farmers."

"Don't, eh? Well, you jest oughter see the prodigal sons thet's been thrown back on us."—Judge.

CONCRETE FAILURES

Oct. 11, 1911 The re-enforced concrete viaduct over the C. A. & C. R. railroad at Akron, O., collapsed, loss \$250,000

Nov. 2, 1911 The new high school at West Chester, Pa., collapsed, loss \$30,000, two killed and thirty injured

Nov. 5, 1911 Concrete Bridge over the American River at Auburn, Calif., collapsed, loss \$250,000, twenty killed and forty injured.

Nov. 2, 1911 Paris, France, Concrete building collapsed, twelve killed and seventy injured

Nov. 5, 1911 Memphis, Tenn., Collapse of the concrete building of the Memphis Cold Storage Building, loss \$200,000

April 6, 1911 Chicago, Illinois, Building of the University of Chicago constructed of re-enforced concrete, collapsed, loss \$225,000

March 2, 1911 Rockport, Ind., the new \$100,000 concrete bridge condemned as unsafe, being in use only three months

March 5, 1911 New York City, Four men killed and forty injured in the collapse of a concrete apartment house.

Aug. 11, 1911 Messina, N. Y., five killed and thirty-one injured in the concrete building of the St. Lawrence Boiler Company which collapsed, loss \$75,000

Aug. 15, 1911 Montreal, Can., collapse of a section of a concrete wall erected by the C. P. R. railroad, result, three killed and seven injured.

July 20, 1911 Philadelphia, Pa., serious disintegration and cracks discovered in the crete building of the Spring Garden Library.

April 19, 1911 New York City, child killed by the collapse of a concrete wall.

Sept. 4, 1911 Austin, Pa., the great dam of the Bayless Paper Company built of re-enforced concrete collapsed, result seventy-four lives sacrificed, the town of Austin ruined with a loss of over \$1,000,000

April 20, 1911 Bogusla, La., concrete mill of the Great Southern Lumber Co., collapsed and destroyed by fire

April 9, 1910 Athol, Mass., two men killed and several injured when the great chimney built of re-enforced concrete at the American Woolen Company's factory collapsed

April 11, 1910 Bloomington, Ind., four men seriously injured when the new Science Hall built of concrete blocks collapsed, loss \$200,000

April 28, 1910 Saybrook, Conn., nine men injured when the car barn built of re-enforced concrete collapsed.

July 10, 1910 Chicago, Ill., the so-called fire proof re-enforced concrete buildings at the Union Stock Yards entirely destroyed by fire, result eleven killed and money loss of over \$2,000,000

Dec. 20, 1910 Carol, O., section of the new concrete school building collapsed, two workmen seriously hurt



WRECK OF THE PRESTOLITE BUILDING,
INDIANAPOLIS, IND., DEC. 6, 1911. 7 KILLED, 42 INJURED.
This Photograph Taken Twenty Minutes After Collapse of Building.

This list of failures is incomplete, and does not include the large number of cement sewer pipe and drain failures, nor the large amount of minor collapses not considered sufficiently important to deserve mention. Of course the concrete enthusiast will declare that any article on this subject coming from a clay worker will simply say it is a knock against a competitive material. We do not wish it understood that we disparage the value of cement as a useful and valuable material. On the other hand much of our modern progress has been due to the adoption of cement for certain uses for which it is particularly suitable.

We do protest, however, against the exploitation of cement for uses for which it is unsafe and unsuitable and when it is liable to become a menace to life and property.

With such failures as these why use re-enforced concrete or cement blocks?

Jan. 26, 1909 Elkhart, Ind., new concrete bridge collapsed

March 10, 1909 Louisville, Ky., the great Coliseum Building built of cement blocks totally destroyed by fire, showing inadequacy of cement as a fire resister, loss \$350,000

Dec. 11, 1909 San Francisco, Calif., re-enforced concrete building collapsed, two killed and several injured

April 1, 1909 Houston, Texas, Engineers discovered large cracks in concrete foundation in the new Federal Building, work stopped for further investigation.

March 9, 1909 New York City, seven story re-enforced concrete building near Lexington Hotel collapses.

Dec. 16, 1909 Williamsport, Md., Four killed and a score injured in the collapse of a concrete bridge

May 10, 1909 Perio, Ill. The \$250,000 concrete bridge collapses, in use only three weeks.

June 5, 1909 Found Du Lac, Wis., Complete failure of expensive concrete sewer.

July 21, 1909 Channute, Kans. Concrete bridge collapses.

Aug. 14, 1909 El Paso, Texas, several killed when a wall built of re-enforced concrete collapses

Aug. 18, 1909 Belleville, N. J., large concrete building collapses

Aug. 18, 1909 Stephen Point, Wis., large building built of concrete blocks collapses

Aug. 16, 1909 Winnipeg, Manitoba, one killed and several injured in the collapse of a \$50,000 re-enforced concrete apartment building

Oct 5, 1909 Eau Claire, Wis., new concrete bridge disintegrating and condemned

Aug. 1, 1909 Dayton, O., expensive concrete bridge declared unsafe and closed to travel

July 23, 1909 Chicago, Ill., one man killed and five seriously injured by the collapse of a concrete building of the Cook County Infirmary

July 18, 1909 Sandusky, O., concrete work to the amount of \$125,000 in the new Filtration Plant declared unsafe

Nov. 20, 1909 Pontiac, Mich., three men killed in collapse of a re-enforced concrete chimney

Oct. 12, 1909 Jackson, Mich., several injured in the collapse of a concrete wall

Oct. 14, 1909 Kingston, Ont., complete failure of the large tank built of re-enforced concrete

Jan. 1, 1911 E. J. Ford, chief engineer of sewers of the borough of Brooklyn, N. Y., reports that cement sewer pipe in that city was a complete failure, and would have to be replaced by vitrified clay pipe

None of the following buildings have collapsed. Why? They were built of Corry Brick made famous by

Meadville Hospital
Y. M. C. A. Building
American Sterilizing Bldg.
Kany College
Nurses Home
Squires Bldg.
Chautauqua High School
Titusville High School
Warren Armory
Elk's Home
Odd Fellows Hall
Franklin Armory
School House
Warren Trust Co., Bldg.
Polish Church
Waclark Explosive Co.
Library Theatre Bldg.
Methodist Church
Payne Blocks
U. B. Church
Dalstrom Metallic Door Co.

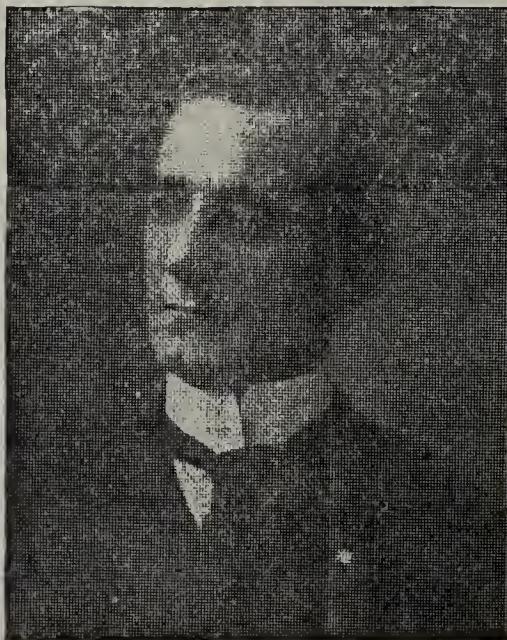
— Factory
C. R. Rogers & Co., Bldg.
Kurtz Brass Bed Bldg.
Raymond Mfg. Co., Bldg.
Presbyterian Church
Star Garage
Buffalo Waterworks Bldg.
Humes & Gamble Bldg.
Fiske Bldg.
Hygienic Milk Co., Bldg.
Gamble, Seab & Bryan Building
Gladle Oil Works Bldg.
Jamestown Wheel Mfg.
Ind. Refining Co., Bldg.
Kinza Valley Chem. Co's Bldg.
Merrill-Soule & Co. Factory
McKelvey's Cold Storage
R. B. McDaniel Bldg.
Meadville Malleable Iron Works
Building
Oil Well Supply Co. Bldg.
Penn Lumber Co., Bldg.
Stoner Bldg.
Queen City Tanning Co's Bldg.
Puritan Club House
Hudson Supply Co. Bldg.
Kennedy Building
Building for the State Hospital
for Insane
Boland Building
Bracken Bros. Office Bldg.

Meadville, Pa.
Erie, Pa.
Erie, Pa.
Erie, Pa.
Jamestown, N. Y.
Jamestown, N. Y.
Chautauqua, N. Y.
Titusville, Pa.
Warren, Pa.
Corry, Pa.
Saegertown, Pa.
Franklin, Pa.
Lottsville, Pa.
Warren, Pa.
Erie, Pa.
Corry, Pa.
Warren, Pa.
Youngsville, Pa.
Corry, Pa.
Youngsville, Pa.

Jamestown, N. Y.
Corry, Pa.
Corry, Pa.
Corry, Pa.
Corry, Pa.
Corry, Pa.
Buffalo, N. Y.
Meadville, Pa.
Boston, Mass.
Patterson, N. J.
E. Liverpool, Ohio
Struthers, Pa.
Jamestown, N. Y.
Oil City, Pa.
Morrison, Pa.
Syracuse, N. Y.
Sp. Creek, Pa.
New Briton, Pa.

Meadville, Pa.
Oil City, Pa.
Sheffield, Pa.
Jamestown, N. Y.
Titusville, Pa.
N. Y. City.
Baltimore, Md.
Pittsburg, Pa.

N. Warren, Pa.
Cambridge Springs Pa.
Corry, Pa.



D. Warren DeRosay, General Manager,
Corry Brick and Tile Co.

Corry Metal Furniture Co. Bldg.
Central Penna Lumber Co.
Cutter Lumber Co. Bldg.
Carter Black & Ayers Bldg.
Eastern Terra Cotta Co.
Eschelman Building
Harper Lumber Co.
E. D. Wetmore Bldg.
West Lumber Co. Bldg.
Warren Const. Co. Bldg.
C. T. Willard Bldg.
Youngsville Mfg. Co.
Sam'l Austin Bldg.
Corrin & Well Bldg.
Reed Mfg. Co.
Standard Chair Co.
Methodist Church
L. D. Bockwell Bldg.
Warren Electric Light Co.
Lake Shore Construction Co.

Corry, Pa.
Sheffield Pa.
Meadville, Pa.
New York City
Boston, Mass.
Franklin, Pa.
Meadville, Pa.
N. Warren, Pa.
Warren, Pa.
Warren, Pa.
N. Y. City
Youngsville, Pa.
Cleveland, O.
Franklin, Pa.
Erie, Pa.
Union City, Pa.
Union City, Pa.
Union City, Pa.
Warren, Pa.
Dunkirk, N. Y.

RESIDENCES:

Hon. C. W. Bates
H. B. Edwards
Hon. C. L. Alexander
Isador Sobel
G. W. Morris
Walter Merrick
Geo. Clarkson
P. H. Crowe
Hon. Arthur L. Bates
Fred R. Jennings
Geo. Sullinger
Clarence Rogers

Jamestown, N. Y.
Titusville, Pa.
Corry, Pa.
Erie, Pa.
Corry, Pa.
Corry, Pa.
Pittsburg, Pa.
Meadville, Pa.
Meadville, Pa.
Titusville, Pa.
Titusville, Pa.
Corry, Pa.
Corry, Pa.

During the last three years I have furnished brick for over one hundred residences in the City of Erie.

The Corry Brick & Tile Company's Paving Blocks have been laid in the following cities:

Ruffalo, N. Y.
Rochester, N. Y.
Baltimore, Md.
Erie, Pa.
Syracuse, N. Y.
Warren, Pa.
Dunkirk, N. Y.
Union City, Pa.
Fredonia, N. Y.
Philadelphia, Pa.
Orchard Park, N. Y.
Ebenzer, N. Y.
Glenwood, N. Y.
Corry, Pa.

ADVERTISING BUILDING BRICK.

ONE OF THE most hopeful signs of the times is the growing tendency on the part of brick manufacturers to advertise effectively in their local papers. The need of such publicity as voiced in the columns of the Clay-Worker, by the Building Brick Association and other boosting organizations, is more and more appreciated. Better advertising is being done, too, than ever before. As an ocular demonstration of the latter fact, we reproduce a full page ad of the Corry Brick & Tile Co., which recently appeared in the Corry (Pa.) Evening Journal. General Manager Warren deRosay is progressive; he has been a regular attendant at the N. B. M. A. conventions for years past. May his tribe increase, and may his business and profits do likewise—they certainly will if he keeps up his publicity work.

THE ANNEX, THE "ANNEXERS," AND THEIR HEAD-QUARTERS CONVENTION WEEK.

INASMUCH as there will be no exhibition room at the Congress Hotel and Annex, where the N. B. M. A. sessions will be held convention week, the machinery manufacturers, supply dealers, kiln and dryer firms, will show models of their apparatus and such other displays as they may deem attractive in their individual rooms or headquarters. The convention hall at the Annex is on the parlor floor and the rooms adjacent to same have been reserved by those who wish to welcome and entertain their friends and customers during the convention.

A bulletin in the main lobby of the Annex will give the name and room number of each of the "Annexers," as was done at the Fort Pitt at Pittsburg. The secretary of the N. B. M. A. will occupy Suite 1102 on the parlor floor, and delegates and those accompanying them are requested to call there, register and receive badges, number buttons, program of local entertainments, etc. Mr. J. Parker B. Fiske, secretary of the B. B. A., will occupy an adjoining parlor. The sessions of the National Paving Brick Manufacturers' Association will be held in the Annex Green Room on the mezzanine floor, and Secretary Blair's rooms will be near by. The local committee on entertainment will have headquarters on the same floor, as will also Harry J. Flood, of the Chisholm, Boyd & White Co., Chicago, who says it is a long ride out to their plant, and so he will habitat (whatever that is) at the Annex during the week. The following is a partial list of those who have been assigned definite locations:

- The American Clay Machinery Co., south parlor.
- The Bonnot Company, Canton, Ohio, room 1170 and 1172.
- John C. Boss, Elkhart, Ind., room 1148.
- Chambers Bros. Co., Philadelphia, room 1162.
- The J. D. Fate Company, Plymouth, Ohio, rooms 1118, 1120 and 1122.
- E. M. Freese & Co., Galion, Ohio, rooms 1156 and 1158.
- The C. W. Raymond Company, parlor B2 and parlor B4.
- Manufacturers Equipment Company, room 1122.

FACTS ABOUT THE CLAY PRODUCTS EXPOSITION.

MAYORS in all cities in the United States are invited to visit Chicago in March as delegates to a municipal congress, at which the principal topics of discussion will be the "Practical City Beautiful."

Municipal engineers and building commissioners are urgently requested to attend the congress and elaborate preparations are being made to give them practical demonstrations of ideal municipal construction that will help them in their work.

The congress is to be held at the Chicago Coliseum Annex in connection with the Clay Products and Permanent Home Exposition, March 7 to 12. The Clayworkers have pledged

their support to the project and have promised to prepare the exhibits which are required.

Here are some of the things that will be constructed for the instruction of the delegates:

A full-width street, showing sewer lines, conduit, brick paving, clay curb, special street railway block and all of the other features of an ideal thoroughfare.

Sewer pipe of all sizes, including some that is large enough for a man of average height to walk upright through.

Paving block of all descriptions, including vitrified brick, the new Dunn clay block, and other new products in street surface that have been thoroughly tried and proven.

Conduit for electric wiring, telephone systems, power lines, pneumatic tubes, best type of fireproof construction for school houses, fire departments and other municipal buildings to prevent fire horrors and stop the enormous fire loss.

Mayors, engineers and commissioners of cities noted for the success of their municipal improvements will address the delegates.

The value of the annual output of American pottery is more than \$25,000. The greatest exhibit of pottery ever made will be a feature of the clayworkers' exposition to be held at the Chicago Coliseum, March 7 to 12.

Big feet are a valuable asset in certain branches of the clayworking industry, according to a statement made by the management of the Clay Products and Permanent Home Exposition to be held at the Chicago Coliseum March 7 to 12. No method of working clay for refractories has been found that is an improvement over trampling it. Workers with large feet are paid accordingly.

AN IDEAL BRICK BUNGALOW.

Marion Griffin, Chicago's only woman architect and a firm believer in equal suffrage, is working on a plan which she hopes will be a step toward solving the problem which Thomas Mawson, a noted English architect, pointed out as confronting the people of that city. Mrs. Griffin is designing what she believes will prove the ideal low-cost home.

She is working on the plans of a five-room brick bungalow in which is to be combined the merits of beauty, practicability and modern cost. The plan is to be entered in the competition started by the management of the Clay Products and Permanent Home Exposition, to be held at the Chicago Coliseum, March 7 to 12.

"The idea of the architects throughout the country giving their combined efforts towards a solution of the low cost home problem appealed to me strongly," said Mrs. Griffin. "I agree with Mr. Mawson when he says that the modern American in a city is a cave-dweller. Flats are hideous and are anything but 'homey.'

"From among the hundreds of plans that will be made in this competition it is certain that there will be enough satisfactory ones to give variety to the home-builders and it should result in ultimate improvement in the appearance and comfort of residences in the suburbs."

Mrs. Griffin is a graduate of "Boston Tech" and was the second American woman to take up architecture as her pursuit in life. Miss Hayden, who won the prize at the Chicago World's Fair, was the only woman architect in the country when Mrs. Griffin got her degree.

"Architecture is essentially a woman's work," she declared. "The domestic quality of architecture indicates that. And you would be surprised to see how readily contractors are willing to accept the word of a woman architect when they find out that she knows her work."

Not only does Mrs. Griffin design houses but she also extends her field to the designs for things which are put in them.

Many beautiful Chicago homes are fitted with rugs, tapestries, embroidered linen and interior decorations which were originated by her.

Written for THE CLAY-WORKER.

GEORGIA BRICKMAKERS BUSY.

A HANDSOME EXHIBIT, illustrating the decorative and architectural effects to be secured in both interior and exterior work, has been recently arranged by the Sibley-Menge Brick and Coal Company, of Birmingham, Ala., in the downtown offices of the Atlanta representatives of that company, Sciple & Sons.

Sciple & Sons, one of the oldest and best-known building supply houses in Georgia, has represented the Sibley-Menge line of both pressed, face and building brick for a number of years, and handles a constantly increasing trade.

This exhibit shows the various brick made under the Sibley-Menge brand, red, white, buff, gray, manganese and "flash" face brick, in a number of artistic effects, and is calculated to increase the popularity in the use of brick, particularly for interior decoration and mantel work.

The past year witnessed the breaking of all records at the brick plant of George O. Berry, of Columbus, Ga., in both the sales and production department. Mr. Berry, who has been long and successfully engaged in the manufacture of brick in Columbus, is one of the veteran clay men of the south, and the product of his plant has entered into the construction of many notable buildings in Georgia and Alabama and adjoining states. The common brick turned out at the Berry plant is well-known for its high-grade, and the Berry select red brick is very popular for face work.

Turner E. Berry, a son of George O. Berry, and a prominent young man of Columbus, has been recently appointed sales manager for the company.

The lumber business, including plant, of S. A. Burks, at Fayetteville, Ga., has been bought by the Redwine Building Material Company, of which two brothers, Chas. and Edward Redwine, are equal owners. The new company will make a specialty of brick, both common and face, and will handle lime, sand, cement and roofing, as well as brick and lumber.

Oriental brick, supplied by the Southern Material Supply Company, of which T. E. Artope is manager, at Macon, Ga., will be used to face the new six-story brick building to be erected by Leon S. Dure, an active builder of Macon. The building will be large, capacity for six stores on the ground floor being given, while the upper stories will be used as apartments. Common brick supplied by Macon plants, under the supervision of Harry E. Lindley, manager of the Macon office of Hentz & Reid, architects, of Atlanta, Ga., who designed the building.

The face brick for the handsome new Elks club house, Atlanta, Ga., of which J. Reginald McEachron is architect, is the fine impervious "wet mud process" Oriental face brick made by L. L. Stephenson, president of the Brick Selling Company, at his recently remodeled plant at Lovick, Ala. The brick were supplied through B. Mifflin Hood, sales agent for Georgia and the Carolinas of the Stephenson face brick.

Since B. Mifflin Hood, the original shale brick dealer of the south, with main offices in the Candler building, Atlanta, Ga., opened a branch office in Memphis, Tenn., a number of interesting contracts have been landed for shale brick, both common and face, all of which were made in the Piedmont region of Georgia and Alabama. The Hood office in Memphis is in charge of Jos. T. McKinney, and is located on the ninth floor of the Exchange building.

Among the contracts secured through this new office on which Stephenson's impervious shale face brick were used were a handsome residence which is being built by the Olson-Lesh Construction Company, for a member of the firm; another handsome residence for Wassel Randolph, the Taylor

Paper Company's new building, the Pidgeon-Thomas Iron Company's new building, and the Halle-Loeb building, the latter one of the finest in the city of Memphis.

Stephenson brick were also sold by Mr. Hood for the main buildings of the West Tennessee Normal College, adjacent to Memphis, which is now in course of construction, and the contract included the face brick for the president's residence.

M. C. Barlow, the contractor in charge of the heaviest portions of the street improvements now being made by Columbus, Ga., has practically completed the greater portion of his work. His forces are now engaged on Second avenue, which is being paved for a mile through the business center. Vitrified brick is being used in all of the work.

General offices have been opened in Augusta, Ga., by the Rockmart Brick and Slate Company, which was recently incorporated for \$200,000. The company is already engaged in the manufacture of face and vitrified paving brick and is undertaking developments on its slate properties which are very promising in both extent and quality. The Rockmart Brick Company plant, which has been operated by B. Mifflin Hood under a receiver's lease for several years, which was bought by this company, has been remodeled and completely rebuilt and is now operating with a capacity of 1,000,000 brick monthly.

The fire which recently destroyed the machinery building of the Shepherd Brothers Brick Company, of Columbus, Ga., did not cause cessation of operations, although a loss of \$12,000 to \$15,000 was sustained. The building is being replaced as rapidly as possible and even more modern equipment is already on the ground ready for installation as soon as the construction of the building will permit.

Walter D. Merry, who is well known to the clayworking industry of the Carolinas, has purchased the interests of John H. McKenzie, now of the Rockmart Brick and Slate Company, and those of John Brown, in the Electric City Brick Company, Augusta, Ga. Mr. Merry is operating the plant full capacity, but intends to suspend shortly to make improvements, both in operation facilities and in storage arrangements for raw and finished materials. The consideration was \$85,000, so it is understood. The plant, which was completed only about sixteen months ago, now has an annual capacity of 10,000,000 brick, and Mr. Merry, who has been recently engaged in the brick business with another company in Augusta, is planning to increase it.

Raymond LePage, of Clearmont, Province of Farran, France, was recently a visitor to the brick trade of Atlanta, enroute from New Orleans to New York City. Mr. LePage is planning to establish a southern sales agency for a fine line of tile manufactured by him in his French home. LePage tile is sold throughout the large centers in Europe and both North and South America, and Mr. LePage announced it was his intention to create a larger market for his product in the regions which will be developed by the completion of the Panama canal.

Rainwater Brothers, Waycross, Ga., are constructing a new plant for the manufacture of tile for mantels and fancy interior work; their plans are to deal in brick, also. Both members of the firm are experienced men.

The Hall Brick Company, of Macon, Ga., which was recently organized by Jesse H. Hall, who is also owner of the Ragland Brick Company, Ragland, Ala., formerly known as the Willipacoba Clay Products Company, has practically completed its plant for the manufacture of common brick and will begin making deliveries by February 25. The Hall Brick Company is capitalized at \$40,000, fully paid in, and Messrs. J. E. Hall and A. B. Domingoes are associated with Jesse H. Hall.

Plans for the operation of the Shaw Kiln Company, which was recently organized in Atlanta, Ga., with authorized capital stock of \$500,000, are practically perfected, it is stated

by T. B. Felder, president of the company, and the construction of brick and tile kilns along new lines will be undertaken at an early date.

A handsome silver service was presented by the board of directors of the Georgia state fair, Macon, Ga., to W. E. Dunwody, the retiring president of the association, as an evidence of their token and esteem and significant of the efficient management which Mr. Dunwody had displayed as chief executive of one of the few successful state fairs of the south. Mr. Dunwody is president of the Standard Brick Company, of Macon, Ga., considered by many to be the largest in the entire south, and is also interested in many other Georgia enterprises. He has served for two terms as president of the Georgia state fair, and after receiving the silver service bestowed upon his retirement from that office, was astonished to learn, shortly afterward, that he had been re-elected for a third term.

The Standard Brick Company, of which Mr. Dunwody is president, has recently further increased its capacity. In a letter to a representative of THE CLAY-WORKER Mr. Dunwody says: "We had, already, one unit for the manufacture of common brick and one for the manufacture of face brick. The last unit added is for the manufacture of a high-grade fire brick, which has been under course of construction for some time, but which has just been completed. We are now prepared to sell fire brick in any quantity at prices which will be interesting and which will be in keeping with the quality of the brick. The fire brick we are now turning out will stand greater heat exposure than any brick of which we know made in the south, and as much as any we have ever seen."

A. CRACKER.

THE JUG AND THE BOTTLE.

Building brick is not by any means the only clay product that has to meet would-be rivals from time to time and fight a battle for its trade. The jug men have it and have a harder fight in some respects than the brick men.

The bottle has been making inroads into the jug trade for a good many years and of late years is making a strong bid for the bulk of it. As long as the bottle was small it received but little attention. Of late years, however, the glass people have developed larger bottles, bottles of pretty much the same size and shape as jugs, and they have been pushing these industriously into the jug market.

Generally the bottle appeals, too. It is cleaner looking; has the advantage that one can see just what is in it and how much. On the other hand it has the disadvantage of costing a little more than the jug.

Some of the purchasers are willing to give a little bit more, but not much, and this has resulted in the glass people making such a strenuous fight for trade that they have often cut their prices to the point where they have made no profit out of it and in a way this kind of discouragement will bring its own reaction.

Meantime it is being discovered that the transparent qualities of the bottle, while they are admirable in some respects, are objectionable in others. There are some products that the light injures and then there are certain cooling qualities about the jug that give it a sort of traditional prestige. Open jars of pottery were used for cooling water in the old Biblical days and have been in use more or less in some parts of the world ever since. Moreover, there is a certain virtue in the darkness of the jug for sealing up various products, and anyway it is still making a strong fight to hold its ground.

The bottle will take part of the field. Of that there is no question. It is perhaps well that it does, because it would be impossible to supply jugs for everything. But right at the present time the rivalry is pretty lively and many a jug man is kept guessing about whether he is going to be able to hold certain of his old stand-by trade or whether he will have to drop part of his jug equipment and take up the manufacture of something else.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.

SINCE before Christmas the weather all through the east has been so severe that all building operations have ceased. Not for years has there been such a winter. For fifty days in the vicinity of New York the snow has scarcely thawed, even during the brightest days. In the brickmaking sections along the Hudson the river is frozen so that automobiles cross on the ice as far south as Piermont. No such winter has been known in the past two decades.

A number of large operations in and about New York are held up by the extreme weather. All shipping of brick has ceased and builders are waiting more moderate temperature. Such weather injures all kinds of business and entails much suffering upon everyone who is compelled to be out doors all or part of the time.

It is said that at least 500,000 people are out of employment in New York, a part of which is due to the extreme weather. If it were moderate all those engaged in the building trades would be put to work immediately.

On the Hackensack.

The river is frozen solid from shore to shore. All the schooners and other water transportation appurtenances are fast in the ice. The yards are mantled with snow and covered with ice. All business is at a standstill waiting for the return of spring and more favorable climatic conditions.

Manufacturers have concluded their business for the year and seem to be well satisfied with the returns. Prices were well maintained and practically all available supplies have been distributed. There are a few left in some yards which must remain until the ice goes out of the river. The yards along the Hackensack are handicapped by the lack of rail transportation. It is necessary to put the stock on boats to get them to the railroad. When the river is filled with ice it is impossible to get the brick across to the cars on the other side.

When asked about plans for the future, a manufacturer said the mercury would have to ascend a number of degrees before much would be said. "Brickmakers, like others, are cautious and dislike to consider what they will do later when conditions do not favor immediate action," was his reply to a question regarding intentions.

A New City of Brick.

This month marks the tenth anniversary of the great fire at Paterson, N. J., which destroyed the entire business portion and ate its way far into the residence section. It was, at that time, a city of wood buildings, with here and there one of stone and a few of brick. The brick structures withstood the flames and came through uninjured, excepting the discoloration.

The city learned its lesson. When reconstruction began, brick was the material which commended itself to the builders. The new city which rose from the ashes of the old has been built almost exclusively of brick. The burned district is now filled almost wholly with brick buildings of modern design. Indeed, the new Paterson profited so well by its unpleasant and costly experience that it is a model for cities of similar size to follow.

The business section has a large number of very handsome brick structures, and wherever an old building is replaced with a modern structure, brick is almost always used. Much of the new construction has been of white brick, resulting in a remarkably light and cheerful city. The fire was costly, yet notwithstanding that, and a flood which followed, Paterson alone, among the cities of the country, has reduced its bonded indebtedness and tax rate and has increased its improvements at the same time. The new construction is altogether commendable and marks the city's progress in building operations.

Written for THE CLAY-WORKER.

AMONG PHILADELPHIA BRICKMAKERS.



ONE OF THE BEST arrangements for the display of face bricks in Philadelphia is that in the show rooms of S. B. Dobbs, Bailey building. The four sides of the rooms are lined with different varieties of face brick arranged in various mortars and in a variety of stretchers. The prospective buyer or builder is thus enabled to inspect the exact arrangement of the bricks and is better able to compare the different varieties. Altogether there are about forty cases of vari-colored bricks on exhibit, and in the well-lighted hall make a very pleasing display.

The American Brick Manufacturing Company, with plants in Staunton, Del., is perfecting plans for a re-organization. The idea is to secure more capital for the enlargement of the plant in order to take care of the increased business that has been adding to their output each month. At the present time the officers of the corporation are W. C. Brister, president; Frank Mark, treasurer; Eugene R. Hutton, secretary, and E. G. Schaeffer, general manager. New equipment will be added to factory and additional offices opened when the re-organization is completed.

J. Howard Chambers, president of the Chambers Brothers Company, Fifty-second street and Media avenue, is making preparations to attend the N. B. M. A. convention and the Clay Products Show at Chicago, March 7 to 11. The Chambers Brothers had intended to have an exhibit at the show, but found out that they were barred by the rules of the association.

J. F. Brady is the new selling agent of the Independent Brick Selling Company, 1001 Crozer building. The plants of this company are situated at Trenton, Bordentown and White Hill, N. Y. New side-cut machinery has recently been installed at all three of these factories, and will serve to increase the annual capacity to sixty million bricks. Mr. Brady states that his company has been awarded the contract for furnishing the bricks for a large real estate operation at Pine Beach, N. J. This work will consist of about twenty bungalows and three large hotels. The contract came from the Kensington Construction Company, which is doing the building. Some other contract work that the Independent Brick Selling Company has landed is that of E. W. Weeks for an operation at Angora, calling for 1,500,000 hard and salmon brick; a contract for twelve \$15,000 houses at Fifty-eighth street and Lansdowne avenue; a contract for a John M. Hendricks operation at Sixty-first and Jefferson streets, calling for 4,000,000 bricks, and a contract for hard bricks for an apartment house at Atlantic City being built by Wilbur-Beaumont.

A new company for the manufacturing of shale brick is about to be incorporated. John Myers, of Chicago, will probably be at the head of the new company, which will be capitalized at \$1,000,000. Several western capitalists are backing the plan, and it is their intention to erect the plant about half way between New York and Philadelphia. New Hope will probably be the site selected. The name of the new company has not been decided upon as yet.

The Conklin-Armstrong Company, Wissahickon and Hunting Park avenues, will have several representatives at the Chicago show in March. Several of the officers will attend, and probably one or two salesmen of the western territory.

All the brickmakers in West Philadelphia have been invited to join in a monster banquet to be given by the united business men's associations of that section of the city.

Edmund Webster, of Webster & Keyser, one of the oldest brick manufacturers in the city, has been elected a member of the board of directors of the Southwestern National Bank.

A local yard is seriously considering auto-truck delivery.

Gimbel Brothers claim to have cut their delivery cost in half by the use of the motor vehicles.

D. Charles Murtha, Sixteenth street, corner of Butler, has been elected a director of the Northwestern National Bank. Mr. Murtha has been in the brick business all his life.

Mr. Edward Stokes has taken new offices in the Harrison building, and removed from his former location in the Land-Title building. The move was necessitated by the increasing business and the demand for larger space. Mr. Stokes was awarded the contract for furnishing sewer pipes for the recent operation in Bristol. The contract came through Costello & Co., and amounts to \$35,000. As Mr. Stokes has been in the business for only a short time, so large an order speaks well for his ability and perseverance. Mr. Stokes' new address is 1208 Harrison building.

Mr. Charles T. Myers, who was manager of the Philadelphia offices of the Atlantic Terra Cotta Company, has been transferred to New York, and only visits the local branch at intervals.

Hamburg Vitrified Brick Company reports a good business in spite of the dull season and the bad weather. Mr. Joseph Mack is manager of both the Hamburg Company and the Mack Manufacturing Company, Land-Title building.

The Patton Paving Brick Company, of Patton, Pa., is furnishing, through J. J. Fitzgerald & Co., 14 South Broad street, local agents, three million paving bricks to be used in Washington, D. C.

Mr. J. Parry Lukens, of the American Sewer Pipe Company, Mint Arcade building, has been traveling through the coal regions of Pennsylvania looking after some contract work for his firm.

A. QUAKER.

Written for THE CLAY-WORKER.

NEW YORK MARKET.

GENERALLY, manufacturers are not anxious to say much about the quantity of brick on hand. They are fearful that information of this character will have a tendency to reduce prices through inculcating the belief that the supply is more liberal, proportionately, than the demand is likely to be. There are differences of opinion on this point, but often it is impossible to secure such information. A gentleman conversant with the facts has given out these figures for 1911 which will interest manufacturers, since they show the condition of the industry in the east very graphically.

First of all, it can be said emphatically that 1911 was a good year. It was not the banner year, but it was good enough so manufacturers do not feel that they can complain much regarding it. Certain trade conditions were so radically changed that it will lead to much better things in the future. So, taking it all in all, it may be said to have been a turning point in the industry in the east.

This gentleman, in speaking of front brick, said that the total consumption in the Metropolitan district during the year was 96,660,000, which was an increase of 660,000 over the consumption of 1910. Manufacturers expect a consumption approximating 100,000,000 this year, or an increase which will mean much to many manufacturers.

The consumption of enameled brick in the same district is practically 4,000,000 each year and increasing. This does not include the porcelain or semi-enameled brick, which is fully fifty per cent more than it was a few years ago. In fact, the increase in this variety has been marked during the past two years.

The use of front brick increases rapidly each year and one maker of a specialty has found it difficult to satisfy his demand. It may be pointed out that in his case much of this popularity is due to the fact that he has advertised his product extensively, which has made it familiar, by name at

least, wherever brick is used for structural purposes. The lesson in this instance is obvious and promises to be heeded by other manufacturers in the future.

Sales of common brick are at a low ebb. Movement is restricted by cold weather, the coldest for many years. Navigation is shut tight. Building operations can not be continued, since men can not work when the temperature is so extremely low. Therefore, sales have declined to about the lowest point in some years.

Prices are firm, however, and the organization is controlling the situation much more satisfactorily than it would be under different conditions. Indeed, the question of demand scarcely enters into the price conditions at all. It is, according to observations made during the week past, so well in hand that no one is offering brick below what may be termed the standard price. It is sufficient, perhaps, to say that the outlook is promising and manufacturers and others are looking forward with more than the usual hopeful anticipations to the breaking up of winter and the resumption of operations. Builders are beginning to make inquiries, though none have made any offers or other propositions. Still, the fact that investigations have begun is taken as indication of improved interest and the probability that sales will largely increase as soon as the climatic conditions warrant.

BURTON.

CALL FOR A MEETING OF FACE BRICK MANUFACTURERS.

To All Face Brick Manufacturers:

At the last meeting of the Ohio Face Brick Manufacturers' Association, held at Columbus, February 7, 1912, a resolution was unanimously adopted to issue a call to face brick manufacturers of the United States for a meeting to be held in Chicago during the brickmakers' convention in March next; the purpose being to form a national organization to be composed exclusively of manufacturers of face brick.

The good that has been accomplished by the Ohio Face Brick Manufacturers' Association for both its own members and the manufacturers of face brick throughout the country, is too well known to require detailed repetition.

The Ohio association, as you know, recently won its suit against the express companies, thereby securing practically a 50 per cent reduction, which applies throughout the country. In addition, it secured a reduction in east-bound freight rates from Ohio territory.

The first item saves the brick manufacturers generally over \$50,000 per year, while the second item saves the Ohio manufacturers over \$10,000 per year. These results could not have been obtained without concerted and organized effort.

There still remains much to be accomplished. Among the things to be considered is an effort to secure more advantageous traffic arrangements, reasonable and equitable freight rates, re-establishment of the former minimum car-load weight of 40,000 pounds, a better supply of suitable cars in which to load brick, and, perhaps, the promotion of selling arrangements that would minimize price cutting and misrepresentation, to the end that the face brick manufacturer may come into his own and secure a reasonable return upon his investment.

It is a well-known fact that the prices of face brick were never so low, the cost of production never so high, as at present and that the average face brick manufacturer is not protected from the railroads and otherwise as he should be.

We hope that you will attend this meeting and help us to effect an organization that will result in placing the face brick business on a firm and more profitable basis, so that each manufacturer may secure a fair remuneration for the time and effort expended and the capital invested.

It is not the purpose of the Ohio Association to withdraw

any support from the N. B. M. A. or the B. B. A. Both these organizations accomplish much in their own special fields, both are worthy of support, but a considerable part of their membership is made up of men who are not directly interested in face brick manufacture, hence can not properly appreciate the problems that confront the marketing of face brick.

It is our desire that not a single member of this new association shall be other than an officer or stockholder in a company manufacturing face brick. With such a membership we expect to accomplish so much that no manufacturer of face brick can afford not to join. The expense will be comparatively small, taking into consideration the results which we expect to obtain.

The meeting is called for Thursday, March 8, 1912, 2:00 o'clock p. m., at the Auditorium Hotel (not the Annex), Chicago. Kindly let me know at once if you can be present at this conference, and if you can not come, write me your views on this matter. Please let me hear from you at once.

Yours very truly,

J. M. ADAMS,

PRESIDENT OHIO FACE BRICK M'FRS. ASS'N.

Columbus, Ohio, Feb. 15, 1912.

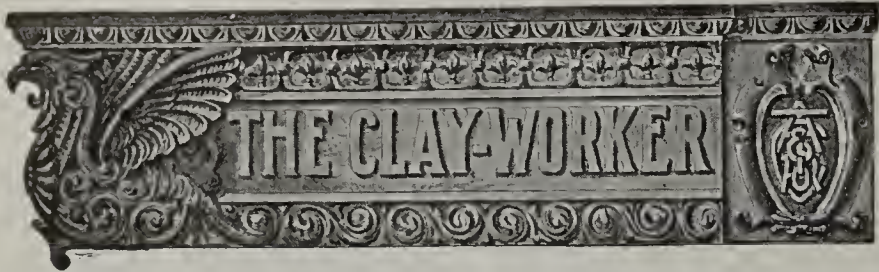
EASTERN BRICK MEN AND THE EXPOSITION.

APPARENTLY eastern clay manufacturers have come to realize more thoroughly than ever before the necessity of the right kind of publicity in building up their business. Commissioners have been selected and are at work arranging for a joint New York and New Jersey exhibit at the exposition in Chicago in March which will represent the eastern industry to better advantage than ever before. Indeed, it has been practically impossible to interest a considerable portion of the clay manufacturers in the New York district in previous expositions of this character. The fireproofing people and the tapestry brick manufacturers and some tile workers have heretofore constituted the bulk of the exhibitors at such shows. Very few brick men have thought it worth while to bring their products to the attention of the people attending such exhibitions heretofore. They have learned a lesson from the concerted action of the cement manufacturers, and this year do not propose to allow an opportunity of this kind to escape them.

The commission having the matter in charge is headed by Honorable John B. Rose, whose efforts in behalf of the New York brickmakers are too well known to require extended mention. J. P. B. Fiske, M. E. Gregory, R. C. Penfield and Charles A. Bloomfield make up the remainder of the commission. The reputation of these men guarantees a successful and representative exhibit from both the New York and New Jersey districts. These commissioners are endeavoring to present the methods and the benefits of this exposition to the entire eastern industry and hope that all interested in them will give them cordial support.

It seems unnecessary to urge upon manufacturers anywhere in the United States the benefits arising from affiliation with the National Association. Association work has progressed so rapidly during the past ten years and its benefits to all industries have been so marked, that it is difficult to believe any manufacturer of any product can still think his industry does not need concerted action. All alike, from the least to the greatest, need union with their fellows to insure the greatest benefit. Bearing these indisputable facts in mind it would seem as though all manufacturers in both the districts under consideration would rally to the support of the commission and see that an adequate and representative exhibit is prepared for Chicago.

As has been pointed out before, the coming show in Chicago promises to be the largest and most representative ever held. Those manufacturers from the eastern districts who take part in it will see returns for a long time to come. Such advertising has a long and profitable life.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-NINTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

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Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to 226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

LVII. FEBRUARY, 1912. No. 2

CURRENT COMMENT.

It looks like good picking for the souvenir gatherers at the Clay Show.

The building outlook presents a much better outlook than the political outlook.

It is a safe bet that one thing that will not be displayed at the cement shows is a record of the concrete failures.

There are lots of conventions these days, but the big annual at Chicago overshadows everything else in the mind of the clayworker.

It need not take a very large town to furnish a good delegation to the Clay Show if those in it will stir around and arouse enough interest to get up a party.

We have had some mighty good meetings of the N. B. M. A. in the past, but just think of the combination this year—Convention, Clay Show and Chicago! Can you beat it?

The N. B. M. A. sessions will be just as full of meaty educational features as ever, with more people there to hear and take part in them than ever before—unless all signs read wrong.

Sick abed is about the only excuse that will justify a brick manufacturer staying away from Chicago the first two weeks in March, and at that the call looks strong enough to make any ordinary man get well just for the chance of going.

The man that stays at home will get to read all about it in THE CLAY-WORKER next month, but that satisfaction will be tinged with vain regret over the good times missed, and

besides it is the fellows that go who will enjoy most the reading about it afterward.

One of the best places to get expert advice at nominal cost is in your trade paper.

Hollow block construction has led to lots of development in the philosophy of air space.

The convention and the show should bring out many new and valuable pointers on the value of publicity for the brick business and how to get it.

One way to boost the building brick business is to give encouraging help to the trade schools that make a feature of teaching youngsters how to lay brick.

There was some excuse for not answering letters in the days before stenographers, but there is not much excuse now—neither is there much gained by neglecting it.

One good way to make this a sort of jubilee year in the clayworking industry is to start the season off right by participating actively in the annual convention and the Clay Products Show at Chicago.

Buttonhole talks are a good side issue at any and every gathering, so don't get so busy seeing the sights that you will neglect the chances to renew acquaintances and talk shop. Many a big idea has grown out of a little talk.

The literature of the Exposition, in speaking of "walks of clay, walls of clay, lawn ornaments and window boxes of clay," somehow suggests the borrowing of that popular tune about walking with Billy and fitting it to a special clay products song for the great gathering. Which of the bards will take the hint and get busy?

GET UP A PARTY.

As was said in these columns last month, this Clay Show is a big thing, but much of its bigness in effect on the general public depends considerably on how enthusiastically it is boosted.

It is your show as much as any one's, and now let's not waste time arguing about whether you clayworkers are going. That's taken for granted, and the thing to talk about now is how much every man can help the cause along in his own community by turning booster and getting up a party to go along.

That's the thing—get up a party. The more the merrier, and the more you will be helping your own business by arousing a live interest in clay products. Cast about you, see how many are or ought to be especially interested. Then get busy; write to them, send their name to the show people for literature, go to see them and see how much of a party you can get up from your home town to all come together.

Begin with your side partner or better half. Next consult with the other clayworkers in your community, and then go to work systematically on others that should go.

Remember that the show will be interesting and worth while to any and every one, and of special interest and value to many.

Municipal clay products and sanitation will be the scope of an entire department of the Exposition, therefore you want not only the city fathers but also the city boosters and the "city beautiful" enthusiasts to go along. And you can tell them that never before has there been as great a chance to see so many things of interest in this line nor to get so many ideas that are worth while and up to date.

Architects, contractors and builders will find just as much

to interest them in their way, too, as the city raters and engineers. Impress on them the fact that we are entering into a new era in home building, an era in which brick and other clay products will be the dominating factors, and that here is the place and time to learn the most in the shortest time about the wide range of clay products and their use.

Get them interested, get them to go, and both they and you will be benefited in the future, as well as have a mighty good time of it by all going together. Tell them there will not only be a prize contest and a great exposition of house plans, but that among the displays they will be able to find many interesting combinations in brick which it will be worth while to study.

And don't stop here, but hunt up the fellows that are figuring on building this year or next and get them to go along. Any man going to build a new house will never regret the time and money spent going to this clay show first, because he has an interest that will make him see and appreciate many things at their full value.

So interest as many as you can. When you once get the ball to rolling you will find it will help gather volume itself. The fact that one man is going will set another to thinking about it, and once you get started at it right you will find this thing of getting up a party a pleasure instead of a bother. The thing to do and the slogan for the occasion now is, "get busy!"

THE HARVEST OF IDEAS.

The Clay Show should not only furnish a wealth of new ideas of a general nature, and give new life and fresh enthusiasm for the boosting of clay products, but every man attending should be able to harvest quite a number of new pointers of specific and direct benefit in his own work.

It will all be a lesson in graphic and effective display, for one thing, and no manufacturer or dealer can go and make a study of the different exhibits without getting some new and worth-while ideas for making future displays himself. Not only office and display room pointers, but also ideas and inspiration about effective exposition work that may lead to the taking of more interest in county and state fairs and other local expositions in the future. This of itself will be well worth the trip, and yet it is a mere incidental, for the clayworking industry has been backward about this kind of boosting while some of its rival products have been very active. So, while you are about it, make a feature of trying to harvest as many new and worth-while ideas as you can. Take your time, come early and stay the thing through, for then, when you get through, you will be in shape to fully appreciate the fact that this great gathering at Chicago is the biggest thing that has ever happened in the history of the clayworking industry, and the best chance that ever came your way to get the biggest value out of a jaunt to one of our annuals.

THE COMING CONVENTION.

Never in the history of the N. B. M. A. has there been a greater need for, or a greater good to come from, attendance at the annual convention. The clayworking industry is right now moving through what is in many respects one of the most interesting and important periods of its history. We are attaining some wonderful things in the way of scientific progress and mechanical invention and the industry has assumed a magnitude never reached before in this country. The past year has been a banner year in production in many lines, but the greatest thing of all is in the fact that we are apparently just on the eve of greater things than we ever dreamed of a few years ago. We are at a period where there is a good chance, by proper boosting and co-operative effort, to increase the clayworking industry and the demand for its products in the near future by leaps and bounds, and it is this condition

that contributes much to the importance of the present occasion.

On every side and in every branch of the clayworking industry there has been much development, and there are interesting possibilities ahead that only need the right co-operative and progressive spirit to make even greater things than have been accomplished in the past, easy possibilities for the future. Take whatever line you will, from simple little drain tile on up to architectural terra cotta, including common building brick, face brick, fire brick, pottery and pottery specialties, including both electrical and sanitary ware, and everywhere you turn, great strides have been made lately. And these strides have just taken us in to where we get a vista of much greater possibilities in the near future. That is why there never was a time when it was more important for every clay manufacturer to attend the convention. Nor was there ever a time when there were greater possibilities for good to come from a big attendance and proper co-operation at the meeting.

The campaign of publicity for clay products is bearing fruit and there is need for further plans for the future. Other building material has been active in the past, is still doing things, some seem to be losing ground, but others are coming forward. The lumber people, for example, are beginning to fight aggressively for a bigger place in the structural world and incidentally this industry has centered more attention on the roofing problem lately than heretofore, because of the restrictions against the shingle roof in some cities. This serves to open up the roofing question and make opportunities for the present and prospective producers of clay tile, which is the greatest roofing material going and should be pushed and extended materially in the future.

It is the same story in different form in every branch of clayworking where there has been good boosting done and lots of interest aroused, and now it is only a matter of continuing the boosting and keeping the interest alive, to see practically every branch of the clayworking industry grow as it has never grown before.

So, let us have not only the regular attendance but have it enlarged. Let everybody bring somebody with them and bring a spirit of enthusiasm and co-operation that will be felt and be effective from the time you land at Chicago until you start home. There is everything to inspire it and lots to be gained by it. So, turn booster, be a busy bee, and come to Chicago with a determination to help make things hum.

THE CLAY PRODUCTS EXPOSITION.

The Clay Products Exposition, which is scheduled for Chicago, March 7th to 12th next, means a great deal, not only to the manufacturers of clay products, but also to the dealers in these materials and to the architects, contractors and builders. It is the aim of the exposition to show all the best products made from clay. This will include everything from art to utility. So varied is the line of burned clay products that every class of people will find an interest in this exposition. From the finest pottery and china to sewer pipe and paving brick, every branch of the industry will be represented.

The paving brick and sewer pipe interests have combined in taking an entire side of the exposition building for a comprehensive and complete showing of paving brick, sewer pipe, conduit and other clay products which are used in municipalities. It is probable that a model street will be laid, showing different stages of completion.

The sewer pipe men will conduct tests in various ways and will prove the superiority of vitrified pipe. Another large block of space has been taken by the face brick interest to show the very best face brick manufactured in the country. The space is ample to make an excellent showing, and there is no doubt but that the very finest of building brick will be found in this department.

The terra cotta people have been generous in their reservation of space, and every other line is equally well represented. The builder, contractor and architect are inter-

ested because they can here find that particular material which will give the best effects and prove most durable. The dealers in the different clay products will be interested because they can go to the exposition and find the very best things made from clay and will, therefore, be assured that they are representing the very best and most salable articles.

The general public will be interested in the various clay products, but the model home feature will attract them strongly. Everyone is interested in a home, and the proper methods of building, and the material here shown and the handling of it will prove instructive, interesting and helpful.

The fireproofing interest and their exhibits will appeal to municipalities, insurance companies and others, who are always interested in the very live topic of fireproof construction. The fire loss of this country is so enormous in comparison to England, where more burned clay houses are the rule, that it is only a question of time when fireproof buildings become more prevalent, and the Clay Products Exposition will be educational along this line.

This exposition is international and not confined to the United States alone. A number of Canadian manufacturers are taking an interest in the exposition and will be exhibitors. The clay trade in Canada is of growing importance and our manufacturers should see that Canada is well represented at this worthy exposition.

NEW OFFICES FOR DECKMAN-DUTY.

The Deckman-Duty Brick Company, of Cleveland, announces the removal of their offices to 1305-6-7-8 Swetland building, Euclid avenue, on February 15, 1912, where visiting clayworkers will find the "latch string on the outside." The telephone numbers at the new address are Bell 'phone, North 136 and Cuyahoga-Central 1180.

HARRINGTON & KING HEADQUARTERS FOR PERFORATED METALS.

Chicago is headquarters for some things all the time, and for a lot of things part of the time; convention week, for instance. Among the first class we may properly mention the Harrington & King Perforating Company, whose immense plant at 624 North Union street, is headquarters all the time for perforated metals of all kinds. There is nothing worth having in perforated metals which they do not make of the highest grade for the purpose intended. As stated in their ad on page 229, they make a specialty of perforated steel screens and are prepared to make promptly on order anything of the sort desired. Send them your specifications and you will get just what you want and of the very best quality.

THE TERRA COTTA DOG AND THE TRAMP.

A tramp went up to a cottage door
To beg for a couple o' dimes or more.
The cottage door was opened wide,
So he took a cautious look inside.
Then over his features there spread a grin
As he saw a lonely maid within—
A lonely maid within the gloom
Of the shadiest part of a shady room.
Into the room the tramp went;
Over a dog the maiden bent.
His eyes were red and full of fire,
And he viewed the tramp with evident ire.
"Run for your life!" the maiden cried;
"I clean forgot to have him tied!"
"Run for your life through yonder door,
"I can not hold him a minute more!"
Without a word he turned his face
And leaped the fence with careless grace.
Then lightly along the road he ran,
A very much-put-out young man.
The maiden loosed the bulldog's neck,
And gazed at the tramp—a vanishing speck.
And peal after peal of laughter rent
The air with the maiden's merriment.
The dog was of terra cotta ware—
She won him that week at a lottery fair.

—Exchange.

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"GETTING THE MOST FOR A DOLLAR"
has been given as a definition of good en-
gineering such as is done by

**The Richardson-Lovejoy
Engineering Company.**

[See page 327.]

FOR SALE, WANTED, ETC.

FACE BRICK AND TILE MANU- FACTURERS.

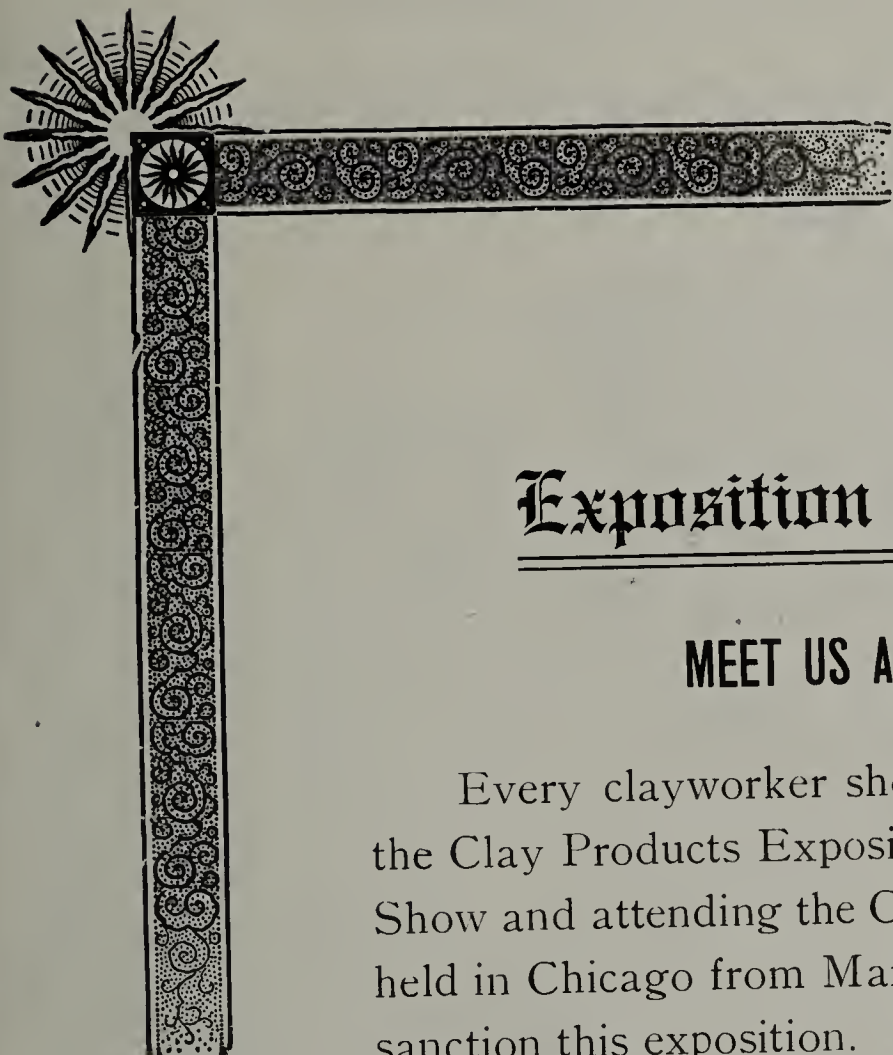
Selling agency desires to communi-
cate with factories wanting representa-
tion in Jersey City, Newark and vicin-
ity. Address, BOX 2—N. J.,
2 1 cm Care Clay-Worker.

WANTED.

A competent, industrious man to take
charge of a hollow block or fireproofing
plant. Must understand the business,
be sober and reliable. None other need
apply. Reference required. Address
2 B. B.,
2 1 d Care Clay-Worker.

FOR SALE—One No. 48 American
ring pulverizer, \$900; one 9-foot Ray-
mond dry pan, standard, \$450; both in
good working condition. Three 2-yard
all steel bottom dump cars, 3-foot gauge,
suitable for clayworkers or mining. Two
of the cars never used, one used only
a short time. Price for three cars, \$250.
Address BOX 2—BURKE,
2 2 d Care Clay-Worker.

For Sale, Wanted, Etc., Ads Continued on
pages 313, 314, 315 and 316.



Exposition Announcement

MEET US AT THE EXPOSITION.

Every clayworker should be sufficiently interested in the Clay Products Exposition to put in a few days at the Show and attending the Conventions of Clayworkers to be held in Chicago from March 5th to 12th. We can heartily sanction this exposition. The clay trade needs more publicity of this kind and clayworkers from New York to Frisco should unite in this Big Boost for Clay Products of all kinds.

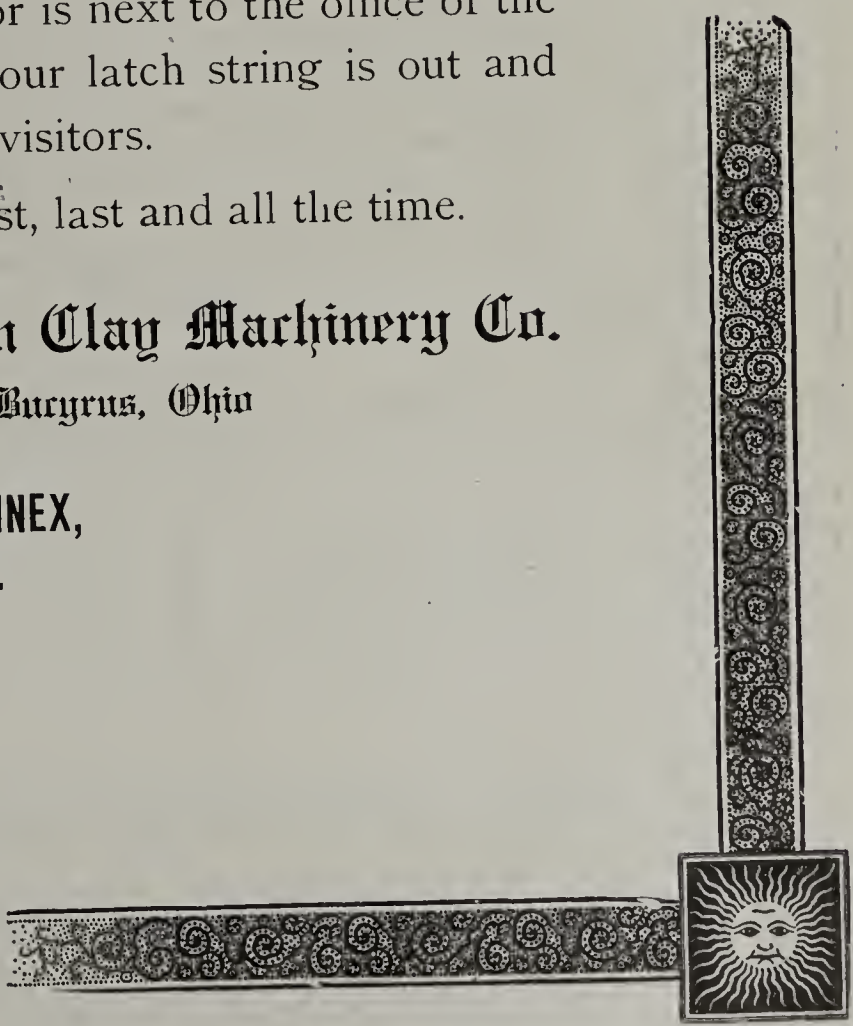
We desire to meet every clayworker in attendance and have arranged our headquarters at Parlor B, Congress Hotel and Annex. This parlor is next to the office of the Secretary, T. A. Randall, and our latch string is out and the glad hand extended for all visitors.

Yours for clay products first, last and all the time.

The American Clay Machinery Co.

Bucyrus, Ohio

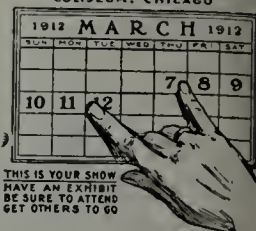
**PARLOR B, CONGRESS HOTEL AND ANNEX,
CHICAGO, MARCH 5TH TO 12TH.**



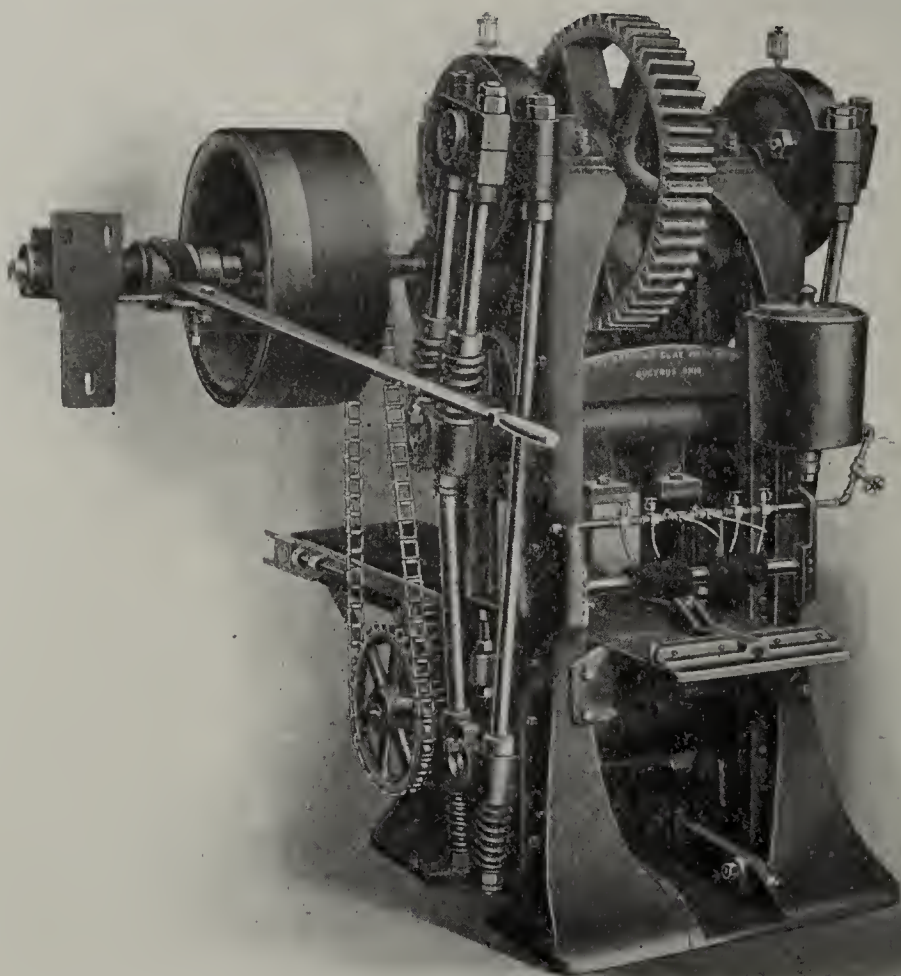
We can heartily recommend the Clay Products Exposition to every Clayworker who desires more business or has the growth of the clay products industry at heart.

CLAY PRODUCTS SHOW

COLISEUM, CHICAGO



No. 219 Repress



Here is a new candidate for popular favor in the well-known Repress line of The American Clay Machinery Company. While it is new from top to bottom it belongs to a family of represses so well and favorably known that its success should be conceded.

The 219 Double Mold Repress has the lines of quality stamped upon it and in the field of battle, where the days work must be successfully accomplished day after day, it will be found replete with those points of simplicity, convenience and strength which produce results.

The 219 has special advantages in the arrangements for pressing the brick which also add to the strength of the machine. We have provided for a dwell when the pressed brick are being pushed off onto the off-bearing belt. Following this dwell the lower cross head drops suddenly, which gives a more accurate feed and obviates the brick being carried over the mold. The side rods are provided with necessary springs to relieve strain and many original features are fully told of in our complete description which will be sent on application.

The Old Reliable Eagle

Nothing need be said here regarding the old reliable Eagle Repress. Its record stands as the envy of all presses. Its successes are innumerable. To those who do not know all about the Eagle we will send illustrations and a complete description.

We also build other Represses of smaller sizes and capacities. Let us know what your wants are in this line and we will fully advise you.

We build every machine and appliance for the manufacture of every class of clay products by all processes.

The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.

Much the largest manufacturers of Clayworking Machinery in the world. And much the best.



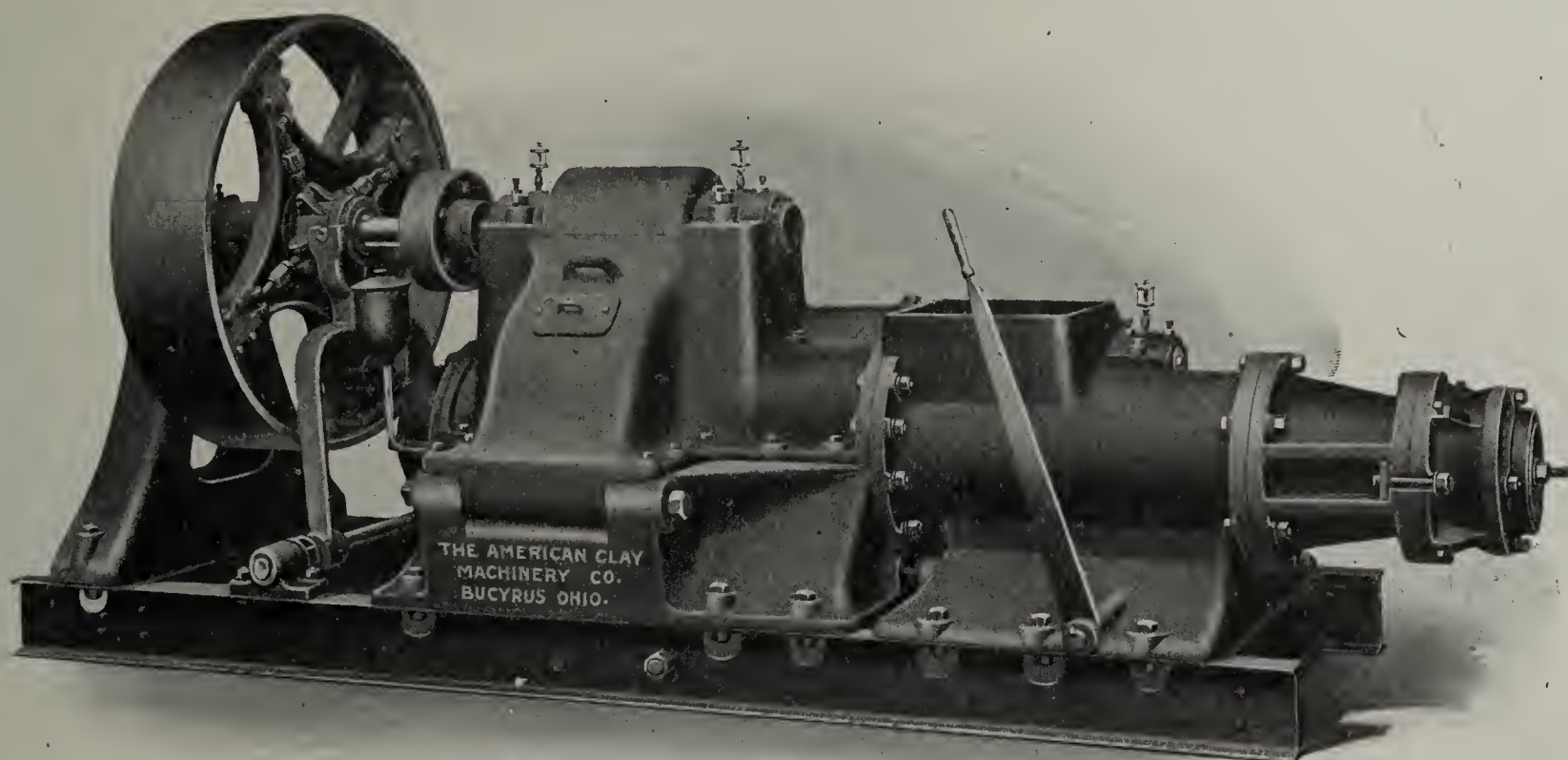
We can heartily recommend the Clay Products Exposition to every Clayworker who desires more business or has the growth of the clay products industry at heart.

CLAY PRODUCTS SHOW
COLISEUM, CHICAGO

1912 MARCH 1912						
SUN	MON	TUE	WED	THU	FRI	SAT
				7	8	9
10	11	12				

THIS IS YOUR SHOW
HAVE AN EXHIBIT
BE SURE TO ATTEND
GET OTHERS TO GO

World's Greatest Tile Machinery



No. 218 Tile Machine

The World's Greatest Line of Tile Machinery is the absolutely new line just put upon the market by the American Clay Machinery Company. It is making good everywhere and has been installed by the largest manufacturers of Drain Tile and Fire Proofing in the country.

The first of this line was the No. 218, which was a record-breaker from the start. It makes tile up to the capacity of the plant, and that, too, without noise, fuss or waste of power.

The No. 231 and 233 are brothers of the 218, with the same racy quality lines which have won them pedigrees. The one is for those who consider economy in first cost, the other is the big brother of the 218, with a correspondingly wider range of sizes and capacities.

For those who want less capacity our Centennial and Acme, with newly designed augers, will prove satisfactory. These new augers can be installed in your present machine if you have a Centennial or Acme.

Our line of cutting tables, elevators, trucks, cars and other equipment for hollow ware is complete. Write for cuts and descriptions of these machines. We build everything in clayworking machinery and appliances.

The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.

Much the largest manufacturers of Clayworking Machinery in the world. And much the best.



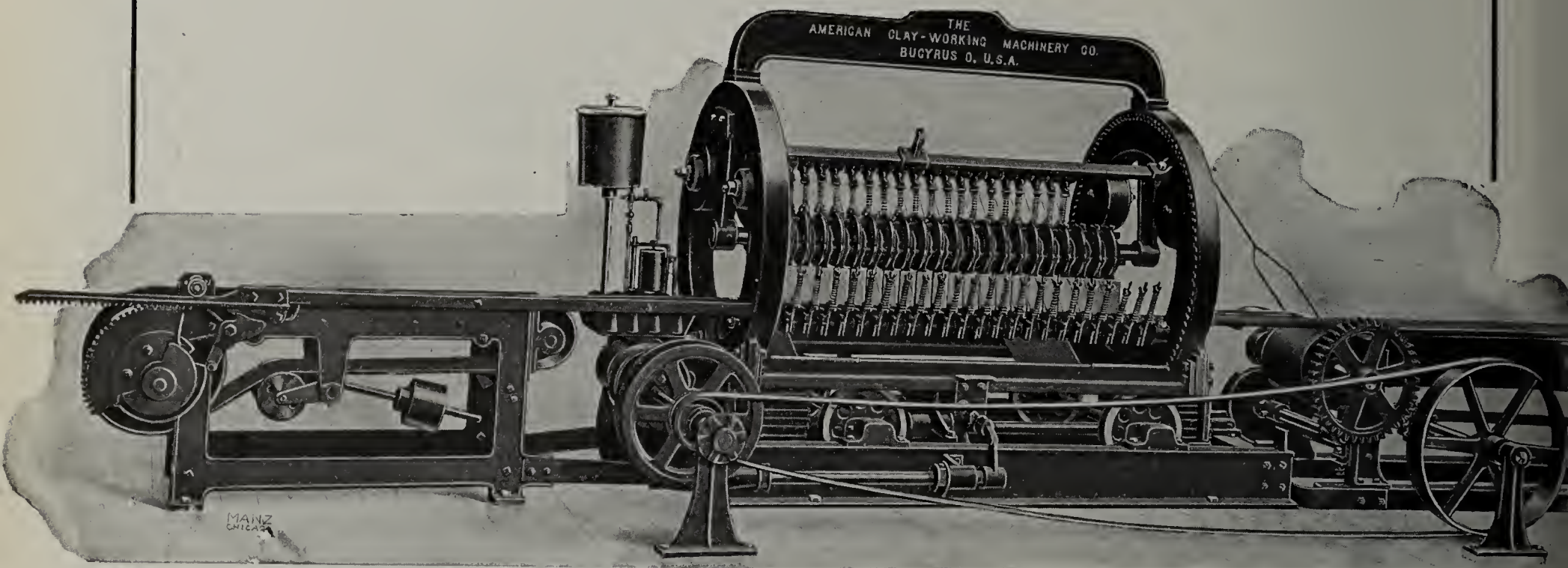
We can heartily recommend the Clay Products Exposition to every Clayworker who desires more business or has the growth of the clay products industry at heart.

CLAY PRODUCTS SHOW
COLISEUM, CHICAGO

1912 MARCH 1912						
SUN	MON	TUE	WED	THU	FR	SAT
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THIS IS YOUR SHOW
HAVE AN EXHIBIT
BE SURE TO ATTEND
GET OTHERS TO GO

Cutting Tables



No. 20 Rotating Brick Cutter

The line of Cutting Tables built by the American Clay Machinery Company has a wide range in style and capacity, but every table is built on a uniform standard of quality.

From the No. 20 Automatic up to the No. 224 Automatic and down to the lesser capacity types there is a complete range from which any manufacturer can select a cutting table that will exactly suit his needs.

This American Clay Line of Cutters is not limited to brick, tile or any other class of clay products, but includes cutters for cutting all kinds of clay products, no matter by what process made.

The design of these cutters is backed by half a century of experience. The construction is all that good material, first-class workmen and a fully equipped modern factory can assure. A full description of any cutter will be sent upon application.

We build every machine and appliance required in every branch of the Clay Trade.

The American Clay Machinery Co.
Bucyrus, Ohio, U. S. A.



Much the largest manufacturers of Clayworking Machinery in the world. And much the best.

We can heartily recommend the Clay Products Exposition to every Clayworker who desires more business or has the growth of the clay products industry at heart.

CLAY PRODUCTS SHOW
COLISEUM, CHICAGO

1912 MARCH 1912						
SUN	MON	TUE	WED	THU	FRI	SAT
					7	8 9
10	11	12				

THIS IS YOUR SHOW
HAVE AN EXHIBIT
BE SURE TO ATTEND
GET OTHERS TO GO

THE KEYSTONE OF SUCCESS IN Steam Pipe Rack Dryers

We have a number of vital patents on the Steam Pipe Rack Dryer which are the Keystones of Success in the operation of this type of dryer so far as efficiency and economy are concerned. Those who are using our improved dryer are loud in its praise. It is at once a model of neatness, comfort, light and convenience and in its operation will distribute the heat to a better advantage

and at less cost than any other dryer of the kind on the market. This dryer has been selected by those careful to investigate and has won out in competition with all others. One user says: "We have used your dryer long enough to convince us that its success is complete and its operation will be a decided economy. Brick made one day



are set in the kiln next day uniformly dry throughout entire holding capacity of dryer, which means a considerable saving in burning. We dry with exhaust steam during day and finish with 5 to 10 lbs. live steam during night. Cost of drying with our hot air dryer was 65 cents per thousand. With your dryer it is 25 cents. We believe you have the best dryer on the market."

Let us figure with you on one of these dryers or any other

Clayworking Machinery or appliances.

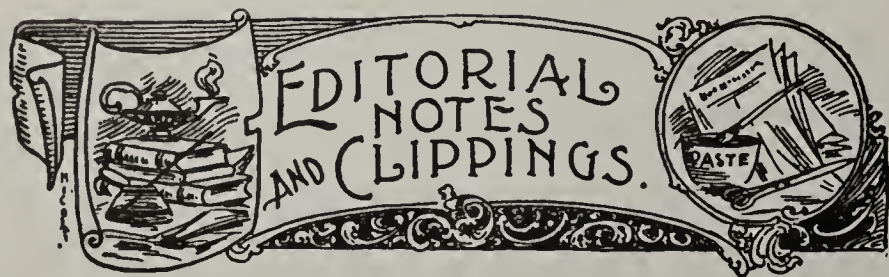
Send for Pipe Rack Dryer Catalogue Just Out.

The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.

Much the largest manufacturers of Clayworking Machinery in the world. And much the best.





The Strong Manufacturing Company, of Sebring, Ohio, will erect a new fire clay brick plant at that place.

J. W. Wilson and Charles Gowler will erect a plant at Georgetown, Del., for the manufacture of pressed brick.

The Pengilly Brick Company will start a brick factory at Nashwauk, Minn. The plant will have a capacity of 180,000 sand-lime brick a day.

J. P. Morris, C. C. Crampton and C. A. Morris have incorporated the Coleman Vitrified Brick Company, at Coleman, Texas. The capital stock is \$35,000.

The Beaver Valley Clay Pot Company will erect a brick building at their plant in North Rochester, Pa., which will enable them to enlarge the capacity of their plant.

The United Brick Company, at Conneaut, Ohio, has in contemplation the erection of four kilns of 100,000 capacity each, which brings the plant's annual production up to 15,000,000 brick.

Leonard Pears, a pioneer brick manufacturer of Toronto, Canada, died at his home in that city January 28. Mr. Pears was eighty-six years old and had not been actively engaged in the business for a number of years.

The plant of the Union Brick Company, at Iola, Kansas, which was destroyed by fire early in January, will be rebuilt at once. The new buildings will be about the same size as the old structures and will be fireproof throughout.

The Natural Clay Products Company, Denver, Colo., has been capitalized at \$100,000. The company proposes to operate the works for the purpose of manufacturing clay products in Denver. The incorporators are M. I. Zellers, Gerhard Monnich, W. O. Kutsche and others.

The Banner Clay Works, of Edwardsville, Ill., has increased its capital stock from \$150,000 to \$200,000 and will expend a considerable amount in improvements to the plant this spring. The company will manufacture building brick in addition to paving blocks, which have heretofore been the product of the plant.

A. E. Hilder, secretary and manager of the Sidney Brick and Tile Company, of Sidney, Man., writes that the work at their new plant is nearing completion, and they hope to have the same in operation by March 1. This plant, Mr. Hilder says, when completed, will be one of the most up-to-date plants in the Dominion of Canada.

At the annual meeting of the stockholders of the American Brick and Tile Company, of Mason City, Iowa, A. H. Gale was elected president; W. H. Dilts, secretary; D. W. Vroom, treasurer, and C. L. Smith will be continued as general manager. The directors' and officers' reports show the company to be in a very prosperous condition.

Edgar M. Haefer, president of the E. M. Haefer Tile Company, Bloomington, Ill., has announced his retirement from active business life, and his tile plant will practically discontinue operation. Mr. Haefer has been in the brick and tile business for sixty-one years and he says he feels that he has earned a well deserved rest and intends to take it.

The stockholders of the Champlain Brick Company, at Mechanicsville, N. Y., recently elected the following directors: G. T. Griffin, N. C. Squires, C. E. Hoskins and J. F. and E. J. Norman. The directors in turn elected the following officers: President and superintendent, J. F. Norman; vice-president, G. T. Griffin, and secretary and treasurer, C. E. Hoskins.

At the annual meeting of the Corey (Pa.) Brick and Tile Company, held January 2, the following directors were elected: C. W. Stone, Judge Lindsey, A. J. Hazeltine, George H. Dunham, D. Warren De Rosay. At the directors' meeting, following the stockholders' meeting, officers were elected as follows: George H. Dunham, president; W. M. Lindsey, vice-president; A. J. Hazeltine, secretary and treasurer, and D. Warren De Rosay, general manager. The directors voted to spend about \$30,000 enlarging the plant the coming season

in order to meet the demand for the Corey product, which is steadily on the increase.

J. L. Schmidgall has under way plans for the erection of a large building brick plant at Murphysboro, Ill.

Harry & Nichols, building material and supply dealers of Dallas, Texas, would like to get the agency of an old English enamel brick.

A. C. Ochs Brick and Tile Company, of Springfield, Minn., has had a good trade the past season on silo blocks. They not only make the blocks but contract to construct silos.

The capital stock of the Claycraft Brick Company, at Columbus, Ohio, has been increased from \$100,000 to \$150,000, and a number of improvements will be made in the plants.

The machinery building of the Shepherd Brothers brick plant at Columbus, Ga., was destroyed by fire recently, causing a loss of from \$15,000 to \$20,000. The structure will be rebuilt at once.

J. L. Stevens was re-elected president of the Boone Brick Tile and Paving Company at Boone, Iowa, at the annual stockholders' meeting. C. W. Payne is secretary, and A. B. Scott, treasurer, of the company.

Richard and Thomas Murray, of Berlin, Conn., who own the Murray brick yard, are negotiating for the purchase of the Dennis brick yard, at Clayton, Conn. Thomas Murray will be the manager of the new plant.

The Painton Brick Company has been incorporated at Troy, N. Y., to manufacture and deal in brick and other building material. The amount of capital stock is given at \$30,000, and the incorporators are J. J. Painton and G. W. Painton, of Troy, and E. P. Painton, of Hoosick Falls, N. Y.

Louis N. Rancke, general manager of the Vulcan Fire Brick Company, Baltimore, Md., writes that they are meeting with a large measure of success in the introduction of their new fire brick, known as the "American Kieselguhre," which is being produced under a new system which has been installed at the plant by Mr. Rancke.

W. T. Butrick has brought suit against the Southern Railway Company for \$10,000 damages to his brick plant at Emma, N. C. The plaintiff alleges that by the construction of a trestle by the Southern railway, near the brickyard, the latter was flooded, damaging the brick and washing away the clay bank.

The financial troubles of the New England Steam Brick Company, of Providence, R. I., which has been in bankruptcy for some time, will be straightened out by the organization of a new company to be known as the Barrington Steam Brick Company. The new company, which will have a capitalization of \$50,000, will pay off the debts of the old company. Michael Houlihan will be retained as manager and the plant will be kept in full operation.

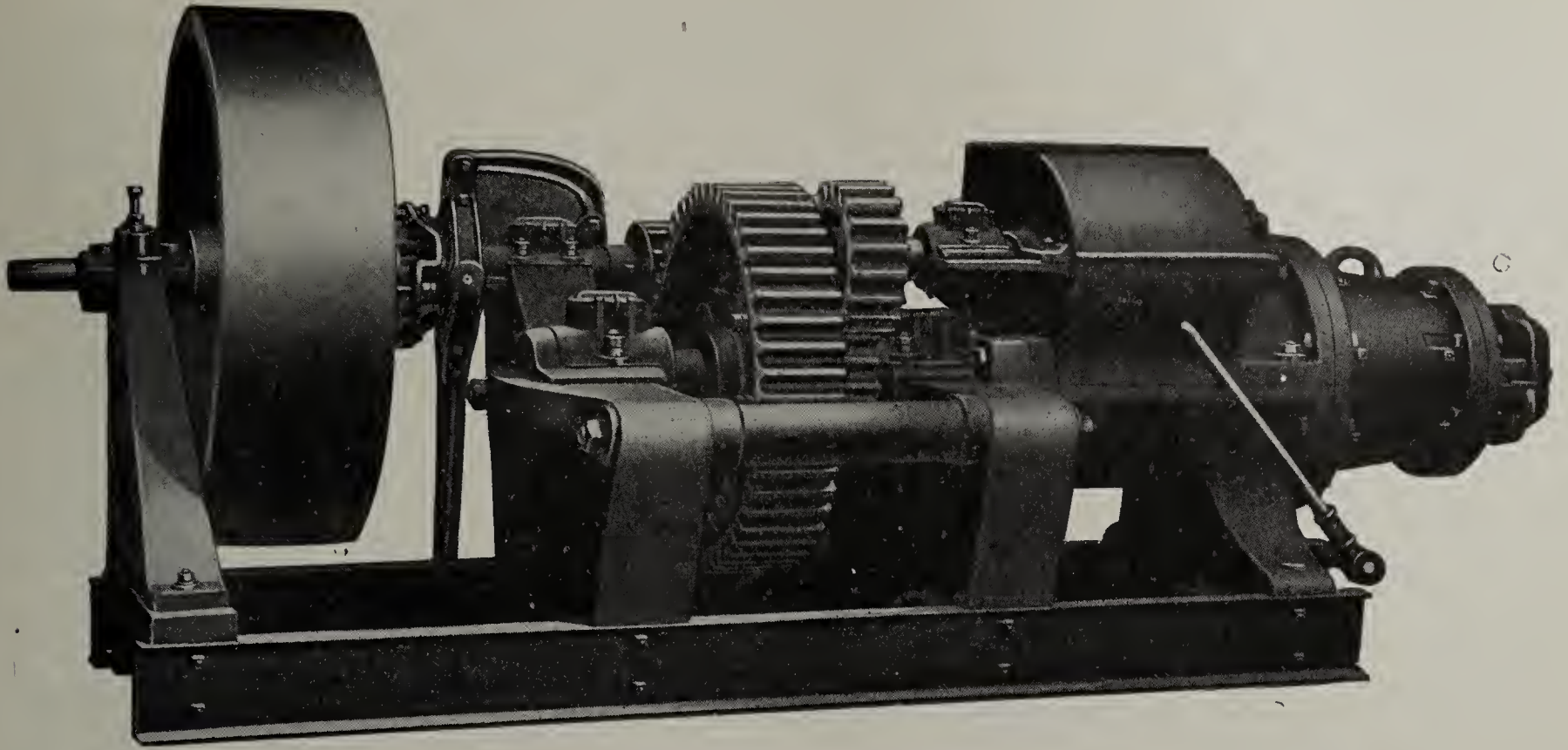
The plant of the Jamestown Shale Paving Brick Company, at Jamestown, N. Y., was almost completely destroyed by fire February 5. The origin of the fire is a mystery. The same plant had a similar fire last June, but the loss this time is much heavier than at the previous fire. The work of rebuilding the plant was started at once, and it is hoped to have the same ready for operation again within a couple of months. A. N. Broadhead, the manager of the company, states that the loss is only partially covered by insurance.

At the annual meeting of the stockholders of the Federal Terra Cotta Company, held January 29, 1912, the following were elected directors for the ensuing year: John E. Berwind, Alfred H. Bond, Wm. B. Dinsmore, Stuyvesant Fish, DeForest Grant, Madison Grant, Wm. Manice, Lewis R. Morris, Schuyler Schieffelin, Dwight W. Taylor, Edwin Thorne. At a subsequent meeting of the directors, the following officers were elected: DeForest Grant, president; Edwin Thorne, first vice-president; Wm. Manice, second vice-presi-

(Continued on page 304.)

ALTON BRICK COMPANY

Makers of High Quality Brick for
Roadways and Permanent Buildings.
Repressed and Dunn Wire-Cut-Lug Block.
ALTON, ILLINOIS.



Model "GA" Auger Brick Machine

In general design, this machine is similar to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and avoiding the use of high speed gears. The result is less wear and tear on gearing, less noise, less power lost through gear friction and consequently less expense for maintenance. Owing to the slow speed, the operation is unusually smooth and quiet. There is very little vibration to work loose nuts and keys. It is a reasonable conclusion that an almost noiseless machine will require less care and last longer than one which is continually shaking itself to pieces.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled for the foundation bolts, thus providing a very rigid construction. The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

This type of machine is built in several sizes—further particulars on request.

E. M. FREESE & COMPANY, Galion, Ohio

Our Headquarters Convention Week Will be
Rooms 1156 and 1158 Annex Hotel.

See additional ads on pages 356-359.

EDITORIAL NOTES AND CLIPPINGS—Continued.

dent; Wm. B. Dinsmore, treasurer, and Dwight W. Taylor, secretary and assistant treasurer.

E. H. Kern and Fred Van Boebke will organize a \$50,000 company for the erection of a brick and tile plant at Grand Junction, Colorado.

H. N. Shaw has purchased the plant of the Winterset Brick and Tile Company, at Winterset, Iowa, and will place the plant in operation before long.

Joseph Stormer, of Madison, Wis., has brought suit against the Wisconsin Brick Company, of that city, for \$1,000 for the loss of a finger while working for the company.

J. A. McConnell and J. K. Wedgeworth have purchased a brick plant at Montgomery, Ala., and will immediately put same in operation. They will manufacture pottery as well as brick.

Frank L. Brown contemplates the erection of a plant at Bay Minette, Ala., for the purpose of making face, fire and common brick. Mr. Brown has had the clay tested with very good results.

The Standard Brick Company is the name of the new concern recently incorporated with \$100,000 capital stock, at Redlands, Cal. They will erect a plant for the manufacture of sand-lime brick.

Charles B. Clark, Campbell Jobs and Alexander Fleming have applied for a charter for the Clark Clay and Brick Company. The headquarters of the company will be at 1156 Frick avenue, Pittsburg, Pa.

Thomas M. Wilson, of Philadelphia, is at the head of a company which has been organized under the name of the Milton Brick Manufacturing Company, of Milton, Pa. The company has been capitalized at \$250,000, and has purchased a tract of land comprising 935 acres, on which they will build a large building and paving brick plant.

F. W. Dennis, of Norfolk, Va., writes us under date of January 31, that he is back in Goldsboro, N. C., where he is building two of his double-chamber down-draft kilns for the Borden Brick and Tile Company, of that place. They are so well pleased with the kiln Mr. Dennis built for them last fall that they expect to build three more kilns of 325,000 capacity each. Notwithstanding this contract, Mr. Dennis expects to be in Chicago March first to attend the N. B. M. A. convention.

The Blackmer & Post Pipe Co., of St. Louis, recently favored us with a copy of their latest catalogue, a part of which is devoted to the manufacturing of septic tanks out of large sizes of vitrified sewer pipe. These tanks are constructed especially for the purpose of a satisfactory disposal of sewage and have been used with perfect satisfaction by the city of St. Louis. Parties who are specially interested will do well to write the Blackmer & Post Co., asking for information in regard to these septic tanks.

The Barber Asphalt Company, Des Moines, Iowa, has announced that is the future the product of the brick plant will be marked with "Des Moines" as a trade mark. The brick manufactured in Des Moines in the past by the Barber Asphalt Company has been known as "Capital" brick, indicating little as to the place of manufacture. The new Iowa trade mark will also be placed on every brick turned out by the Barber plant. This trade mark and the word "Des Moines" will be stamped plainly on the bricks before they are dried and placed in the kilns. New shale pits have been discovered by the Barber Company near its plant. The material in the new pit is found to be better than that used heretofore, and a higher grade of brick will be turned out in the future.

The annual meeting of the stockholders of the Purington Paving Brick Company was held January 16th, when the following board of directors was named: D. V. Purington, F. G. Matteson, George C. Prussing, C. D. B. Howell, W. E. Phillips, P. T. Walsh, of Davenport, Iowa, and Charles H. Chamberlain. The board of directors held a meeting after the stockholders had concluded and named the following officers for the ensuing year: D. V. Purington, of Chicago, chairman of the board; F. G. Matteson, president; George C. Prussing and C. D. B. Howell, of Chicago, vice-presidents; W. H. Terwilliger, secretary; C. H. Chamberlain, treasurer, and W. G. D. Orr, general manager. It was voted at the meeting to improve yard No. 4 and bring it up to capacity. Yard No. 2 is also to be improved. The company reports that a satisfactory year was had. During the year the company

manufactured 101,000,000 seven-pound brick and handled a little over 12,000 cars of brick.

The Clay Products Company, of Sioux City, Iowa, has bought the interests of G. A. and E. C. Bailey, of the Cherry Red Press Brick Company, at Corectionville, Iowa.

The Conard Brick Manufacturing Company, of Columbus, Ohio, has been incorporated with \$40,000 capital stock. W. D. Bricknell, David Shertzer and John Conard and others are the incorporators.

In a recent communication enclosing renewal subscription for THE CLAY-WORKER, C. B. Chase, of the Lawrenceville Brick and Tile Company, of Lawrenceville, Va., writes that 1911 was his banner year both for production and profits.

The plant of the Athens Brick Company, at Athens, Ohio, closed down for a couple of weeks in January for the purpose of making repairs to the boiler and line shaft. Business has been unusually good with this company all winter.

H. E. Shropshire, Jr., who has been purchasing agent for the city of Birmingham for a number of years, recently resigned from the city's service to become secretary of the Association of Southern Paving Contractors, of which Eugene Fies, of Birmingham, is president, and George M. Ingram, of Nashville, treasurer.

W. Kortkamp and his son have built a large plant at Hillsboro, Ill., for the manufacture of building brick. A test of the clays found on the Kortkamp farm shows that they have clay of a very superior quality. The plant, which is modern in every particular, will cost in the neighborhood of \$50,000, and the work on same will be commenced in the very near future.

The Southern Asphalt and Construction Company, of which Eugene Fies is president, and J. E. Donelson, general manager, is using the vitrified pipe manufactured by the Southern Sewer Pipe Company, Birmingham, Ala., in the execution of the twenty-six-mile contract for sewerage system recently awarded it by Lake Charles, La. The same company is doing a \$200,000 brick paving contract at Key West, Fla.

Alfred D. Beaumont, who recently returned to Birmingham, Ala., after several years' residence in Los Angeles, Cal., is interested in the formation of a new brick company at Bowie, Texas. The Chamber of Commerce of that city has made liberal inducements to the proposed company, and an option on a large deposit of very fine clay, adjacent to railroad facilities, has been closed. The company, when perfected, will manufacture vitrified paving and building brick and tile.

A new brick company is being organized at Leeds, Ala., the location of the Standard Portland Cement Company's large plant. Some very fine beds of shale are owned by E. L. Patton, of this city, at this point, with a heavy vein of fuel coal overlying them, and Messrs. Wm. Worthington, of Walker county, Ga., and H. L. Brown, who now operates a small building brick plant at Bessemer, with one or two prominent men of Woodlawn, Ala., are planning a large stock company to develop the properties. Henry F. Beaumont, manager of the Beaumont Press Bureau, Birmingham, Ala., has charge of the organization of the company.

The Kingsport Brick Company, of Kingsport, Sullivan county, Tenn., is planning to increase its capacity. It is now producing 40,000 brick daily, but the demand for its brick, both face and common, is such as to warrant an increase in this line, and proper equipment for manufacturing "pavers," drain and building tile and sewer pipe will be added. The clay and shale, both of which are found in adjacent deposits, are of unsurpassed quality at this point, and fuel is easy of access through the operation of large mines by the C. C. & O. railway, which may be termed the builder of the town. New down-draft "bee hive" kilns are being built and proportionate increase in the facilities of other departments will be made.



PULSOMETERS

costs less to purchase, install and operate than any other type of brickyard pump. They handle gritty water and never need lubrication. Over 26,000 in use for pumping out trenches, caissons, cofferdams, clay banks, sand pits, etc. Write today for our "Pulsometer Handbook. It shows many novel installations and contains data on pumping problems.

PULSOMETER STEAM PUMP CO., 14 Battery Place, New York, N. Y.
Chicago Office: 223-231 North Jefferson Street

N. B. M. A. HEADQUARTERS, MARCH 4 to 12, 1912



The Congress Hotel and Annex

Formerly Known as the Auditorium Annex

Located on Michigan Boulevard—
Chicago's most aristocratic thoroughfare—overlooking Grant Park
and the broad expanse of beautiful
Lake Michigan x x Two minutes
from the city's activities x x x x

RATES: { Rooms, one person, bath detached, \$2.00 and up; with private bath \$3.50 and up
Rooms, two persons, bath detached, \$3.00 and up; with private bath \$5.00 and up
SUITES—Prices on Application

N. M. KAUFMAN,
President.

Adv. No. 1

MAX L. TEICH, } Managing
CARL C. ROESSLER, } Directors.



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The twenty-sixth annual convention of the National Brick Manufacturers' Association will be held at the Congress Hotel and Annex, March 4 to 12, 1912. The convention sessions will be held in the Annex and ample and convenient accommodations will also be afforded the allied organizations which will hold meetings during that time. Delegates and those accompanying them are requested to apply for reservations direct to the hotel, stating date of intended arrival and character of accommodations wanted.

Thew Electric Shovels

The application of electric power for shovel operation is constantly becoming more frequent. THEW Shovels so equipped, for both direct and alternating current, have been in use by brick manufacturers for many years. In every such instance the electric shovel has given perfect satisfaction. Where electric power is available, it frequently offers very definite advantages. No fireman is required and the shovel is therefore a "one man" machine for all outputs within its range of capacity. The question of water supply is avoided together with that of fuel transportation. In cold weather there is no danger from freezing. In hot weather there is no boiler to add to the discomfort of the operator. The banking of fires at night, the delay in getting up steam in the morning, and at times the necessity for a watchman are avoided by the use of electric power.



Electric Thew Shovel at Alton Brick Co., Alton, Ill.

WE EQUIP ALL SIZES ELECTRICALLY
WRITE FOR CATALOG AND INFORMATION

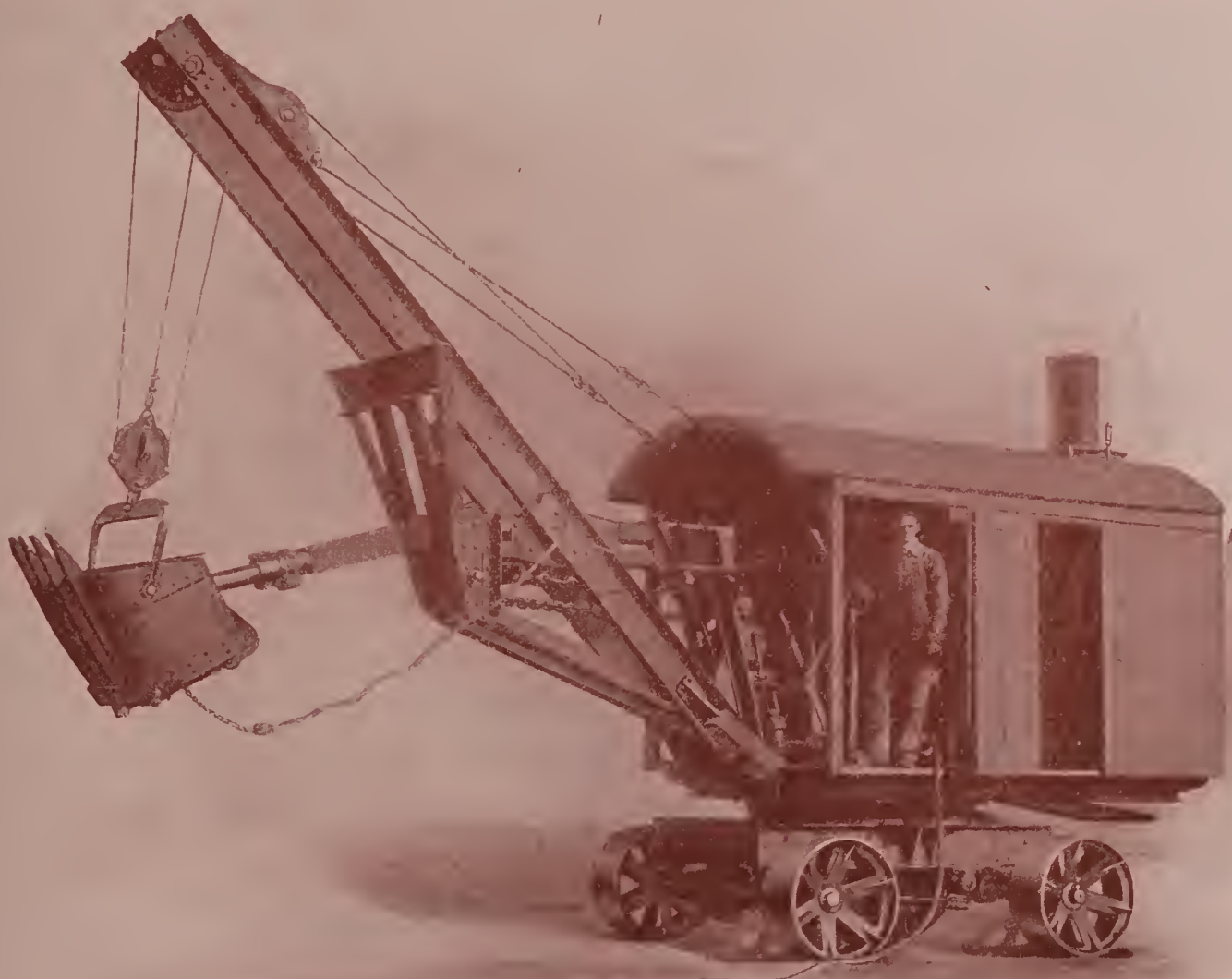
The Thew Automatic Shovel Co.
Lorain, Ohio

Handle Your Clay With One Man and a THEW SHOVEL

For many years we have been furnishing full circle swing steam shovels to the brick manufacturers of the country. We are the pioneers in this field and have created the demand for this type of shovel. We have studied the peculiar requirements of the clay-working industries and have designed shovels to meet these requirements. We offer today a complete line of shovels for this purpose, machines recognized everywhere as the standard of excellence.

THEW Shovels are not like others. They possess features of design not found in other shovels, features that are valuable as to convenience and economy of operation. Several hundred are now operating in brickyards and every one is giving satisfaction.

WE REFER YOU TO ANY OWNER OF A THEW SHOVEL ANYWHERE



Type No. 0 Thew Shovel—Mounted Upon Traction or Car Wheels.

STANDARD SIZES

Type 0,	15 Tons,	$\frac{5}{8}$ yard dipper;	capacity 100 M brick for ordinary clays.
Type A-1,	20 Tons,	$\frac{7}{8}$ yard dipper;	capacity 150 M brick for ordinary clays.
Type 1,	30 Tons,	$1\frac{1}{8}$ yard dipper;	capacity 200 M brick for ordinary clays.
Type 2,	35 Tons,	$\frac{3}{4}$ yard dipper;	capacity 125 M brick for ordinary shales.
Type 4,	50 Tons,	$1\frac{1}{4}$ yard dipper;	capacity 200 M brick for difficult shales.

The above rated outputs are for one man operation and may be doubled by using a fireman and extra laborer on ground.

THE THEW AUTOMATIC SHOVEL CO., Lorain, Ohio

The 26th Annual Convention

OF THE

National Brick Manufacturers' Association

The National Paving Brick Mfrs.' Association

The Building Brick Association of America

The National Clay Machinery Association

and The American Ceramic Society

WILL BE HELD AT

CHICAGO MONDAY TO SATURDAY,
MARCH 4th to 9th, 1912

IN CONJUNCTION WITH

The International Brick and Clay Products Exposition

The Congress Hotel and Annex will be Headquarters

The Sessions of the National Paving Brick Manufacturers' Association will begin Monday, the 4th.

The Sessions of the National Clay Machinery Association will begin Tuesday, the 5th.

The Sessions of the N. B. M. A. will be held Wednesday, Thursday and Friday, the 6th, 7th and 8th.

The Sessions of the B. B. A. will be held Monday, Tuesday and Thursday, the 4th, 5th and 7th.

The Sessions of the American Ceramic Society will be held Monday, Tuesday and Wednesday, the 4th, 5th and 6th.



FULL VERBATIM REPORT of the N. B. M. A. Convention which bids fair to be the most successful in the history of the Association, will be given in the March CLAY-WORKER, including all papers, discussions and portraits of prominent members. Next to attending the Convention the best thing a brickmaker can do is to read THE CLAY-WORKER'S report.

It is so full and accurate that those who attend the Convention would not be without it, and those who don't go can't afford to miss it. The consensus of opinion among progressive brickmakers is that the Convention Number of THE CLAY-WORKER is the most valuable publication of the year. If you are not already a regular subscriber don't neglect to send in your order in time to get the March or Convention number.

1912		MARCH					1912
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Advertising Matter to Insure Insertion

Must be Received by the First of the Month.

THE CLAY-WORKER is now in its 29th year and is recognized the world over as the best clayworkers' magazine published in the English language. It has more readers at home and abroad than all its followers combined. Take THE CLAY-WORKER and you get the best value for your money. \$2.00 a year. Every issue is worth that sum.

T. A. Randall & Co., Inc.

PUBLISHERS,

INDIANAPOLIS, IND., U. S. A.

The Clay-Worker is Unequaled as an Advertising Medium.

PENNSYLVANIA LINES

NATIONAL CONVENTION CHICAGO

Those who attend the National Brick Manufacturers' Convention in Chicago should use the excellent through train service of the **PENNSYLVANIA** from all eastern and southern points; modern steel sleepers, dining cars and coaches, combining safety and comfort.

Also the direct line to **NEW YORK, PHILADELPHIA, WASHINGTON, BALTIMORE, PITTSBURGH AND COLUMBUS**—stopovers also being permitted at these points. Quickest route and unexcelled service and equipment.

W. W. RICHARDSON,
G. P. A., Pittsburgh.

J. M. CHESBROUGH,
G. P. A., Pittsburgh.

SAMUEL MOODY,
P. T. M., Pittsburgh.

Written for THE CLAY-WORKER.

ALABAMA BRICK NEWS.



BE ELECTED president three different times by three different organizations in as many weeks is an honor which seldom befalls a man, but such is the unusual distinction which Hon. John W. Sibley, the pioneer shale brick manufacturer of the Birmingham district, is wearing with his

usual modesty nowadays.

The first of the trio of honors was the re-election of Mr. Sibley to the presidency of the Builders' and Traders' Exchange, of Birmingham, for the second term.

This was an especially high honor, since Mr. Sibley is the first president of the organization, composed of the strongest construction and building material factors of northern Alabama, ever elected for a second term.

The "second honor" may be likened to recognition of "the prophet" in the confines of his "own country," since it was the re-election of Mr. Sibley to the presidency of the Sibley-Menge Brick and Coal Company, one of the leading enterprises of the clayworking industry of the south.

The third, the last, and the most important, signifies signal recognition of the Sibley force of character and ability of administration, as it was his election, without opposition, to the presidency of the Chamber of Commerce, Birmingham, the strongest commercial and industrial body of its kind in the entire State, the membership of which bulks large in every way, financially, in enterprise, power, influence and, above all else, "the spirit of the Magic City—Birmingham."

"The Manufacturer's Record," in speaking of Mr. Sibley's election, speaks in high commendation of him: The Record editorial follows:

A Wise Choice.

"The Chamber of Commerce of Birmingham has made a wise selection in choosing as president John W. Sibley. Mr. Sibley is one of the most active, progressive men of Birmingham, a leader in industrial operations, and the unanimous choice of the nominating committee in naming him is an indication of how his work in Birmingham is regarded. Mr. Sibley will make an active, broad minded president. When men of this type are placed at the head of the business organizations of the south and their work heartily backed up by the community these organizations can be made very great factors in the material advancement of the south. Birmingham, and, for that matter, every city in the south that wants to really do things, needs this kind of co-operative or team work under the leadership of a man of broad business ability and untiring energy."

In the annual meeting of the Sibley-Menge Brick and Coal Company, which completed additions and improvements to its plant aggregating about \$150,000 a few months ago, resulted in the election of the following directors: J. W. Sibley, J. H. Menge, G. T. Sibley, Crawford Johnson, W. L. Sibley, B. H. Menge and J. H. Menge, Jr.

At the directors' meeting, which followed that of the stockholders, the following officers were elected: President, John W. Sibley; vice-president, J. H. Menge; secretary, M. F. Gorman; general manager, W. L. Sibley.

No greater industrial sensation was ever sprung on a southern community of any importance than actually shocked Birmingham, known as the Magic City, the past month—three million-dollar hotels, backed by three distinct groups of the most substantial and dependable citizens of Alabama, being simultaneously announced during the period named. The site for each one, chosen for centrality, has been purchased, the initial organization of each one has been perfected by incorporation and the election of officers; it is claimed by each one that all financial matters have been arranged and the plans and specifications for two of the trio are being drawn, while the third, though backward

in this respect, is regarded by the public as being the one which will in reality be finished first. The first hotel to be given out was what is known as the Underwood hotel, to be named for Oscar W. Underwood, the south's candidate for the presidency of the nation on the democratic ticket. This is to be located on the corner of Second avenue and Twenty-first street, and the Olympia hotel, which has occupied that location for years, is now being razed to the ground.

The second announcement came from the Roden interests, the nucleus of which is the B. F. Roden estate, rated at millions. This hostelry will be located on the corner of Fifth avenue and Eighteenth street. Bids are even now being asked for the destruction of a handsome home, built in the early regime of Birmingham's prosperity, now standing on the site of the proposed structure.

Of these two it is stated plans and specifications are already drawn, although it appears final acceptance has not been made of them, since it is necessary to withhold names of the architects.

The third and latest building made known will doubtless be called the Jemison hotel, since Robert P. Jemison, Jr., president of the Jemison Realty Company, Realty Construction Company, Corey Land and Development Company, the builder of "Corey—the Model City," director of banks, railways and other enterprises too numerous to mention, is at the head of the coterie which the public thinks will complete its building before the other two.

These three hotels, when completed, will enable Birmingham to overshadow any other community in the way of hotel accommodations.

R. P. McDavid is to build, at once, another small hotel, which will be situated on the corner of Fourth avenue and Seventeenth street, a block west of the site of the Roden hotel, of which Eugene Fies is president and R. P. McDavid is vice-president. Ben Price is the architect of this building, also.

The Jefferson Brick Supply Company of this city, of which E. Hiller is president, has been given the initial order on the new Roden hotel, booking a contract for 5,000 barrels of cement. "Royal" cement, made by the Dixie Portland Cement Company, Richard City, Tenn., will be supplied on the contract.

Edward Hiller, president of the Jefferson Brick Supply Company, who has been quite ill for some time, is now improving. Mr. Hiller underwent a serious operation very recently, since which he has been steadily improving.

The Riverside Brick Company, of which John V. Coe was president and general manager, has been recently re-organized. O. B. Morris, who has been engaged in the clayworking industry for several years, has purchased the entire stock of the Riverside Brick Company, capitalized at \$50,000, from Mr. Coe. T. C. Thompson and others, the deal being made through Mr. Thompson. As numerous improvements have been made on the plant of this company at Riverside, Ala., lately, it is in fine operating condition, though Mr. Morris announces still further improvements will be made to secure increased capacity.

Contracts have been made with the Brick Selling Company, of Birmingham, of which C. D. Patterson is manager, to dispose of the products of the Riverside Company.

The Brick Selling Company now handles the output of L. L. Stephenson, Riverside Brick Company, Alabama High-Grade Brick Company, Sylacauga, Ala.; Childersburg Brick Company, Childersburg, Ala.; Ragland Brick Company, which is owned by Jesse H. Hall, of Macon, Ga., and the Graves Shale Brick Company, of which Frederick Gunster recently assumed the general management.

BEAUMONT.

F. JULIUS FOHS MINING GEOLOGIST AND ENGINEER

Special Attention Given to Examinations of Clay Properties,
Mines located, Plants designed, and Efficiencies increased.

LEXINGTON, KY.



Barrett's PAVING PITCH



EUCLID AVENUE, CLEVELAND, OHIO, PAVEMENT FILLED WITH BARRETT'S PAVING PITCH.

28 YEARS OF SERVICE

Euclid Avenue is the show street of Cleveland and the city takes pride in having it in the best of condition.

It is paved with Medina Stone, the joints being filled with Barrett's Paving Pitch.

The Pitch was put there in 1883 and it is **still there**.

The Pitch today is chemically the same as when it was applied 28 years ago.

The serviceability has not been impaired by age; it still protects the foundation from water, as the even contour of the pavement shows.

Euclid Avenue is only one of the scores of places where Barrett's Paving Pitch has shown a record of durability utterly unknown with other pavement fillers.

Booklet on request.

BARRETT MANUFACTURING COMPANY

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Cincinnati
London, England

Cleveland

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Boss
SYSTEM

DRYING

The BOSS TEN HOUR DRYER

is completed and has proven to be what every brick-maker is striving for:

A DRYER THAT WILL DRY BRICK
IN TEN HOURS.

Your brick are dried exclusively with the exhaust from the engine that makes the brick. No extra fuel and no extra power required.

A dryer that does not have to be operated at night time.

Requires no expensive dry kiln, and no iron cars.

Cost of drying reduced to less than 4 cents per thousand.

TRIAL TESTS CAN BE MADE ON APPLICATION.

BURNING

ORIGINAL
Boss
SYSTEM

Do you want to burn hard coal, culm, lignite, slack or screenings? There is just one way to do it, and that is by using air under pressure, which is

The BOSS System of
Burning Brick

Burns all kinds of Brick and Clay Wares.

Applies to both Up-draft and Down-draft Kilns and

Will reduce your fuel cost fully 40% over the old way of burning.

Kilns last longer and give better service when equipped with the BOSS SYSTEM.

Try it.

ORIGINAL
Boss
SYSTEM

JOHN C. BOSS COMPANY
Write for catalog.
ELKHART, IND.

ORIGINAL
Boss
SYSTEM

Classified Advertisements

FOR SALE, WANTED, ETC.

Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

FOR SALE

FOR SALE—16,000 lath pallets in first class condition.

JAMES C. RILEY,
12 3 cm Bloomington, Ill.

FOR SALE—CHEAP.

Two new, up-to-date Patterson throwing wheels. For full information, address,
39 N. Bennet Street,
2 6 cm Boston, Mass.

FOR SALE.

All machinery and power complete for a 40,000 capacity plant for the manufacture of sand-lime brick. Address
BOX 12—IOWA,
12 3 cm Care Clay-Worker.

FOR SALE—Soft mud machine, pug mill and disintegrator, made by American Clay Machinery Company, used one year, fine condition; 30,000 chestnut pallets. Gone out of business.

RED STAR BRICK CO.,
2 1 cm Warren, Pa.

BRICK MACHINERY FOR SALE.

One stiff mud brick machine, 26 to 30 thousand capacity. One cutting table (automatic). Disintegrator and pug mill. All Steele's make. Address,
COLUMBIA BRICK CO.,
2 1 dm Box 208, Lake City, Fla.

FOR SALE—Brick and tile outfit, boiler, engine, Fate brick and tile machine, disintegrator and crusher, pug mill. Bensing automatic brick cut-off, same tile. Line shafting, pulleys, etc. Good condition and a bargain. Must be sold. Address,
P. O. BOX 8,
2 1 cm Mulliken, Mich.

FOR SALE.

No. 777 Raymond auger, little used. One No. 30 American combined machine. Two No. 42 represses. One No. 25 American cutter. One 125 horsepower Chandler & Taylor automatic engine, all in good condition. Have installed heavier equipment and will sell cheap.

CLEVELAND VITRIFIED BRICK CO.
2 1 d Oklahoma City, Okla.

FOR SALE.

250 horsepower Corliss engine, 1½-yard steam shovel, Chambers brick machine and clay granulator. All in first-class condition.
J. CHASE,
1 2 d Russell, Ill.

FOR SALE—One New Departure tile mill, R. H. Used only one season. One steam power Quaker brick machine. For particulars write

E. F. MOCHER,
2 3 cm R. R. No. 6, South Bend, Ind.

FOR SALE OR RENT—Our brick manufacturing plant. Complete and ready for operation. Large drying shed and 5,000 pallets. A bargain for some one, and you had better write.

R. M. JAQUA, Secretary,
2 3 cm St. Francis, Kansas.

FOR SALE—One four-mold Berg dry press, one three-mold Boyd dry press, 80 horsepower horizontal tubular boiler, Atlas heavy duty throttling slide valve engine, cylinder 12 x 22. All necessary pipe and fittings; also pump and heater.

FLANAGAN BROS. M'FG. CO.,
2 2 dm Kansas City, Mo.

FINE OPPORTUNITY.

Well equipped plant operating on a paying basis, making 45,000 brick and \$100 worth of drain tile per day. Chambers and Freese Mills. Best location in Mississippi. Three railroads enter yard. Demand exceeds output. Other interests require owner's time.
WEST POINT BRICK AND TILE CO.,
2 1 c West Point, Miss.

FOR SALE AT A BARGAIN.

A modern, up-to-date Dry Press Brick Plant in a thriving town of 8,000 population and within 19 miles of another town of 80,000 population, consisting of one Andrus press, capacity 25,000 per day; 50 horsepower engine, 75 horsepower new boiler, new brick buildings for machinery and good clay sheds, and all other machinery necessary. Is in first-class condition, including three down-draft kilns, each 320,000 capacity; 21 acres of good clay land. Plant located in Ohio river town in Indiana at crossing of C. & E. I. and L. & N. railroads, just outside of city limits. Tracks to kilns from both roads. Good reasons for wanting to sell. Price and terms reasonable. Address

I. B. C.,
2 3 c Care Clay-Worker.

FOR SALE.

A two-kiln brick and tile plant in eastern Iowa.

DE WITT BRICK & TILE CO.,
11 8 c DeWitt, Ia.

BRICK MACHINERY FOR SALE.

190-ft. section Jeffrey No. 110 chain pan conveyor, two 7-ft. and one 9-ft. Penfield dry pans, Penfield No. 20-A plunger brick machine, Penfield sewer pipe press, Raymond Columbia steam repress, 13 Carnell hand represses, 237 double six-deck brick cars (33-in. gauge) for Sharer dryer, 7 transfer cars, 4 turntables, portable track, 100-lights Colt's acetylene gas machine, two 80-h. p. Fitchburg boilers, pulleys, shafting, etc.

THE POWHATAN CLAY MFG. CO.
11 4 d Richmond, Va.

FOR SALE.

REBUILT ENGINES AND BOILERS.

Engines—Corliss.

18x42 Lane & Bodley, 18x36 Ohio Heavy Duty, 16x42 Allis, 14x36 Sioux City, 12x30 Lane & Bodley, 12x30 Hamilton.

Engines—Automatic.

14½x24 Buckeye, 11x16x12 Buffalo compound, 13½x15 Taylor, 13x16 Atlas, 13x12 Harrisburg-Ideal, 13x12 Phoenix, 12x14 Green, 12x12 Armington & Sims, 11x16 Atlas, 8x14 Noyes.

Engines—Throttling.

18x24 Atlas, 14x18 Sinkers-Davis, 14x14 Lewis vertical, 12x16 Reed, 12x14 Brownell, 10x16 Bass, 10x12 Atlas, 9x14 Lane & Bodley, 8x10 Erie, 6x8 Industrial.

Boilers—Stationary.

72x18, 66x16 high pressure, 72x18 standard, 72x16, 66x18, 60x16, 60x14, 54x14, 48x14, 44x14, 44x12, 42x12, 36x16, etc.

Boilers—Fire Box.

100, 80, 60, 50, 40, 35, 25, 20, 16, 12, 10 and 8 horsepower, etc.

Boilers—Vertical.

50, 40, 35, 30, 25, 20, 16, 12, 10, 8, 5 and 3 horsepower, etc.

Heaters.

All sizes, open and closed.

Pumps.

All sizes, single and duplex.

Electrical.

30 k. w. generator, direct connected to 8x10 Skinner engine; 20 k. w. generator, direct connected to 8x10 Economic engine; 18 k. w. belted generator.

Miscellaneous.

Saw mills, lath mills, edgers, cut-off saws, resaws, blowers, exhaust fans, tanks, etc. Write for list. Also a full assortment of new machinery. Sole manufacturers of the celebrated "Leader" injectors and jet pumps. Send for circular.

THE RANDLE MACHINERY CO.,
1733 Powers St. Cincinnati, Ohio.

(Continued on next page.)

Classified Advertisements.

FOR SALE

FOR SALE.

20,000 pine pallets, size 34" x 10".
Good condition, used but little. Ad-
dress BOX 2—F. A.,
2 1 d Care Clay-Worker.

FOR SALE—One combined smooth
roll crusher and disintegrator, used
only a month. Also 25 horsepower gas-
oline engine.

FIRST NATIONAL BANK,
2 1 cm Elbow Lake, Minn.

FOR SALE—Complete brick and tile
plant in good running order. Will sell
at a bargain. Capacity, 20,000 per day.
BLANCHESTER BRICK AND TILE
COMPANY,
Blanchester, Ohio.

FOR SALE OR LEASE—Drain tile
and hollow ware factory in Iowa drain-
age district; 10,000 5-inch tile capacity
daily; 5 down-draft 24-inch kilns. Per-
manent buildings. Modern dryer and
equipment throughout.

BOX 2—BROWN,
2 tf d Care Clay-Worker.

WANTED,

To sell an interest to party or parties
competent to take full charge and man-
agement of a large street paving plant
and two coal mines, both mines equip-
ped with compressed air machinery.
Mine and ship our own coal. Address

A. B. CHARLES,
12 3 c Care Clay-Worker.

FOR SALE.

Modern brick plant, well equipped,
has a capacity of 60,000 brick a day.
Clays make a superior quality of brick
and roofing tile. Easily changed onto
roofing tile. Will be sold at a low
price, making it an unusually good op-
portunity in this line. For information
address

A. H. MURRAY,
2 1 cm Cloverport, Ky.

FOR SALE.

Half interest in complete soft mud
brick plant in running order, with dis-
integrators and 9-foot dry pan, 2 dryers,
with 12-foot blower, capacity 208 cars,
or 41,000 per day. Clay and shale very
best, will not check. Cary continuous
kiln, capacity 60,000 to 75,000 per day;
use screenings and oil at 75 cents per
barrel. Established market \$7.00, face
\$21.50. Eight miles to San Francisco
or Oakland. Switch at kiln door.
Plenty of power and second machine
on ground for flat yard. Can be con-
verted to stiff mud with small outlay
if desired. Senior partner retiring.
Remaining partner will be at Chicago
convention. Address

JULIAN E. CARY,
15 Cranberry St.,
2 1 d Brooklyn, N. Y.

FOR SALE.

Lot of pallets in good condition and
brick machinery in fair condition.
Price very attractive.

H. C. MASON,
2 tf dm Henderson, Ky.

FOR SALE—Brick plant, 25 acres of
clay and shale. Equipped with Cham-
bers machine, dry pan and Virgin
screen. Local market for 2,500,000
brick per year. Canal runs through
entire length of property. Pennsylvania
railroad and P. & R. railroad within
easy access. For further information
call or address

W. M. HAGGINBOTHAM,
2 3 c Mont Clare, Pa.

FOR SALE.

At St. Joseph, Mo., a vitrified brick
plant, 17 acres of the finest quality of
shale. The best opportunity in the
country. Can be had for less than its
actual value and on the most reason-
able terms. It is also a great hollow
tile proposition.

VAN SANT & VAN DEUSEN,
1107 Corby-Forsee Bldg.,
2 1 dm St. Joseph, Mo.

FOR SALE.

A first class tile factory to be re-
moved. Reset it and it is ready to run.
Factory is complete and a going con-
cern. Can make tile from four to
thirty inches in diameter. Capacity,
\$100,000 per annum output. Not neces-
sary to build or operate to present ca-
pacity. Profits are prodigious, Central
and Southern Illinois and many other
localities good. Particulars from

EDGAR M. HEAFER TILE CO.,
11 4 cm Bloomington, Ill.

FOR SALE.

A mining property and brick plant
located at Ralston, Lycoming county,
Pa., on the Northern Central railway.
The brick plant is complete and has a
capacity of 20,000 per day. The coal
property consists of about 3,000 acres
of land, of which about 500 acres are
underlaid with a vein of bituminous
coal and shale of excellent quality for
making brick. The mines are devel-
oped and in working order with a com-
plete electric equipment; capacity 350
tons per day. Besides the power-house
and other necessary buildings, there
are on the property a church, school-
house and over 70 dwellings. The two
plants can be worked together econom-
ically. For particulars inquire of IR-
VING ELTING, president, Poughkeep-
sie, N. Y., or JOHN B. ALLISON, sec-
retary, and general manager, Roaring
Branch, Pa.

2 3 cm

FOR SALE—IMMEDIATE DELIV-
ERY—150,000 brick pallet boards,
5/8 x 10 x 34 inches; also, the brick racks
for air drying for use with same. Low
price and quick shipment.

FERNWOOD LUMBER CO.,
2 2 dm Fernwood, Pike Co., Miss.

FOR SALE.

Soft mud iron Quaker brick machine,
traction engine, mold sander and turn
table; 20,000 pallets, 9 x 32; 3 trucks,
4 wheelbarrows, 3 dump cars. Will
be sold cheap. FRED FREESE,
2 2 cm Monroe, Wis.

FOR SALE.

Regardless of Original Cost.
Fifteen thousand pallets at \$25 per
thousand. Good condition. Potts brick
machine, with necessary belting, shaft-
ing; disintegrator, hoisting drum. Good
condition, \$500. Four Koppel clay cars,
\$45 each, good as new; 100 rods 16-lb.
rails. One blower with grate bars and
doors suitable for burning by Boss
system. Four steel trucks, 40 horse-
power gas engine, 20 horsepower gas
or gasoline engine. For full informa-
tion, write S. S. BOOTS,
Greenfield, Ind.

FOR SALE.

"MARTIN" STEAM PIPE DRYER.

Practically as good as new, latest
design, 14 pipe high, 30,000 brick
daily capacity. Will re-erect and
guarantee same as new.

STEAM SHOVEL, SELF-PRO- PELLING.

Used only 6 months; 320 flat-top
steel dryer cars; 150 steel D. D.
cars; 4,000 feet 16-lb. T rails; 2 pug
mills; sander; "Hercules" brick
machine; disintegrator.

C. H. HORTON,
Painesville, Ohio.

FOR SALE.

One steam hoist boiler and engine,
complete.

One style "M" Carterville rock
crusher.

Four Victor represses.

One Eagle repress.

One No. 25 American automatic cut-
ting table.

One combined American auger, 100,-
000 capacity.

One No. 777 Raymond auger.

Three Raymond side-dump cars,
wood.

Two Raymond piano wire screens.

One gas engine, 18 horsepower.

One gas engine, 30 horsepower.

One bevel gear winding drum.

Two Raymond nine-foot pug mills.

One Raymond automatic cutting
table.

One clay mixer.

Quantity of damper frames and damp-
ers for down-draft kilns of Eudaly type.
THE FORT SCOTT BRICK AND TILE
COMPANY,

2 1 d Fort Scott, Kansas.

Classified Advertisements—Continued.

FOR SALE.

Tile machinery, 60 horsepower boiler, 30 horsepower engine, E. M. Freese brick and tile machine with dies from three to fifteen inches, brick dies and hollow block dies, automatic table, cars, wheelbarrows, kiln bands and grates. Will sell for less than one-third actual worth. Address,

W. D. MILLER,
2 2 cm Auburn, Ind.

\$200,000 BRICK PLANT AND CLAY LANDS TO BE DISPOSED OF AT ONE-SIXTH THEIR VALUE.

This plant is located in New York state and is the only plant of its kind within a radius of 100 miles. Consists of ten down-draft kilns with 1,200,000 capacity, two dry presses, complete stiff mud outfit consisting of Freese (Mammoth) machine and cutter, dry cars, etc.; 100 acres clay land owned outright; power plant in good condition; water supply on the premises. Excellent reasons for selling and attractive terms to the right party.

C. E. BENNETT,
1 tf dm Wellsboro, Pa.

WANTED—POSITION

WANTED—Position as superintendent of stiff mud brick yard. Address

BOX 2—B. Y. S.,
2 1 d Care Clay-Worker.

WANTED.

An experienced kiln man. Must come well recommended. No booze fighter wanted.

J. A. JIMERSON,
2 2 d Ruston, La.

WANTED—A young man of thirty, thoroughly experienced in clay business, is desirous of getting into business for himself. Knows of several good openings and would like to meet a man who might be interested in buying or putting up a plant. Very best of references in every respect.

CHICAGO,
2 1 d Care Clay-Worker.

WANTED.

Position as superintendent or head burner, paving or building brick. Best of references. Address,

BOX 2—ROBERT,
2 1 c Care Clay-Worker.

WANTED.

Position as superintendent or burner on building brick plant. Thorough in all branches.

M. C. WILLIAMS,
1 2 cm 701 N. Gibson,
Princeton, Ind.

WANTED—Situation as superintendent. Strictly sober, 20 years experience. Dry press, stiff or soft mud brick or drain tile. Specially qualified to remedy kiln troubles and get uniform burns. Results or no pay. Address,

BOX 2—A
2 1 cm Care Clay-Worker.

WANTED—Position as manager of brick plant. Can furnish best of references and guarantee results. Would like to get with a company where could buy an interest later. Will work on straight salary or part salary and percentage of profits.

MANAGER,
2 1 d Care Clay-Worker.

WANTED—Position as superintendent or plant manager of stiff mud brick works. Have had 16 years of experience in manufacture of paving brick and plant construction. Can furnish satisfactory reference for honesty and ability and do recommend myself. Address

BOX 2—F. P. N.,
2 3 cm Care Clay-Worker.

WANTED—Superintendent wishes re-engagement. Efficient in every branch of the trade. Have been superintending plants for 15 years; know all makes of machinery, up and down-draft and continuous kilns. Guarantee to handle plant at least possible cost in fuel and labor. Would take charge either on salary or contract by the thousand. Address

BOX 2—EXPERIENCE,
2 2 c Care Clay-Worker.

WANTED—Position as superintendent, practical and up-to-date. Fire, building, paving and common, all processes and kilns. Address,

BOX 2—EDWARD,
2 1 c Care Clay-Worker.

WANTED—Position in up-to-date ceramic plant offering prospects for advancement, three and one half years' study in college and two years' plant experience. Address

BOX 2—STAFFORD,
2 1 cm Care Clay-Worker.

WANTED.

A middle-aged married man, thoroughly competent to handle any or all departments in the manufacture and sale of brick and tile. Is familiar with all kinds of machinery and kilns, including the Youngren. Can give the best of references—banks and associates in business. Might invest some money in a gilt edged proposition. Address

BOX 2—I. C. J.,
2 1 d Care Clay-Worker.

WANTED—Position as superintendent or manager of paving or face brick plant. Can design or remodel plants to give best economy. Prefer position with new company, or with company needing more economical methods. Will accept small salary and commission on profits. Mechanical engineer and familiar with continuous kiln operation. Address

BOX 2—A, E. E.,
2 1 c Care Clay-Worker.

WANTED—TO BUY

WANTED—100 steel, double-deck dryer cars, with steel bottoms, gauge 25". SOUTHERN BRICK CO.,
2 1 c Athens, Ga.

WANTED—TO BUY.

10,000 white pine pallets, 34" by 10½" Must be in good condition. CHEATWOOD & BLUNT,
2 1 c 801 York st., Barton Hgts.,
Richmond, Va.

WANTED.

One hundred and fifty second-hand double-deck brick dryer cars. Must be in good condition. State lowest cash price.

CALHOUN CLAY M'FG. CO.,
2 2 dm Fullerton Building,
St. Louis, Mo.

WANTED—To buy part interest in and manage a brick or tile plant which has not been a success because present owners are not experienced in clay business or can not give sufficient time to the management of plant.

ILLINOIS,
2 1 d Care Clay-Worker.

SITUATION WANTED

As superintendent or head burner with a brick or tile plant by an energetic, reliable workman of several years' experience. Understands every detail of the business and is thoroughly familiar with continuous kilns and waste-heat drying. Can handle any nationality of men with success. A permanent situation preferred. For further information, references, etc., address

BOX 2—LEON,
2 1 d Care Clay-Worker

Classified Advertisements—Continued.

MISCELLANEOUS

GOOD OPENING

For pottery, farm drain, sewer or roof tile; have the clay for each. Gas, oil or wood for fuel. Some local capital could be interested. Write

J. I. HEY, Secretary,
Marshall, Texas.

2 2 c

WANTED—A competent man to make hollow building tile, one who understands making, drying and burning. Capacity of plant, 1,000 tons per month. State experience and salary expected. Address

GULF STATES BRICK COMPANY,
Beaumont, Texas.

2 tf d

CASH FOR YOUR PLANT OR BUSINESS.

No matter where located. If you want to buy, sell or exchange any kind of real estate or business anywhere, at any price, address

FRANK P. CLEVELAND,
965 Adams Express Bldg.,
Chicago, Ill.

10 tf d

TO LEASE.

A dry press brick plant located on the C. & O. R. R. and Kanawha river. Natural gas and plenty of clay which will make fancy brick, coke oven tile, shingle tile, etc. Clay brought to crusher by aerial twin rope tramway, operated by gravity. Address,

BOX 1—W. A. B.,
Care Clay-Worker.

1 3 cm

TO LEASE.

Stiff mud brick plant fully equipped, good location, plenty of water, red clay, sand and fire clay. Can make all kinds of front brick. Freight rate in Illinois, Iowa and Missouri. Must be a practical front brick maker. Will lease for royalty or per cent of profit. Give references, age, nationality and experience. Address,

BOX 1—PRODUCTS,
Care Clay-Worker.

1 3 c

AN OPPORTUNITY.

A well equipped front brick plant in a good southern city desires to increase its business. A satisfactory party with \$10,000 to invest will receive a good position. Particulars furnished on application. Address

BOX 12—LON,
Care Clay-Worker.

12 3 d

See additional ads under Table of Contents.

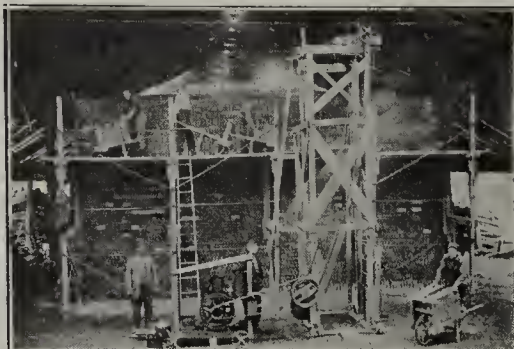
A Burning Question!

HAVE YOU TROUBLE
With Hot and Cold Spots When
Burning Up Draft Kilns?

I have a very simple and inexpensive method of securing a uniform burn throughout the entire kiln. Equally good as a fuel saver.

It will pay you well to write for information.

ROBERT TWELLS,
WALNUT HILLS, ILL.



Newton Portable Brick Setting System.

This system gives you the advantage of three men taking the place of nine, as here shown. Above is a photograph of elevator and staging in operation, saving you six men over old way of passing and tossing brick; same advantage taking brick out of kiln. Send for circular and special information.

A. C. NEWTON,
Pat. Aug. 9, 1909. CRESCENT, N. Y.



SWITCHES FOR SALE.

Right and left-hand one, two and three-way switches of various gauges, radius and weight rails at special prices. THE ATLAS CAR & MFG. CO., Cleveland, Ohio.

See additional ads under Table of Contents.

WESTERN AND PACIFIC COAST
CLAYWORKERS ATTENTION

Clayworks engineering. Plans for common, face and paving brick, sewer pipe and pottery plants; for dryers; for up-draft, down-draft, continuous and other kilns. Clay deposits examined and tested. Machinery installed and operations supervised. Clayworkers' appliances, such as Engelhard pyrometers, Bristol recorders, draft gauges, watchman's clocks and others.

GEIJSBEEK ENGINEERING COMPANY,
Blake-McFall Bldg. Portland, Oregon.

PATENTS

secured in the United States and foreign countries. TRADE MARKS registered. Investigations, opinions and advice in regard to patentability and infringement.

WATSON & BOYDEN

Patent Attorneys

918 F St., Washington, D. C.

THE BEST LOCATION FOR CLAYWORKERS

The raw materials of kaolin, ball clay, stoneware clay, slip clay, saggar clay, feldspar and silica are all found in various parts of the Southeastern States, in ample quantities to supply the largest possible demands.

Fuel is Ample and Cheaply Supplied in the Southeast.

In 1908 the U. S. Geological Survey estimated that the four states of Georgia, Alabama, Tennessee and Kentucky contained an available supply of coal, totaling over 69½ billion tons, and the average price at the mine in 1909 for the four states was \$1.15 per ton, the fuel and coking values of this coal being unsurpassed. Natural gas is also available in some sections at extremely reasonable rates.

Close investigation will satisfy interested parties that the Southeast is the best location for such industries. Write

M. V. Richards, L. & I. Agent

Southern Ry., Room 1369,
Washington, D. C.

Chas. S. Chase, Western Agent

Room 700 Chemical Bldg.,
St. Louis, Mo.

YOU CAN'T FADE THEM
The "Red Brick" brand. Brilliant in tint; easy to mix, go farther than any other and none like them
Cement, etc. Red, Brown, Purple and Black.
for Brick, Mortar,
MILWAUKEE, WIS.



Ricketson's PURE MINERAL Colors



HELICOID SCREW CONVEYOR is heavier stronger and better made than any other. Requires fewer repairs—no lapped and riveted joints to come apart—flight all one piece. We are the only people who actually roll a continuous flight conveyor by either the hot or cold rolling process. All other steel conveyors have sectional flights. Our No. 34 Catalogue explains the difference. Elevating, Conveying and Power-Transmitting Machinery.

H. W. Caldwell & Son Co., 17th St. & Western Ave. **Chicago**
Fulton Bldg., Hudson Terminal, No. 50 Church St., New York.

Chicago Retort & Fire Brick Co.

"AJAX"
Fire Brick for Building Kilns

GENERAL OFFICE:

837-839 Commercial National Bank Bldg.,
CHICAGO, ILL.

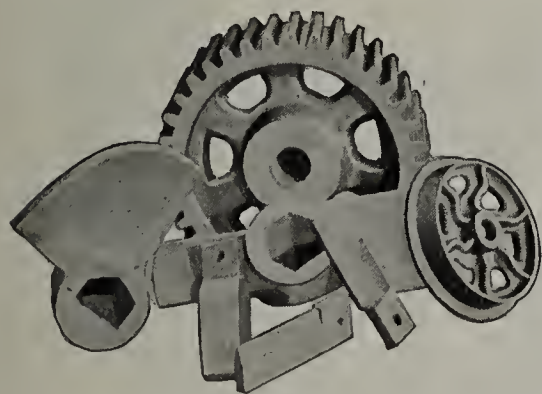
'Phone
Randolph 3601.

KILN FLOOR TILE

THE RECOGNIZED STANDARD OVER 50 YEARS.

ANY **FIRE BRICK** ANY
SIZE SHAPE

Write Us Now **Evans & Howard Fire Brick Co.**
St. Louis, Mo.



Chilled Brick Machine Castings

All wearing surfaces hardened.
Save time, prevent frequent shut downs.

Let us refer you to other users.

The Wallace Machine and Foundry Co.
LAFAYETTE, IND.

The Department of Clayworking and Ceramics

Established by the Legislature
in 1902 at the

New Jersey State College,

RUTGERS COLLEGE.

NEW BRUNSWICK, N. J.

Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

C. W. PARMELEE, B. Sc., Director.
W. H. S. DEMAREST, D.D.

Kilns Driers Processes

JULIUS J. KOCH

Consulting Engineer

for

Clayworking Industries

3325 Caroline St. St. Louis, Mo.

If...

**You Want
to Sell
or Buy...**

Second-hand Clayworking Machinery, Tile Mills, or anything pertaining thereto.

**If...
You Want
a Man**

for any position or a position in any connection with the Clayworking Trades use the

**For Sale
and Want
Columns
of...**

**The...
Clay-Worker.**

RATES

For all transient advertisements, such as "For Sale," "Wanted," etc., the rate is 25 cents a line per insertion. Average of seven words to line. Head line counts as two lines.

The Best, Quickest, Cheapest Method of Securing Results.

\$2.00 THE CLAY-WORKER, \$2.00
ONE YEAR, (IN ADVANCE)

Anchor Brand Colors

For Mortar Cement and Brick.

BROWN, BLACK, RED AND BUFF.

Strongest and Most Durable.

Manufactured by

C. K. WILLIAMS & CO.

EASTON, PA., U. S. A.

Correspondence solicited.

Chattanooga Paint Co.,

Chattanooga, Tenn.

Manufacturers of

Red Oxides for Brick-makers' Use.

**Eclipse
Mortar Colors,**

Red, Brown, Buff, Black.

Clinton Hematite Red

The highest grade of
Red Oxide of Iron for

BRICK COLORING

Also all shades of
MORTAR COLORS

Get the genuine, with the
"Little Yellow Side-Label"

Clinton Metallic Paint Co.,

CLINTON, N. Y.

GABRIEL & SCHALL

P. O. Box 1712. 205 Pearl Street.

NEW YORK.

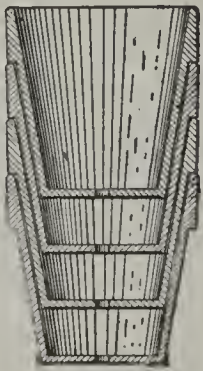
Sole Importers in the United States of the

Precipitated **G & S** Carbonate
of Barytes

The only preventative for scum and discoloration on Facing Brick and Terra Cotta, neutralizing the Sulphate of Lime in the Clay and Water.

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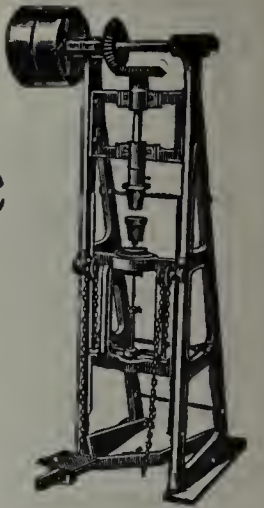
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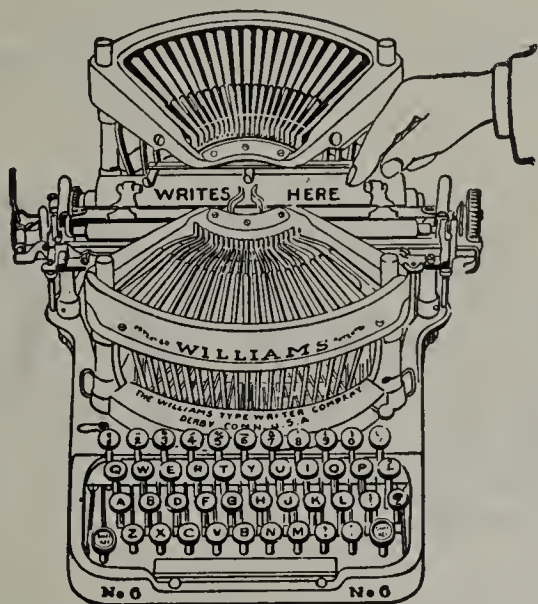
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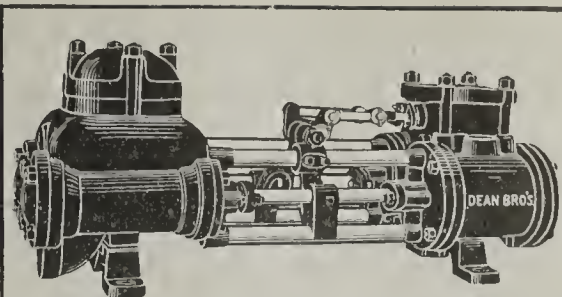
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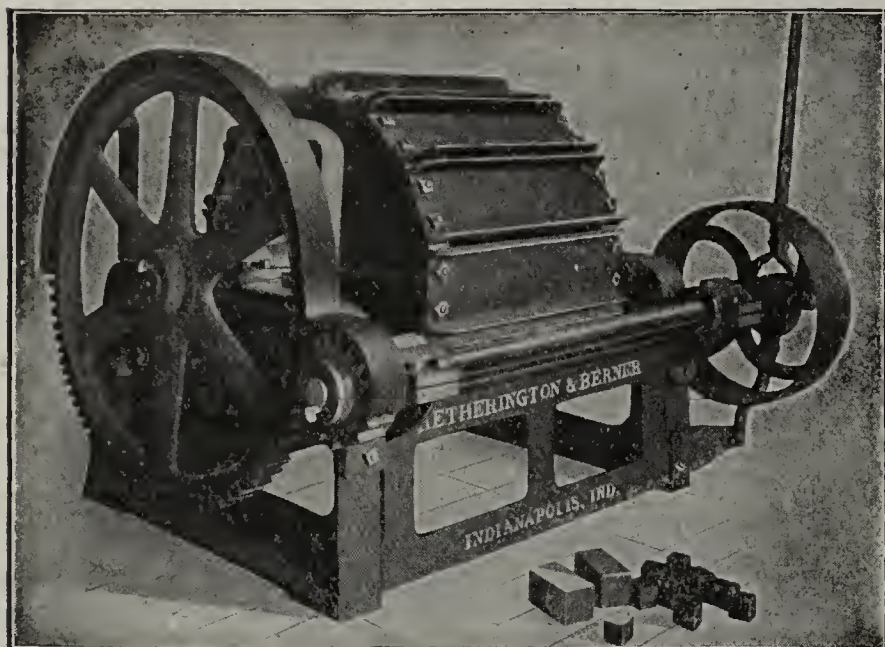
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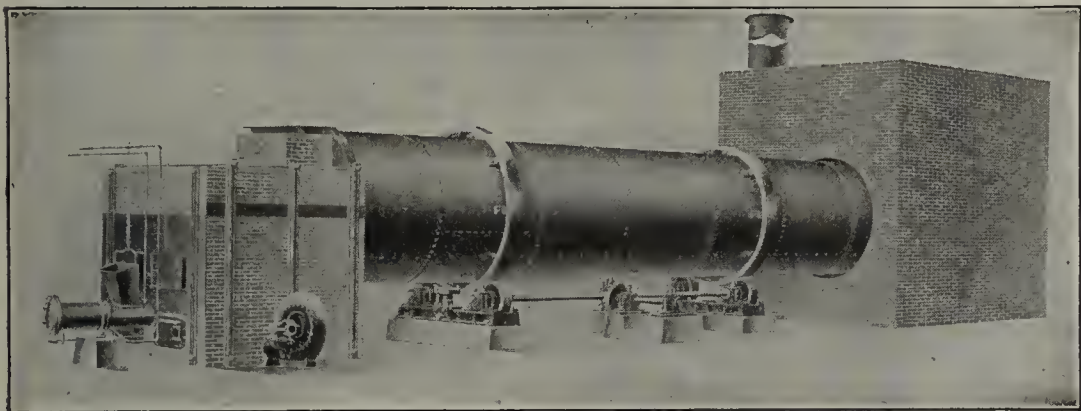
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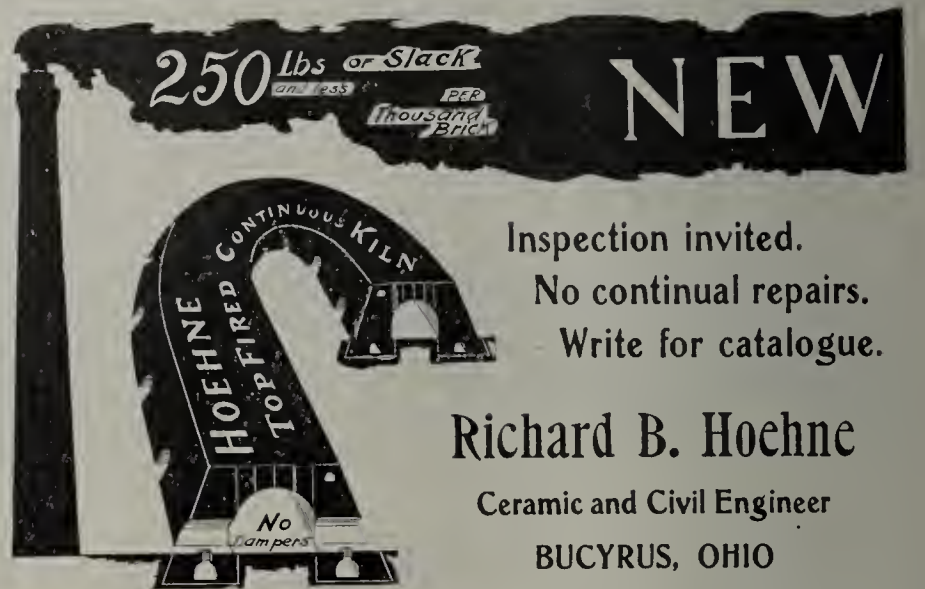
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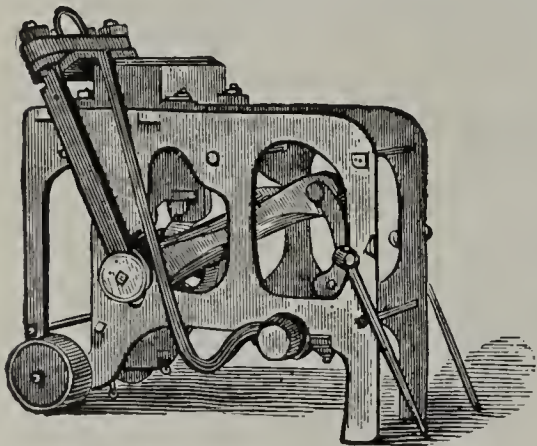
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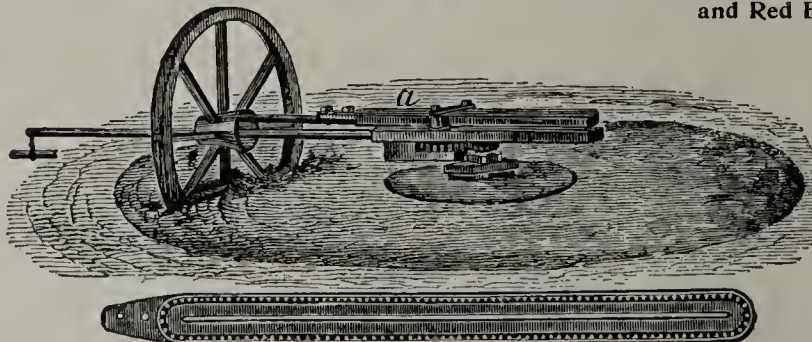


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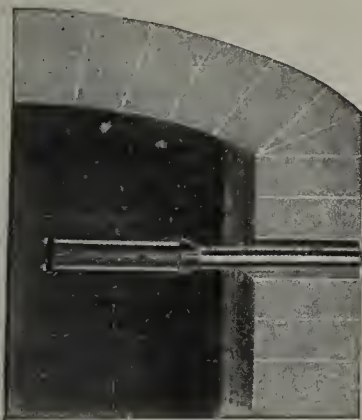
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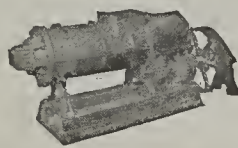
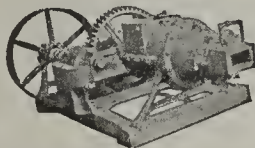
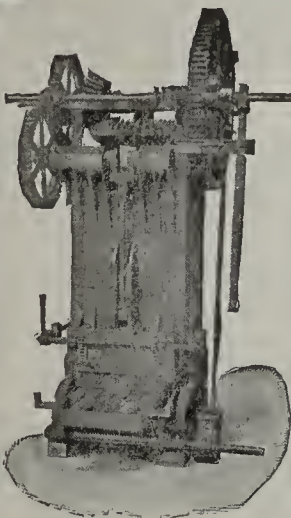
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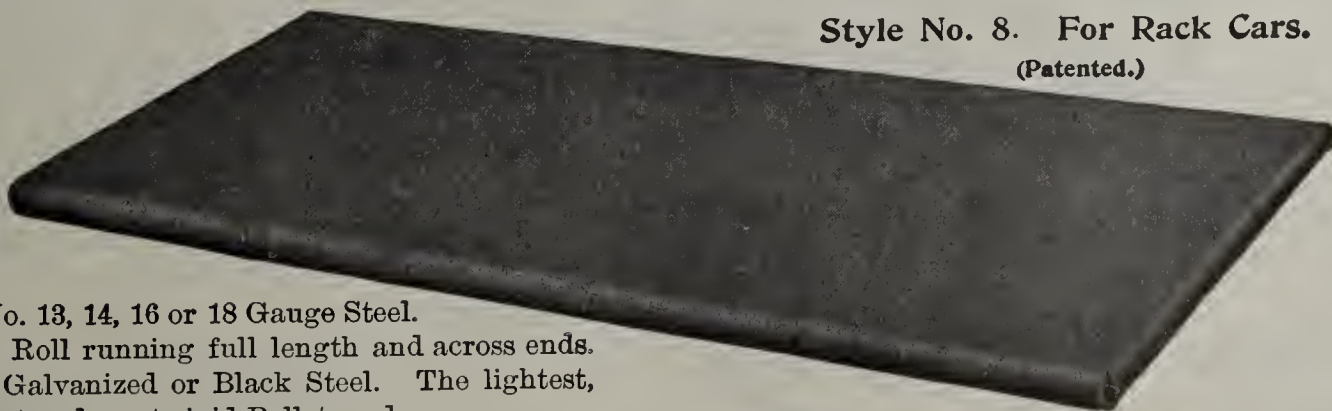
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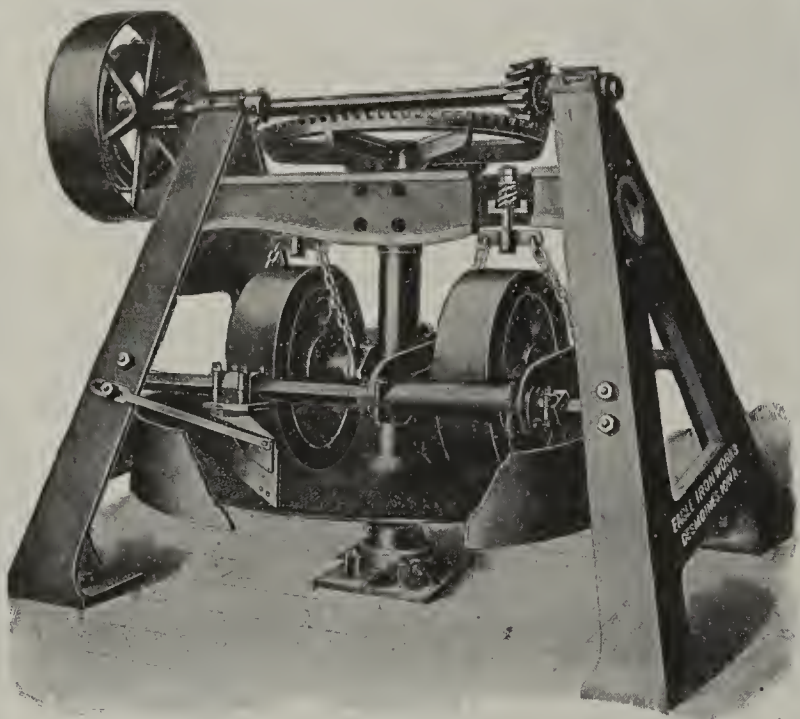
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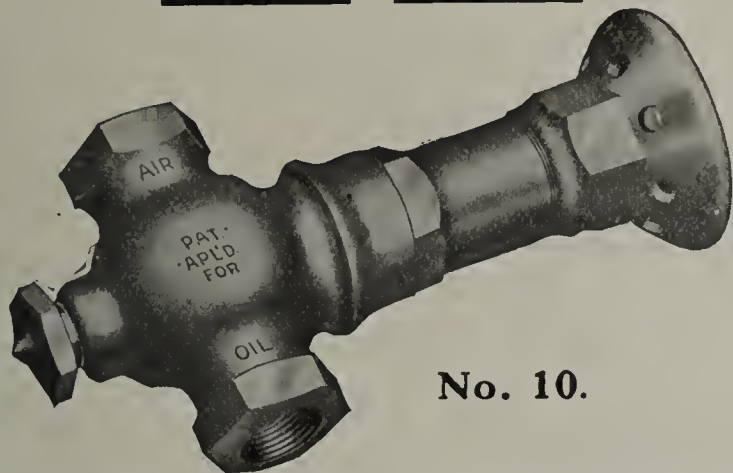


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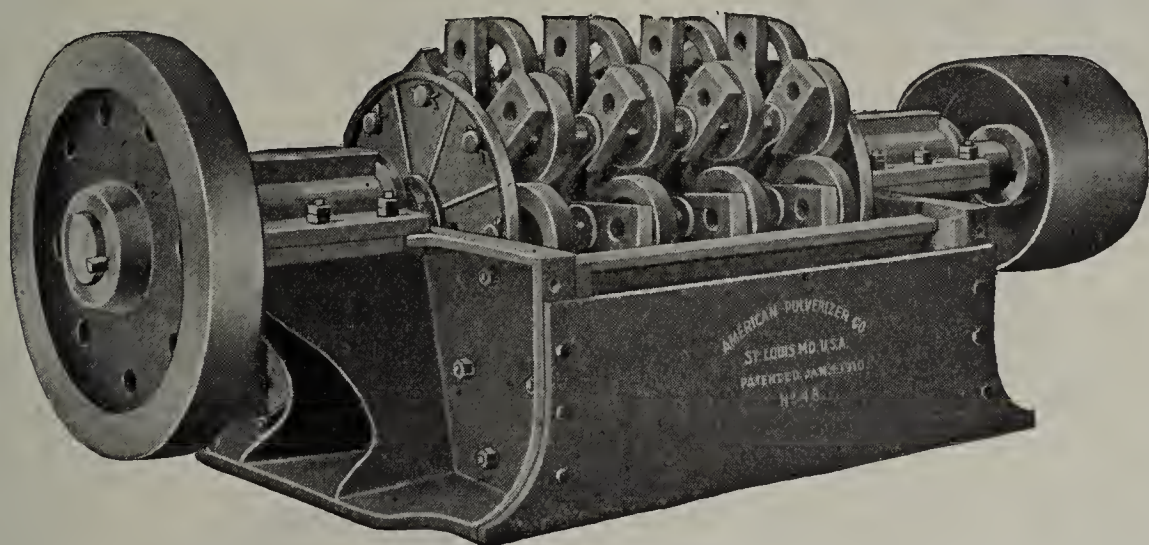
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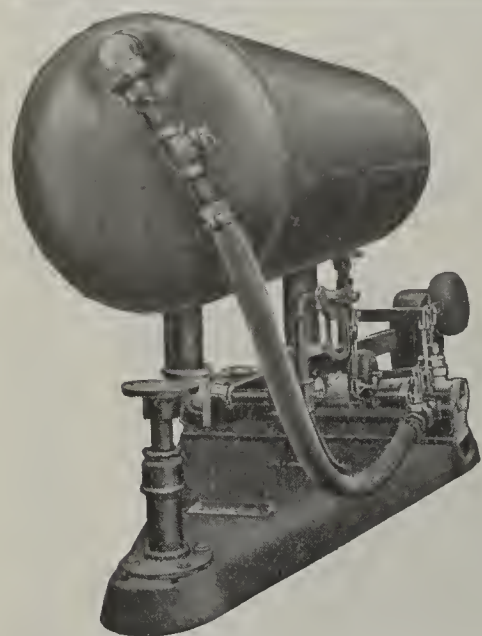
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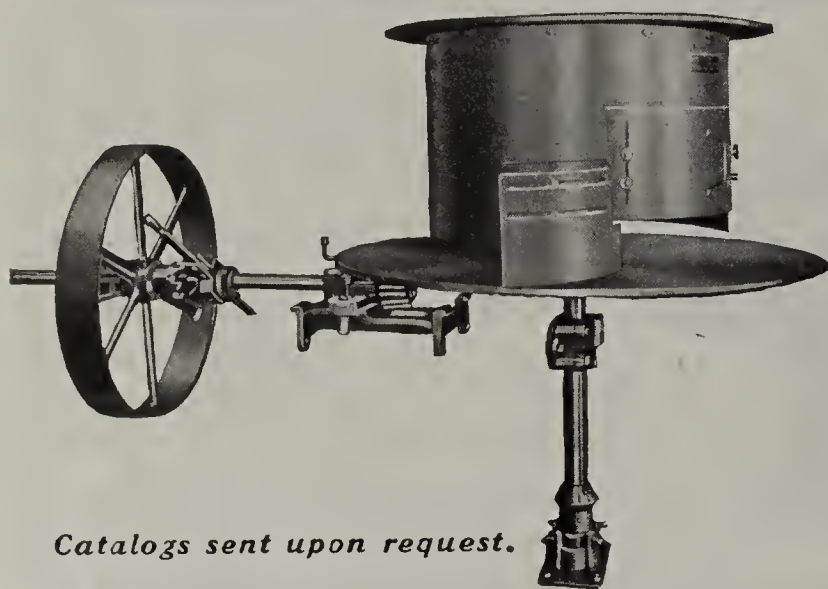
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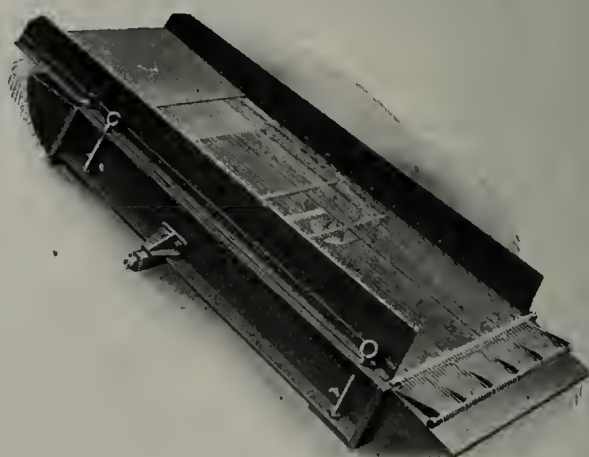
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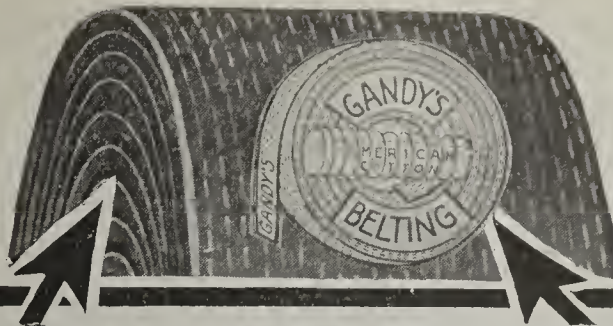
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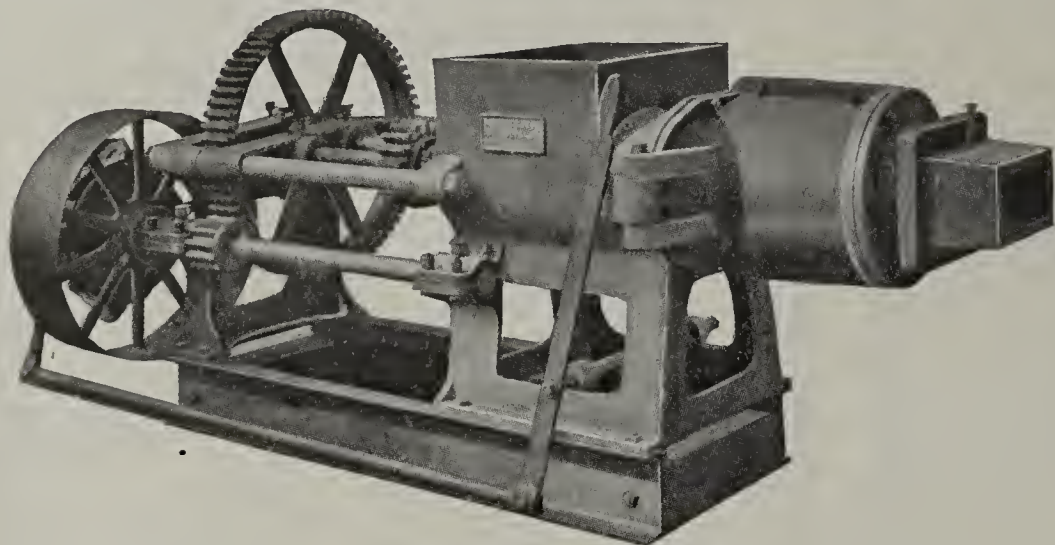
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We build machines of all capacities, also small auger machines for laboratories, horsepower brick machines, hand plunger presses, pug mills, single and double shaft, clay feeders, elevators, piano wire screens.

Smooth and break roll crushers of any size and combination.

Brick, block and tile dies, lubricated in full or parts, hand and automatic cutting tables, recutters for all kinds of standard bricks, blocks and clay products.

Lowering brick trucks for hot floor driers.

ROOFING TILE MACHINERY

Revolving presses for standard interlocking tiles.

Trimming press for ridge tile, special shapes, etc.

Hand presses, molds in metal and plaster.

Special double shaft auger machines for stream roofing tiles, as shingles, promenade tiles, interlockings, Spanish S or mission tiles, etc., as well as dies and special cutting tables for each of those tiles.

We equip complete plants of any size with all necessary machinery for the manufacture of any known type of roofing tiles.

MUELLER BROS.

1436 Macklind Ave., (on Frisco Tracks)

ST. LOUIS, MO.

ECONOMY

True economy is the sure road to wealth today, just as it has ever been. This is generally conceded, but it is not always certain what constitutes true economy. In the clay line it is oftentimes real economy to replace small capacity machinery

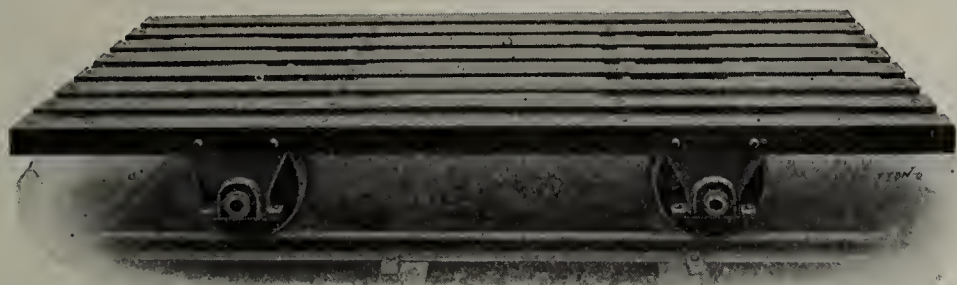
with larger in order to meet the demands of a rapidly growing trade. Really it is false economy not to do so, for one must spend money to make money. He is wise who recognizes this truth and promptly replaces outgrown machinery with that equal to his needs. Then, after you have done the wise thing in enlarging and refitting your plant, don't let the outgrown machinery go to the scrap pile. It may prove a boon to some manufacturer starting a small capacity plant for which it will be ample. There are many such and they may be reached through an ad in the For Sale columns of The Clay-Worker. Be wise, not wasteful, and instead of letting your outgrown machinery rust out, advertise it in The Clay-Worker (see forms of ads under heading "For Sale, Wanted, Etc.," in this issue) and convert it into

CASH

To insure insertion in current issue, copy should be furnished early in the month.

Address

THE CLAY-WORKER,
Indianapolis.



Style 306 No. 1, Single Deck.

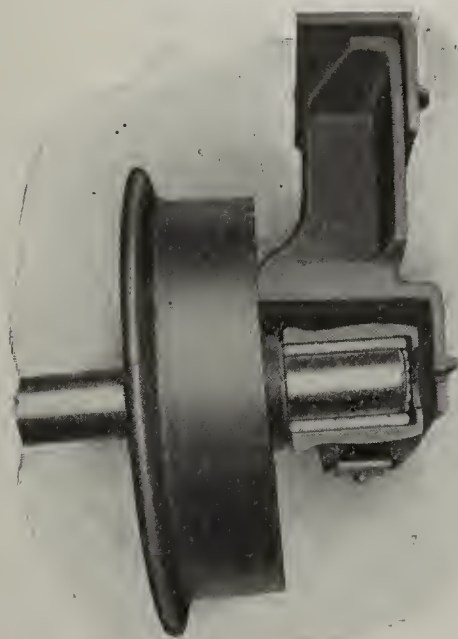


Style 306 No. 2, Double Deck.

WRITE US FOR CATALOG AND PRICES.

The Chase Foundry & Mfg. Co.
Columbus, Ohio

CHASE DRYER CARS
With Patented
FLEXIBLE and REVERSIBLE
BOXING AND ROLLER BEARINGS.



Sectional view of Flexible Boxing showing deflection in the axle, the same as occurs when the car is passing over uneven track or is unevenly loaded.

HOW ABOUT THAT INCOME OF YOURS?

Is it Sufficient, are You Perfectly Satisfied with it, or would you like to Augment It with a Little

EASY MONEY?

How Would \$500 or \$600 a Year added to the Credit Column Fit You
Especially if it might be acquired by a very Small Investment and almost

NO LABOR

RATHER A PLEASURABLE PASTIME

Sit you down and harken to me.

There is, positively no other honest industry that lends itself so unconditionally and generously to the requirements of the average man or woman as does the production of Superior Quality Poultry Products, and this is doubly true when one employs those most lovable and beautiful of all domestic fowls, the

SINGLE COMB BUFF ORPINGTONS

They Lay

They Stay

They Pay

The above sum can easily be realized the second season from a start with one pen of birds of good quality by any person of fair intelligence, and that on a back lot—a farm is not required—40x40 feet is ample.

NOW IS THE TIME TO START

I can supply you with Breeding Stock from a strain that has won 75 per cent. of the prizes, for which it contended, for the past six years; including such shows as Madison Square, Chicago, Pittsburg, New Orleans, etc., etc., and at prices such as you are not likely to be offered soon again.

March and April Cockerels that weigh up to Standard. Birds scored by one of the most critical judges in the association from 90 to 94. A limited number to let go—pullets, (many now laying), \$3.00 to \$8.00. Cockerels, \$5.00 to \$25.00. Order from this ad. or write for any information concerning them.

If they are not worth more than your money, YOU THE JUDGE, you can trade back, and I mean it.

JOHN A. RANDALL,

213 Hudson Street

Indianapolis Ind.

You Can Save Money

Time and Trouble

By making your choice of magazines for coming year and ordering them all at once through THE CLAY-WORKER.

Knowledge is Power

The best way for clayworkers to get trade knowledge is through the columns of the best clay journal, THE CLAY-WORKER. The up-to-date, successful manufacturer usually keeps posted on current events through the current magazines. The home should be provided, and usually is, with journals devoted to domestic interests and to the welfare and pleasure of the women and children. All of these, whether literary or technical, we offer at prices that will net a saving of 25% to 50% on your magazine purchases for the ensuing year.

(These prices are good only in the United States. Special prices will be quoted to points beyond the United States covering additional postage required.)

The Clay-Worker Clubbing Offers:

CLAY=WORKER.....	\$2.00	Our Price
Mantel, Tile & Grate M.	1.00	
American Magazine...	1.50	\$3.00
Value.....	\$4.50	
CLAY=WORKER.....	\$2.00	
Good Housekeeping...	1.50	
McClure's.....	1.50	\$3.50
Value.....	\$5.00	
CLAY=WORKER.....	\$2.00	
Country Life in America	4.00	
Cosmopolitan.....	1.50	\$5.25
Value.....	\$7.50	
CLAY=WORKER.....	\$2.00	
Municipal Journal.....	3.00	
Saturday Evening Post	1.50	\$4.50
Value.....	\$6.50	
CLAY=WORKER.....	\$2.00	
Hampton-Columbian Magazine.....	1.50	
Current Literature....	3.00	\$4.10
Value.....	\$6.50	

CLAY=WORKER.....	\$2.00	Our Price
Irrigation Age.....	1.00	
Cosmopolitan.....	1.50	\$2.95
Value.....	\$4.50	
CLAY=WORKER.....	\$2.00	
Pearson's.....	1.50	
Brickbuilder.....	5.00	\$6.50
Value.....	\$8.50	
CLAY=WORKER.....	\$2.00	
Cosmopolitan.....	1.50	
Physical Culture.....	1.50	
World's Work.....	3.00	\$5.30
Value.....	\$8.00	
CLAY=WORKER.....	\$2.00	
Motor.....	3.00	
Suburban Life.....	3.00	
Pearson's.....	1.50	\$7.20
Value.....	\$9.50	
CLAY=WORKER.....	\$2.00	
Concrete.....	1.00	
Everybody's.....	1.50	
Ladies' World.....	.50	\$3.35
Value.....	\$5.00	
CLAY=WORKER.....	\$2.00	
Munsey.....	1.00	
Collier's.....	5.50	\$6.85
Value.....	\$8.50	
CLAY=WORKER.....	\$2.00	
Metropolitan.....	1.50	
Good Housekeeping...	1.50	\$3.50
Value.....	\$5.00	
CLAY=WORKER.....	\$2.00	
Brickbuilder.....	5.00	
Cosmopolitan.....	1.50	\$6.50
Value.....	\$8.50	

	Our Price
CLAY=WORKER.....\$2.00	
Concrete..... 1.00	
Woman's Home Comp. 1.50	\$3.00
Value.....\$4.50	
CLAY=WORKER.....\$2.00	
Woman's Home Comp. 1.50	
Delineator..... 1.50	\$3.50
Value.....\$5.00	
CLAY=WORKER.....\$2.00	
Concrete Age..... 1.00	
Worlds Work..... 3.00	
Saturday Evening Post 1.50	\$5.10
Value.....\$7.00	
CLAY=WORKER.....\$2.00	
Youth's Companion... 2.00	
McClure's..... 1.50	\$4.00
Value.....\$5.50	
CLAY=WORKER.....\$2.00	
Woman's Home Comp. 1.50	
Youth's Companion... 2.00	\$4.25
Value.....\$5.50	
CLAY=WORKER.....\$2.00	
Scientific American.... 3.00	
Current Literature.... 3.00	
Woman's Home Comp. 1.50	\$6.75
Value.....\$9.50	
CLAY=WORKER.....\$2.00	
Outing..... 3.00	
Technical World..... 1.50	
Success..... 1.00	\$5.50
Value.....\$7.50	
CLAY=WORKER.....\$2.00	
Saturday Evening Post 1.50	
Leslie's Weekly..... 5.00	\$6.40
Value.....\$8.50	
CLAY=WORKER.....\$2.00	
World's Work..... 3.00	
Woman's Home Comp. 1.50	\$4.20
Value.....\$6.00	
CLAY=WORKER.....\$2.00	
Century..... 4.00	
Current Literature.... 3.00	\$6.50
Value.....\$9.00	

	Our Price
CLAY=WORKER.....\$2.00	
Country Life..... 4.00	
Delineator..... 1.50	
McClure's..... 1.50	\$6.50
Value.....\$9.00	
CLAY=WORKER.....\$2.00	
Good Roads..... 1.00	
Popular Magazine..... 3.00	\$4.50
Value.....\$6.00	
CLAY=WORKER.....\$2.00	
Scribner's..... 3.00	
Current Literature..... 3.00	\$5.75
Value.....\$8.00	
CLAY=WORKER.....\$2.00	
Lippincott's..... 3.00	
Delineator..... 1.50	\$4.25
Value.....\$6.50	
CLAY=WORKER.....\$2.00	
World Today..... 1.50	
Hampton-Columbian Magazine..... 1.50	\$3.50
Value.....\$5.00	
CLAY=WORKER.....\$2.00	
Cosmopolitan..... 1.50	
Century..... 4.00	\$6.00
Value.....\$7.50	

If none of the foregoing combinations is just what you want, write us for special prices on any magazines or papers desired and we will quote you equally low prices.

Send all orders to The Clay-Worker.

T. A. Randall & Co., Pub. Clay-Worker, Indianapolis:

You will please send The Clay-Worker and the other magazines named below to me for the ensuing year beginning with the next current issue of each for which

I enclose \$.....

Name

Postoffice.....

Street and No.....State.....

Names of magazines desired.....

.....

.....

.....

"Mr. Clayworker—This is YOUR SHOW"



Go Where the Buyers Are

The man who has some brick to sell,
And tells his story down a well,
Will never reap the golden dollars
Of he who joins the show and hollers.

The Clay Products Exposition will be the opportunity of recent years to find buyers for your product. Architects, Contractors and Builders from all parts of the United States are taking the liveliest interest in the Exposition. They all want to see what the Clay Products people have to offer, and they will arrive in the Coliseum in March to be shown. These are the people most manufacturers would like to see and talk to, and the Exposition will afford the opportunity. It becomes important that displays of clay products which are creditable to the trade are shown in an attractive way. You should see that your best selling samples are there, and that they are backed by your best selling talk. A weakness anywhere along the line would be an unfortunate mistake. This is your opportunity to get business, Mr. Clayworker, so get busy. If you think you already have a pretty fair business you can either improve its volume or quality at the Exposition, and you can also prevent some other manufacturer getting a part of it away from you.

You Cannot Afford to Stay Out——This is YOUR Show

It will benefit your interests and help in increasing your sales anyway, but it will be doubly valuable if you have your products properly displayed in a suitable exhibit space for the inspection of

100,000 PAIRS OF EYES.

Write NOW for floor plan and particulars regarding reservation of space. You cannot afford to wait until the last minute.

INTERNATIONAL CLAY PRODUCTS EXPOSITION CO.

815 Chamber of Commerce Bldg., CHICAGO

THE LAST CALL

ONLY A FEW DAYS LEFT TO JOIN US

If YOU haven't secured space for a display at the great Clay Products Exposition, which is to be held MARCH 7-12, in the Coliseum, Chicago, Ill., write at once.

SEVERAL AVAILABE SPACES STILL UNSOLD

Remember every live Clayworker, Architect and Contractor will be there.

Your Product Should be Exhibited.

Further Particulars From

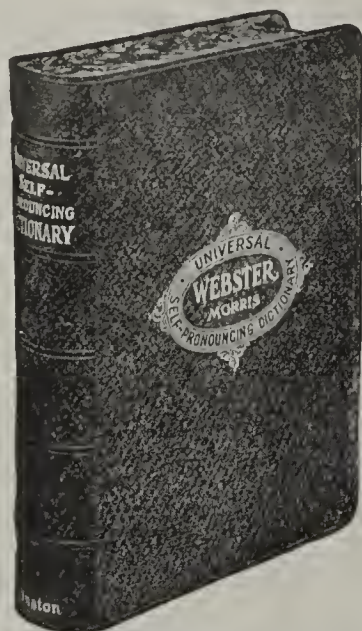
**THE INTERNATIONAL BRICK AND CLAY PRODUCTS
EXPOSITION COMPANY**

**815 Chamber of Commerce Building
CHICAGO, ILL., U. S. A.**

FREE

This superb self-pronouncing Dictionary, in substantial cloth binding with The Clay-Worker for 1912, for \$2.00. Nothing nearly so valuable has ever been offered before. The flexible morocco binding, an elegant volume, will be sent for \$2.75, charges prepaid, together with The Clay-Worker for twelve months. **ORDER NOW.**

The Most Valuable Premium Ever Offered Free.



FRENCH MOROCCO BINDING
Absolutely Flexible

reinforced in all necessary parts to add to strength and durability. Title stamped in gold on side and back, marbled edges, Patent Thumb Alphabetical Index.

=THE NEW UNIVERSAL= —SELF-PRONOUNCING— DICTIONARY

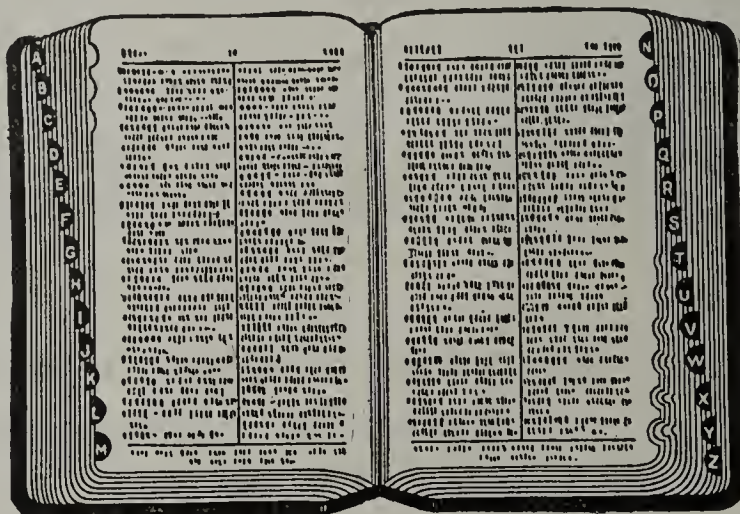
Based upon the Solid Foundation laid by
NOAH WEBSTER

and other Lexicographers, thoroughly modernized by
CHARLES MORRIS

In the Office It tells you how to divide each word into syllables; how to pronounce it, whether it begins with a capital letter or a small letter; gives abbreviations; legal and commercial terms, and names of persons and places. It will be found indispensable to employer, stenographer or clerk.

In the Home and School Its simple arrangement and clear definitions admirably fit it for this purpose. The bold type and the vast amount of general information it contains, commends it to Teacher, Parent and Child.

Printed
from New
Type-Set
Plates



This cut shows Patent Thumb Index and how Dictionary appears when open. It lies perfectly flat. Size when open 8 x 11 1/2 ins. Size when closed 5 1/2 x 8 1/2 ins. Contains over 1000 pages.

In Convenience of Size
Fullness of Contents
Logical Arrangement
it is especially adapted to
every-day use for
**Business Man, Teacher,
Student and The Home**

Among the noteworthy improvements are the following:
It Contains All the Words in the English language in ordinary use, including the many new words that have recently come into use. The definitions are accurate and reliable and embrace all distinctions and shades of meaning.
Words Divided into Syllables. Each index word is divided into syllables in the manner employed by the best writers.
The Proper Use of Capital and Small Letters is clearly indicated. Proper nouns begin with capital letters, common nouns begin with small letters.
The Pronunciation of Each Word is shown by a clear and properly accented system of phonetic spelling.
The Synonyms and Antonyms are given with the words themselves following the definitions instead of the usual but less convenient method of placing them in a separate list in the appendix.
Each Word and Its Derivatives are separately indexed instead of the suffix words and prefix words being crowded in with the definitions, an expedient used to save space, but with a loss of clearness and utility.
Many Other Necessary Features Useful in Home, School and Office, including Rules for Pronunciation; Dictionary of Prefixes and Suffixes; of Names of Men and Women; of Mythological and Classical Names; of Forms of Address; of Popular Titles of Cities and States; of Important Persons, Places, Monuments; of Foreign Words and Phrases, Colloquialisms, Quotations and Significant Words and Phrases frequently met with in Literature; and a Dictionary of Words adopted by the Simplified Spelling Board; Maps of the World and of the United States in Colors; Flags of All Nations in Colors.

1000 PAGES

SIZE 5 1/2 x 8 1/2 INCHES



ABSOLUTELY FLEXIBLE
The French Morocco binding is so flexible that the book may be rolled without injury to binding or sewing.

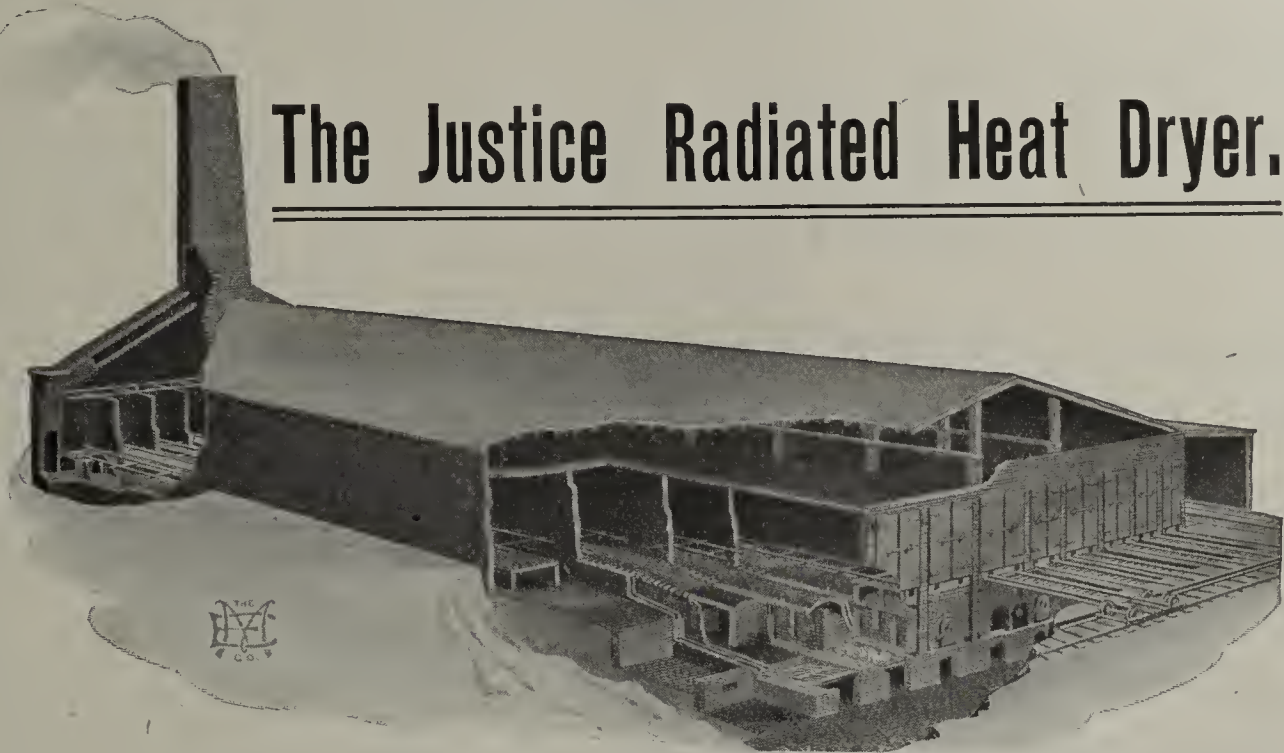
Needed Every Day at the Plant, the Office, the Home.

Remit by check or in any way most convenient to yourself.

T. A. Randall & Co. (Inc.), Publishers, Indianapolis, Ind.

The Justice Clay Crusher will Overcome Your Crushing Troubles

When planning your improvements for 1912, don't forget to abandon that antiquated makeshift of a dryer that you have been using for years, and install the modern system



The Justice Radiated Heat Dryer.

From the first minute of its use you realize a higher percent of profit on your output, caused by a better product at less expense—possible only with this Dryer.

Its merits are summed up in the following:

Highest efficiency from fuel consumed.

Greatest economy in labor.

Minimum amount of building material.

Simplicity in construction details.

No sulphur gases in contact with drying ware.

Drying conditions under full control.

No expensive repairs required.

Successful results always certain.

Write for Bulletin No. 1. It fully describes this Dryer.

The Manufacturers Equipment Company

Sales Agent for: The J. D. Fate Company's Complete Line of Clay Working Equipment
The Elwood Dry Press! The Joplin Rock Crusher

Dayton, Ohio, U. S. A.

Give "Meco" Clay Cutting Wires a Trial. They mean Better Service at Less Expense

FOR SALE

We have thirty years valuable EXPERIENCE to sell.

EXPERIENCE manipulating all kinds of clays under all conditions.

Engineering EXPERIENCE designing, building and operating clay working plants and remodeling old plants.

EXPERIENCE making, drying and burning the various clay products.

EXPERIENCE testing and developing clay properties.

EXPERIENCE designing, constructing and operating different kinds of kilns.

EXPERIENCE designing, building and operating every kind of artificial dryer for clay products.

Direct Heat, Radiated Heat, Waste Heat, Steam Blower, Radiated Steam, Steam Pipe Rack, Waste Heat Pipe Rack, Vacuum and Combination Dryers. We will furnish plans and build any of the above Dryers and Guarantee them.

Do you expect to buy machinery or build a plant?

Let us draw your plans and specifications and see that you get a square deal.

It will pay you. We are familiar with all clayworking machinery in general use today and know the strong and weak points. We are also acquainted with the various manufacturers and their methods, and are ABSOLUTELY INDEPENDENT of all manufacturing concerns and will protect our clients' interests without fear or favor.

**We Can Increase Capacity and Save Fuel With
Your Old Down-Draft Kilns.**

ED. H. CALLAWAY ENGINEERING CO.

50 Church Street, New York City.

Brickologists and Clay Specialists.

CONVENTION

Headquarters

Parlors B=2 and B=4

At the Annex,

Chicago,

March 7 to 12, 1912.

Our new catalog is soon ready.

Get your name in for the first distribution.

The C. W. Raymond Co.

*The Strongest Power in the World of
Clayworking Machinery*

Dayton, Ohio, U. S. A.

"This is What They All Say—"

Leavenworth Post
Oct. 19, 1911
Leavenworth Kansas

ARE MAKING FINE BRICK

Convicts at the Military Prison are Turning Out a Superior Quality.

Yesterday a dozen prison guards from various parts of the country visited the penal institution here. They were particularly impressed with the fine quality of brick being manufactured at the United States Military Prison at Fort Leavenworth.

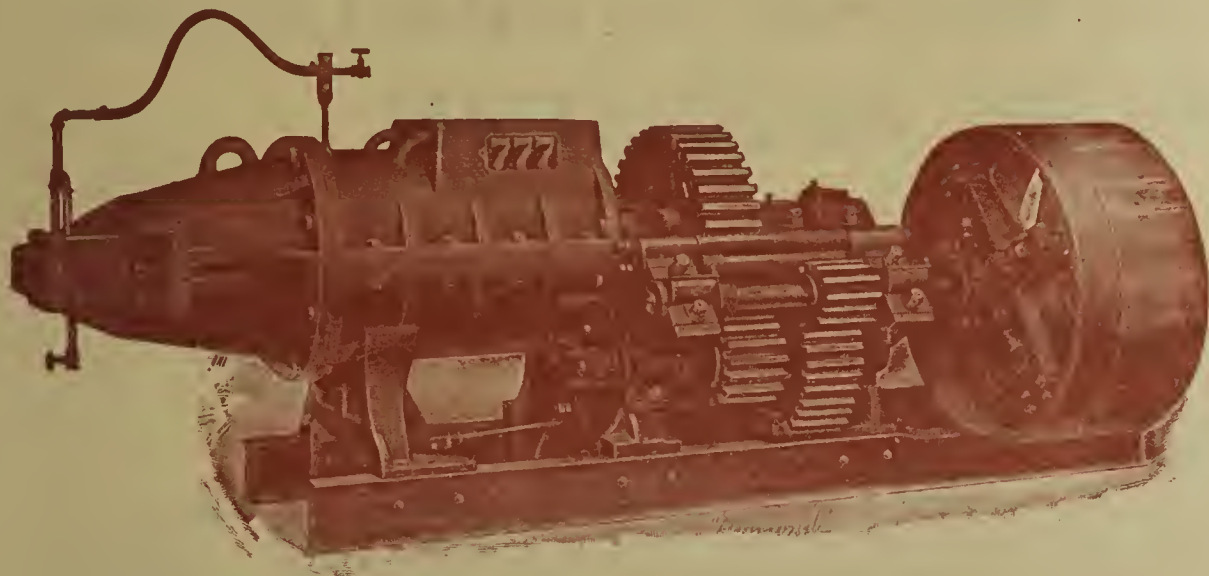
Senator Milton Milling, who was in the party and who is a brick expert, pronounced them the finest he has seen in a long time. "I cannot understand why they are so far superior to the Lansing brick when the materials are the same," he said. "At Lansing we sometimes have a run of fine brick like this and then a run of poor brick. These seem to be uniformly good."

It is possible that the fact that the Fort Leavenworth bricks are made from dry powdered shale and dry accounts for their fine quality. The Lansing bricks are pressed from wet clay which is more difficult to burn. The brick plant at the military prison is one of the finest in this section, being superior even to the Federal prison plant. The capacity of the plant is 100,000 bricks a day, but the plant is not run up to capacity because the bricks cannot be hauled off fast enough.

Raymond Equipment

Raymond Equipment

LESS
NOT RUTHAL-JUST



The Brick Plant of
The United States Military Prison
at

Fort Leavenworth, Kansas

is equipped with

- 2—Raymond 9 ft. Standard Dry Pans
- 2—Raymond Cup Elevators
- 1—Raymond Piano Wire Screen
- 1—Raymond 10 ft. Standard Pug Mill
- 1—Raymond "777" Brick Machine
- 1—Raymond No. 2 Automatic Cutter
- 1—Raymond Victor Repress
- 1—Raymond 10 Tunnel Radiated Heat Dryer

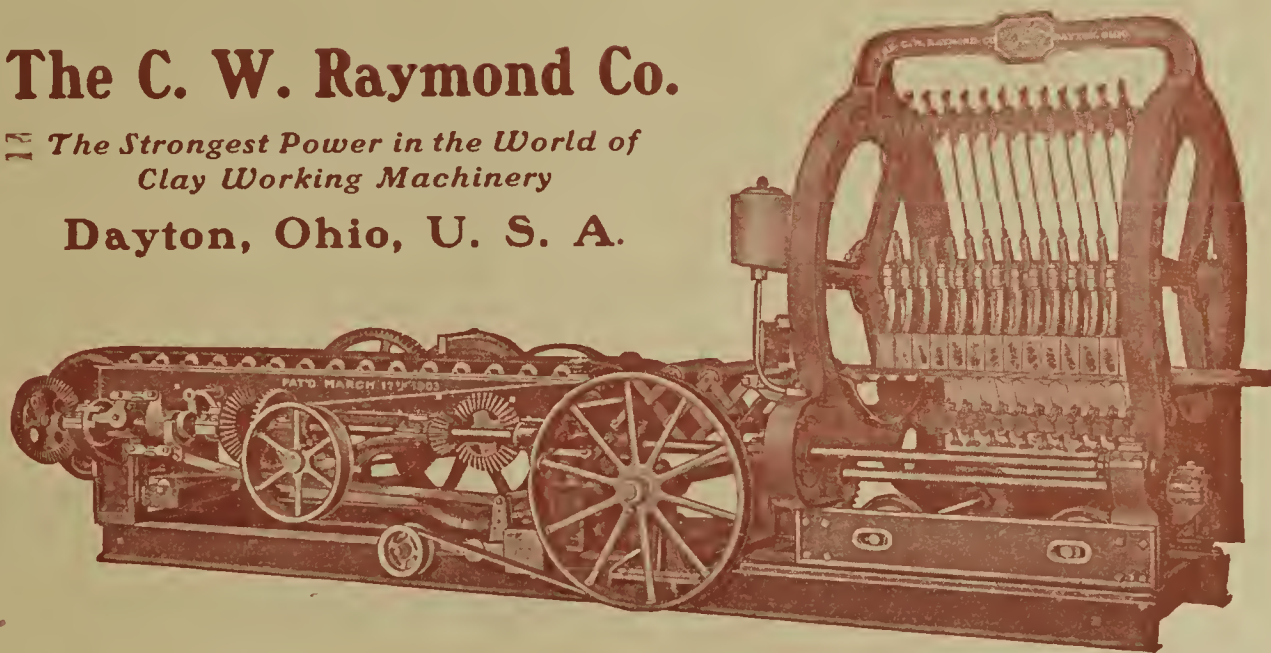
—And They Said,

“—particularly delighted with the quality of the brick manufactured at the Military Prison, and could only attribute its **SUPERIORITY** over the Lansing brick, which is of the same material **TO THE IMPROVED MACHINERY USED.**”

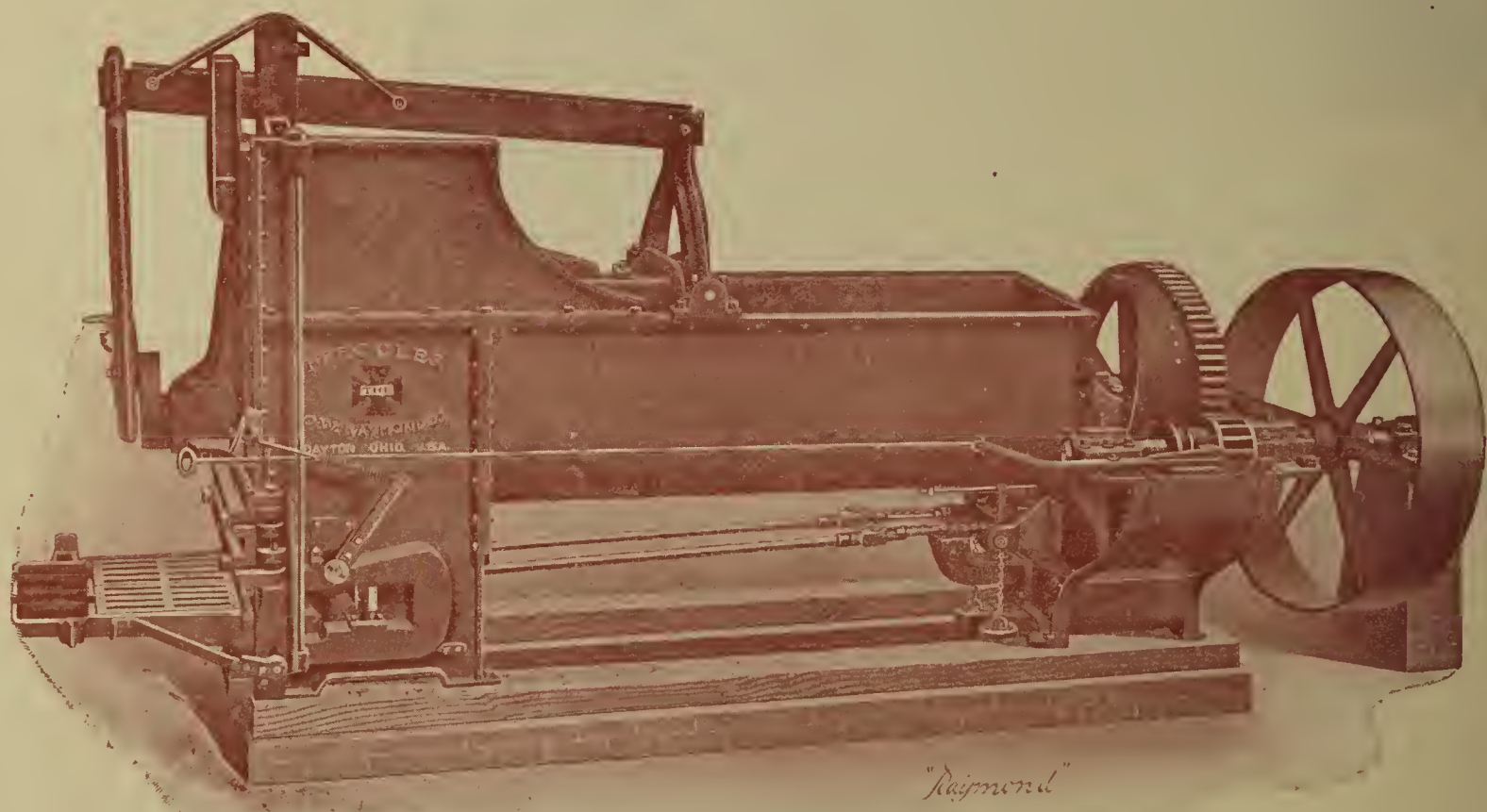
The C. W. Raymond Co.

*The Strongest Power in the World of
Clay Working Machinery*

Dayton, Ohio, U. S. A.



THE RAYMOND HERCULES BRICK MACHINE



Among the numerous improvements made in our machines for the year of 1912 the Soft Mud machinery has come in for its full share and the Hercules Soft Mud machine is now constructed with a vastly improved pushout device, making a positive return and of such shape and size to insure sufficient bearing at this important point that it will not stick nor clog in any manner.

The safety feature of the pushout device has not been lost sight of, but has been improved over the old method by paying more attention to the workmanship and every part of the machine now is put together with the same care and precision as are the most careful adjustments on our Automatic Cutting Tables. The result of this is clear, making as it does a higher grade machine, smoother working, better product and longer life.

Photographs and full description of this improved machine are yours for the asking.

THE C. W. RAYMOND CO.

The Strongest Power in the World of Clayworking Machinery

DAYTON, OHIO, U. S. A.

Notice to Manufacturers of Hollow Tile and "Stiff Mud" Products.



Denison Tile Walls.

One unit lays up the different desirable thicknesses of walls.

As cheap as common brick.—

Lays up at half the cost.—

Requires 100 tons per square foot to crush.—

Warm in winter.—

Cool in summer.—

Dry always.—

Sound Proof—Vermin and Germ Proof.—

Needs no furring, etc.



A new departure in building constructions is on. Hollow Tile taking the place of common brick and frame construction in load bearing walls. City after city is changing its building code to permit the use of hollow tile load bearing wall construction. As fast as the live manufacturers investigate, they take hold of the opportunity. It is but little short of a revolution in building construction.

Fifty million common brick displaced by tile in Cleveland in 1911.

Start it in your locality.

DENISON TILE

best to do it with. We have never yet failed to convince a manufacturer of this fact.

Only about 15 cts. per ton royalty with exclusive territory. Business built upon patented Denison Tile cannot be torn down by competition.

All we ask is that you investigate.

Write to

The Ohio Clay Company,

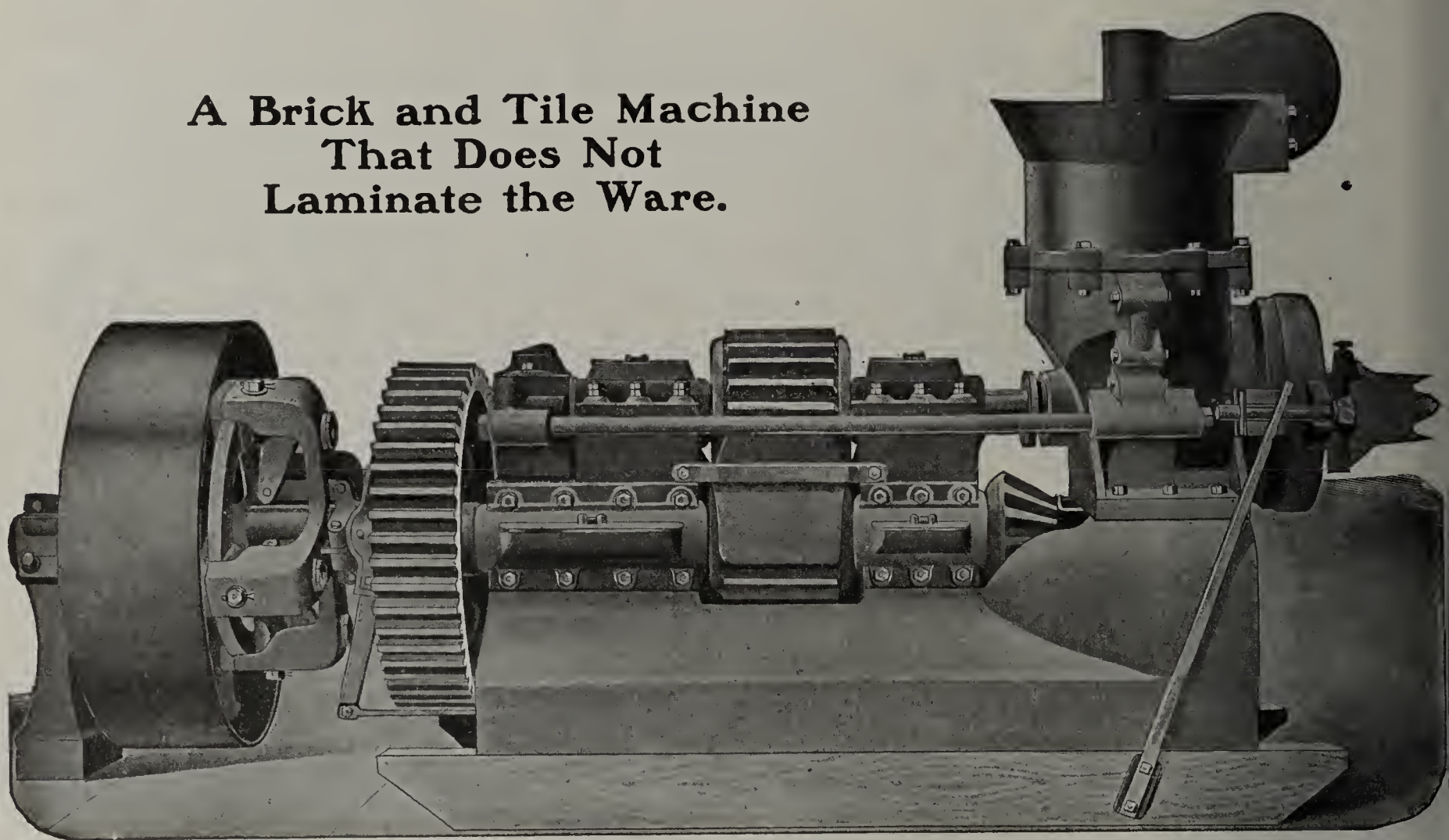
1337 Schofield Bldg., Cleveland, O.

TURN FAILURE INTO SUCCESS

With The Wonder Machine.

A Machine of Large Capacity. Unequaled in
Record of Durability.

A Brick and Tile Machine
That Does Not
Laminate the Ware.



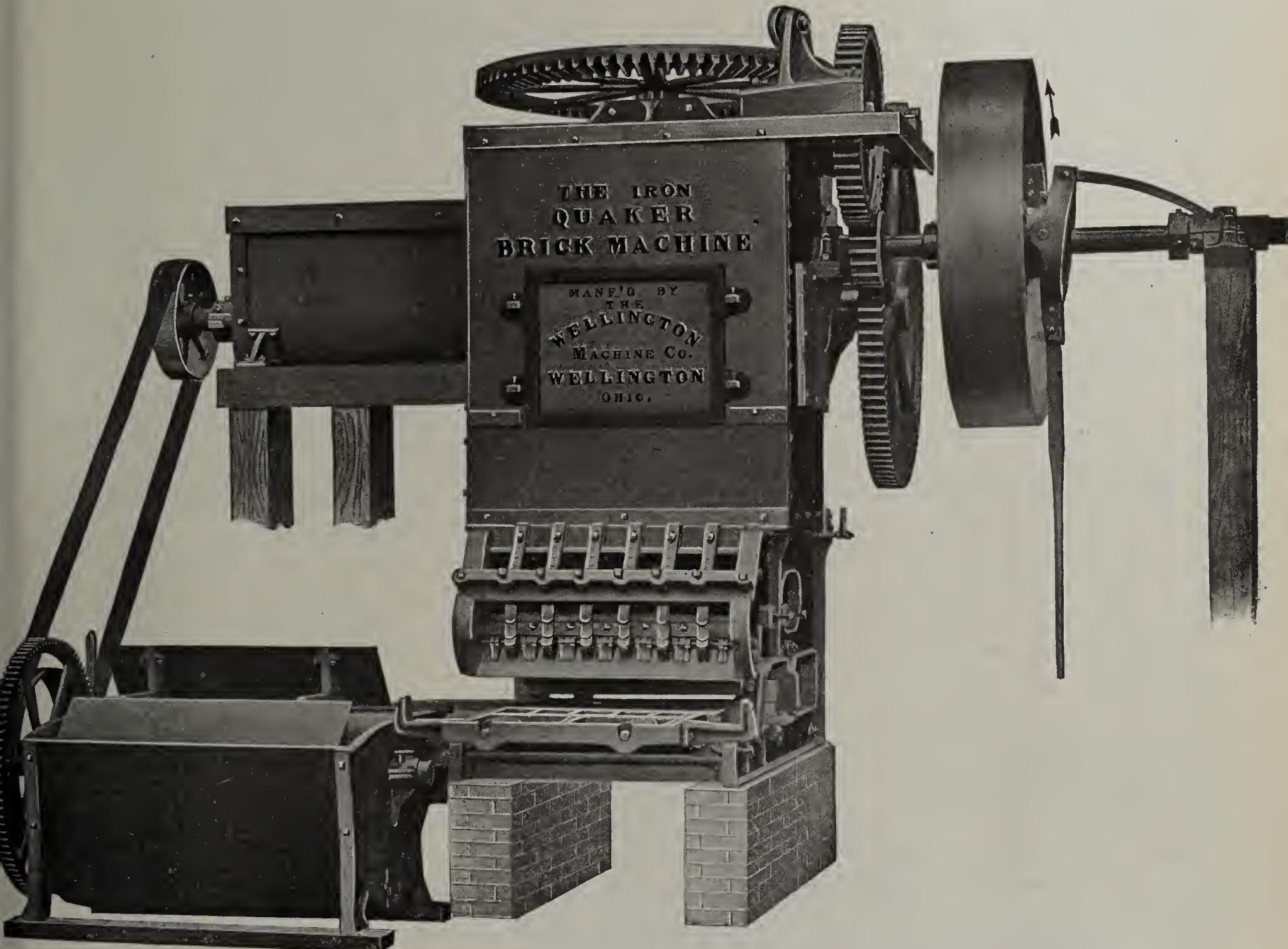
The Big Wonder Brick and Tile Machine.

We also make Side-Cut Brick Cutters, Clay Crushers,
Dry Pans, Disintegrators, Pug Mills, Granulators and Cor-
rugated and Smooth Roll Crushers.

Write for Catalog and Prices.

THE WALLACE MFG. CO.,
FRANKFORT, IND.

WHILE THE SNOW FLIES
Order Your Brick Machine.
WHEN THE SUN SHINES
Be Ready to Make Brick.



THE COMBINED QUAKER OUTFIT.

Seven years ago we shipped three Combined outfits to Grand Forks, N. D.; this past fall, received the following letter:

The Wellington Machine Co.,
 Wellington, Ohio:

Gentlemen—Our machines have done the best work this year they have done any year since we got them. We never made brick so fast in our lives as we made them this year. They averaged for the number of days we ran over 48,000 per day on each machine and many days they made over 50,000 each.

Yours truly,

(Signed) THE RED RIVER VALLEY BRICK CORPORATION.

While this Outfit is only intended for service up to 30,000 per day, it is built so heavy and strong as to stand up to the strain of 50,000 brick a day the seventh season.

If you need a medium capacity machine investigate this "little giant" before placing your order.

Write for 1912 catalogue of machinery and all brickyard supplies.

The Wellington Machine Co., Wellington, Ohio

Mention THE CLAY-WORKER.

BOOKS FOR CLAYWORKERS.

These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

The Brickmakers' Manual, by R. B. Morrison and J. A. Reep. Price \$3.00.

An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryers, kilns, etc.

The Clayworkers' Handbook, by the Author of "The Chemistry of Clayworking." Price \$2.00.

A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport, Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting or Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

Modern Brickmaking, by Alfred B. Searle. Price \$5.00.

It contains well-written chapters on the nature and selection of clays and other materials used, general brickmaking, the different processes, machinery, kilns, setting and burning, various products and uses, and sources of difficulty and loss.

Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

Clays: Their Occurrence, Properties and Uses, by Heinrich Ries. Price \$5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

Bricklaying, by Owen B. Maginnis. Price \$2.00.

This book contains extensive explanations of the most improved modern methods of bricklaying, and is the current practice and experience of the best authorities, making an invaluable work of reference for architects, engineers, contractors, builders and mechanics.

The Effect of Heat Upon Clays, by Prof. A. V. Bleining. Price \$2.00.

A book of valuable information on burning and drying, told in a plain, practical way, and invaluable to the burner or superintendent.

Bricklaying System, by Frank B. Gilbreth. Price \$3.00.

A book whose 330 pages are filled with rules and hints for the foreman and bricklayers, designed to increase the output of the workmen and enable them to do difficult work in the best manner.

Vitrified Paving Brick, by H. A. Wheeler, E. M. Second Edition. Price \$2.00.

A review of present practice of the manufacture, testing and uses of vitrified paving brick.

Tables of Analyses of Clays, by Alfred Crossley. Third Edition. Price \$2.00.

Including analyses of chemically pure clays, well-known common and pressed brick clays, paving brick clays, fire clays, shales, etc., both in this country and abroad. A valuable book for those desiring to compare their clays with well-known and standard clays.

Kiln Records, by W. D. Richardson. Price \$1.00.

To establish a successful system of burning, observations and records should be made regularly, carefully and conscientiously, and this can be done to best advantage by the use of Mr. Richardson's Kiln Records.

Engineering for Land Drainage, by C. G. Elliott. Price \$1.50.

Giving instructions for laying out and constructing drains for the improvement of agricultural lands intended for the use of those who are charged with the responsibility of making plans for and executing drainage improvement.

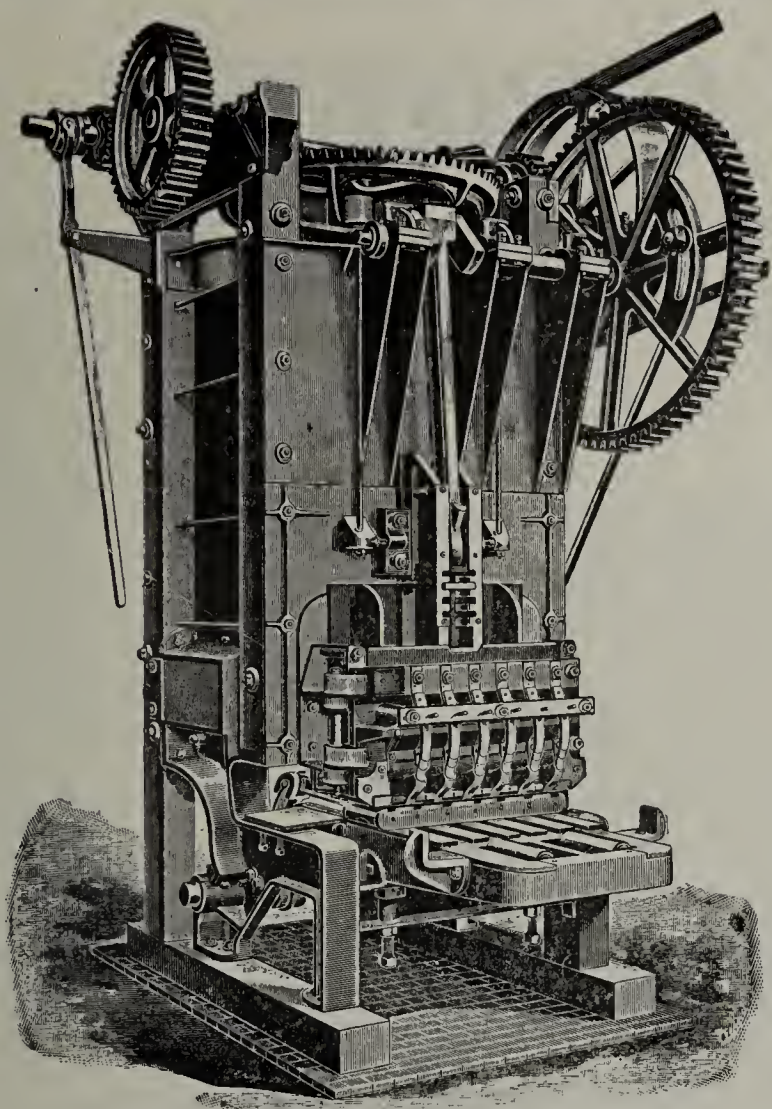
Practical Farm Drainage, by C. G. Elliott. Price \$1.50.

A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

Tile Underdrainage, by J. J. W. Billingsley. Price 25 Cents.

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distributing among tile users. In lots of 100, \$2.50; in lots of 1,000, \$20.00.

T. A. RANDALL & CO.,
Indianapolis, Ind., U. S. A.



"New Haven" Vertical Machine.

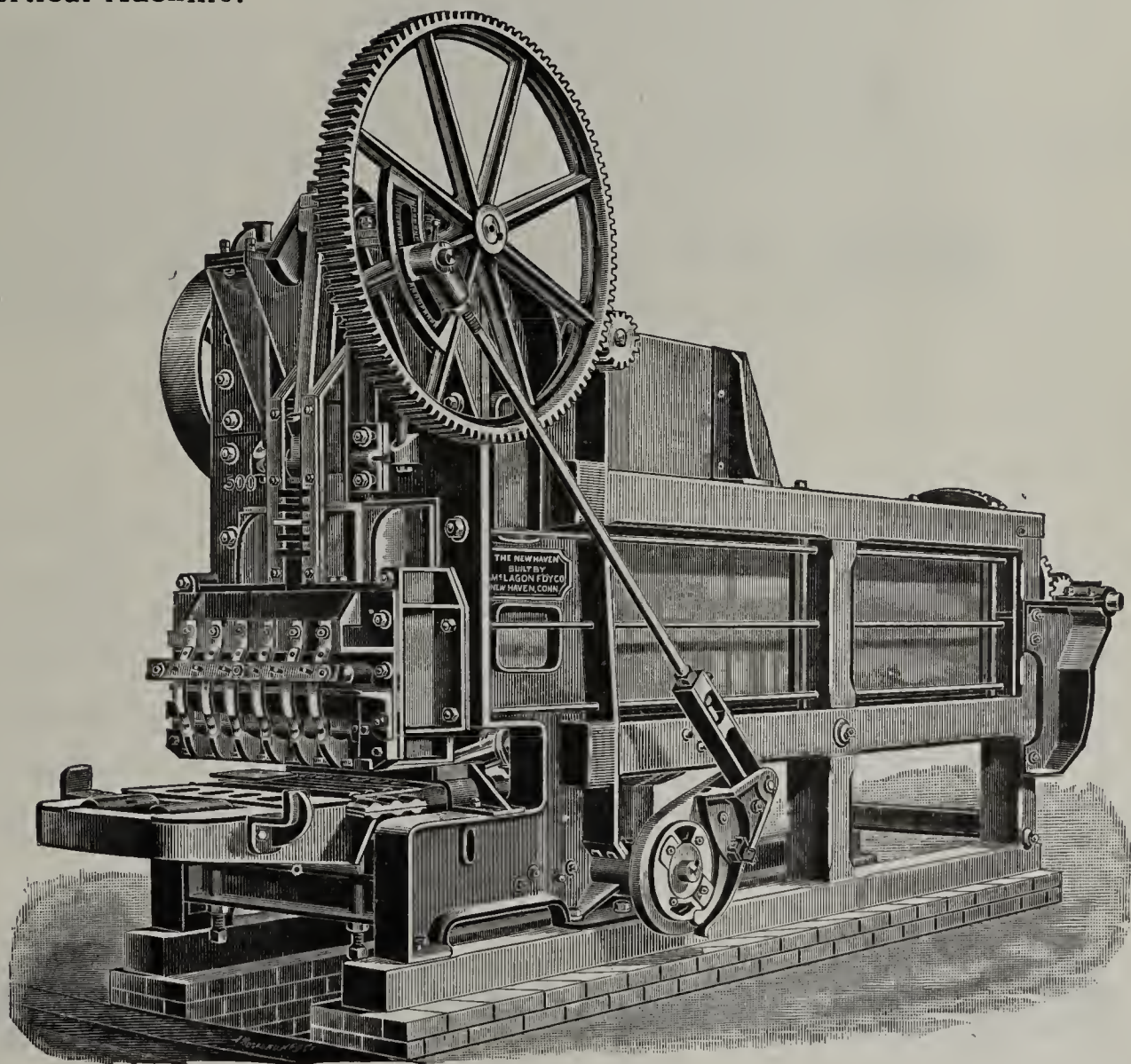
Endurance the "Crowning Quality."

New Haven Brick Machines are not Experiments. They are particularly adapted for hard service.

Their history is a record of unusual success. Continued results determine the economic value of a machine rather than first cost, and on this basis NEW HAVEN Machines have been proved to be the least expensive as well as the greatest profit-winners.

The Eastern Machinery Co.,
New Haven, Conn.

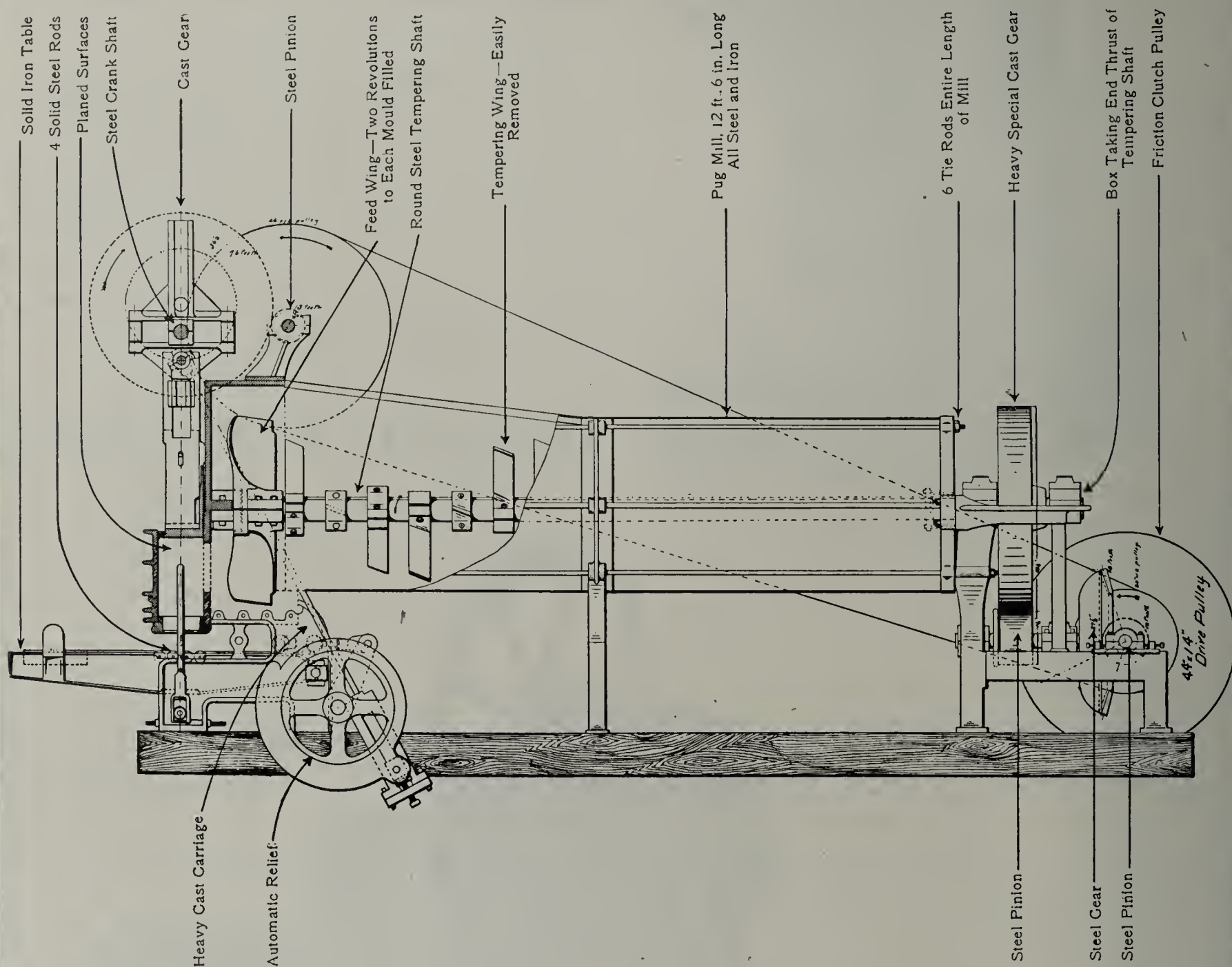
New
Haven
Machines
Have
No
Equal
For
Earning
Capacity.
They
Are
Built
To do
The
Work
And
They
Do it.



"New Haven" Horizontal Machine.

SEE THE ARROWS

They Point to Features Not Found in Any Other Sand Mould Machine.



All the good points shown go to make a Brick Machine that will give **Results**, one that you can depend upon, making a given number of brick every day with the least possible cost for Power, Labor and Maintenance.

If interested in new machinery, make a careful comparison of the good points in this machine, then try finding them in other machines. You can't do it.

Write for catalog.

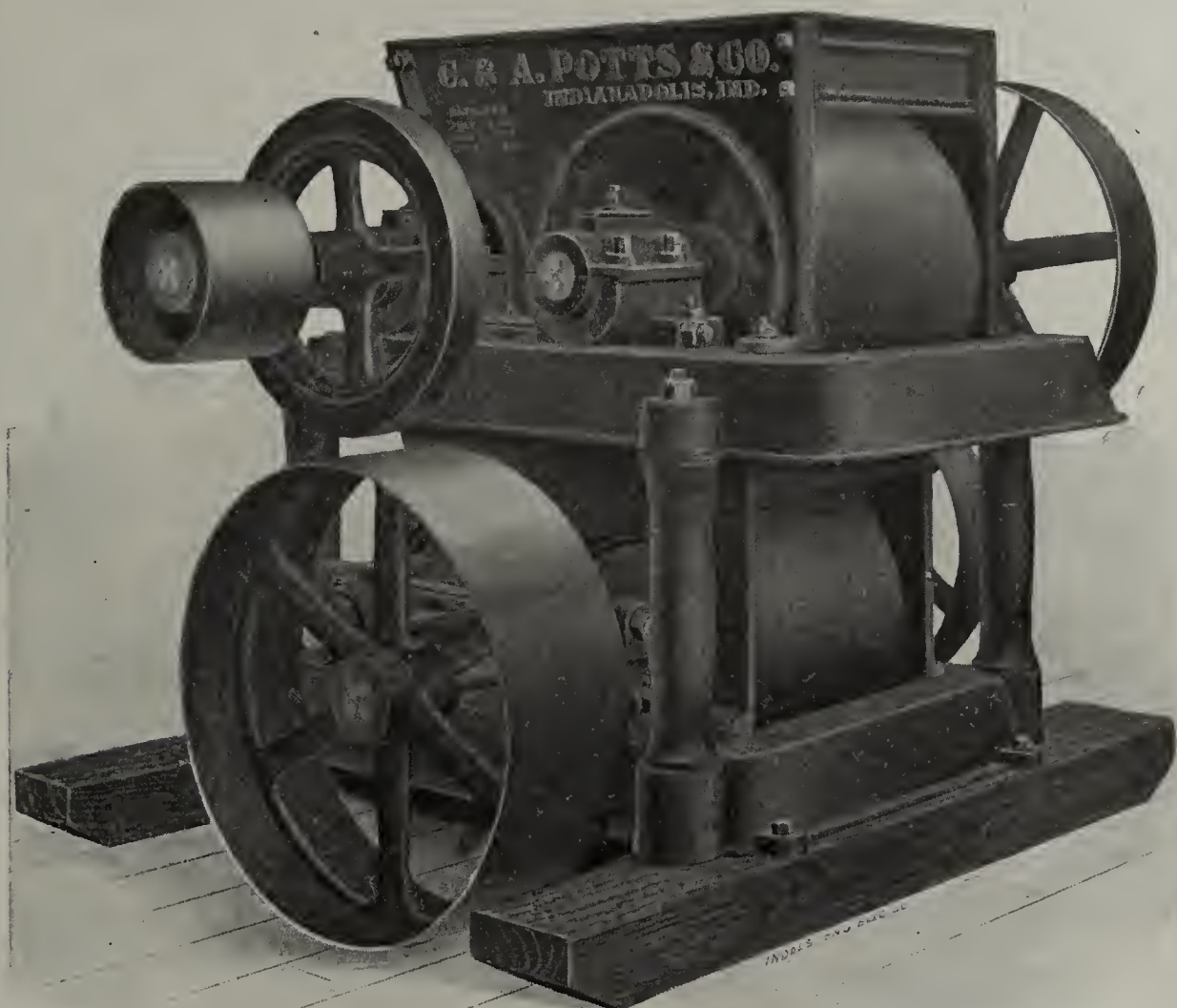
C. & A. Potts & Co.

INDIANAPOLIS, IND.

CRUSHING MACHINERY

OUR SPECIALTY

Years of experience with this line has enabled us to meet all demands and solve problems of all kinds.



Disintegrators, any capacity desired.

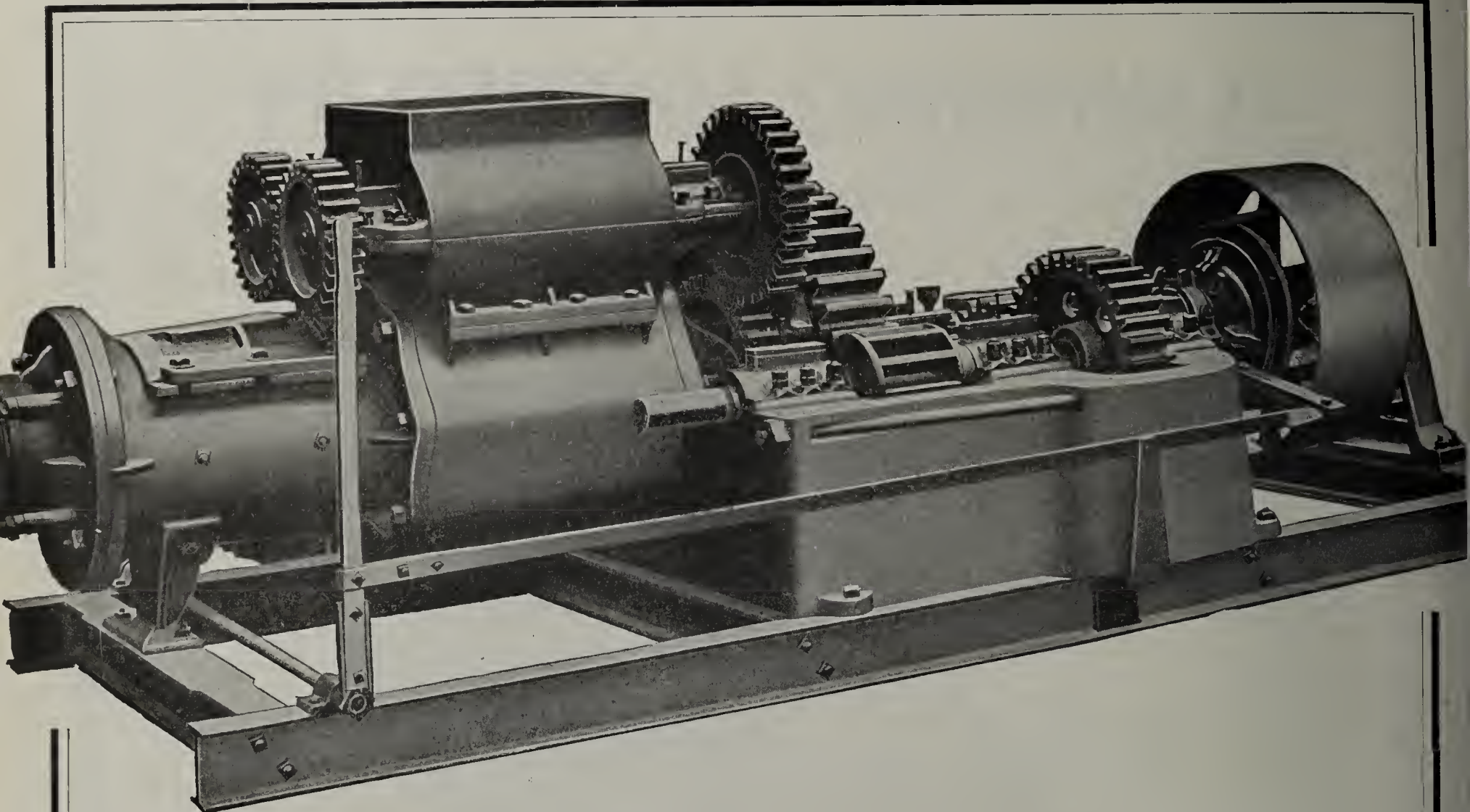
Compound Disintegrators and Crushers.

Smooth Roll Crushers, most improved pattern.

If you have a grinding plant which is not satisfactory, let us know your troubles, we can help you. All machines built of good material extra heavy for work intended. All rolls made from special iron thoroughly chilled.

C. & A. Potts & Co.

INDIANAPOLIS, IND.



A FEW POINTS OF SUPERIORITY IN MADDEN MACHINES:

Greater capacity in Tile, Brick or Hollow Ware than any other.

Better Quality of Ware—Dirt is compressed firmer and harder, making better material.

Fitted with our Positive Force Feed Device which insures greater capacity, steady output, with no back feeding of clay in hopper.

Great Weight and Strength where needed, the frame being cast in one piece, hopper, barrel and gears being very heavy. The shafts are of best hammered steel and main driving gears of cut steel.

Note how the entire machine is set up on Steel I Beam Frame, all bearings aligned on same frame, thus making this the strongest, most durable machine on the market, and the easiest to set up in your plant.

REMEMBER: We build these in four sizes for any capacity plant, and have a complete line of everything needed in any clayworking plant.

Let us hear your wants.

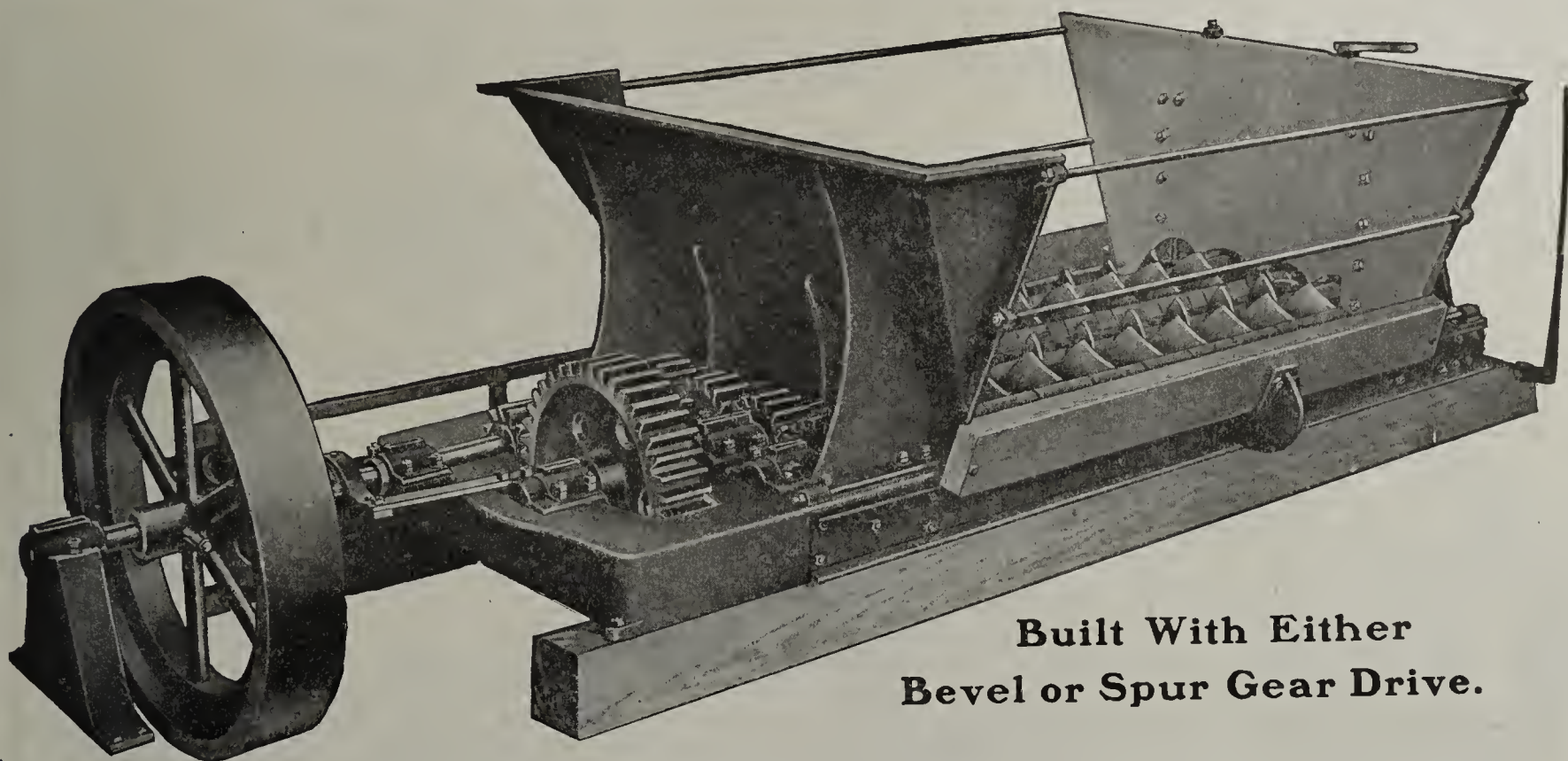
Sole Builders of
Madden Machinery.

ARBUCKLE & CO., Rushville, Ind.

Sold by Scott-Madden Iron Works Co., Keokuk, Ia.

THE ARBUCKLE GRANULATING CLAY FEEDER.

A Great Addition to the MADDEN Line.

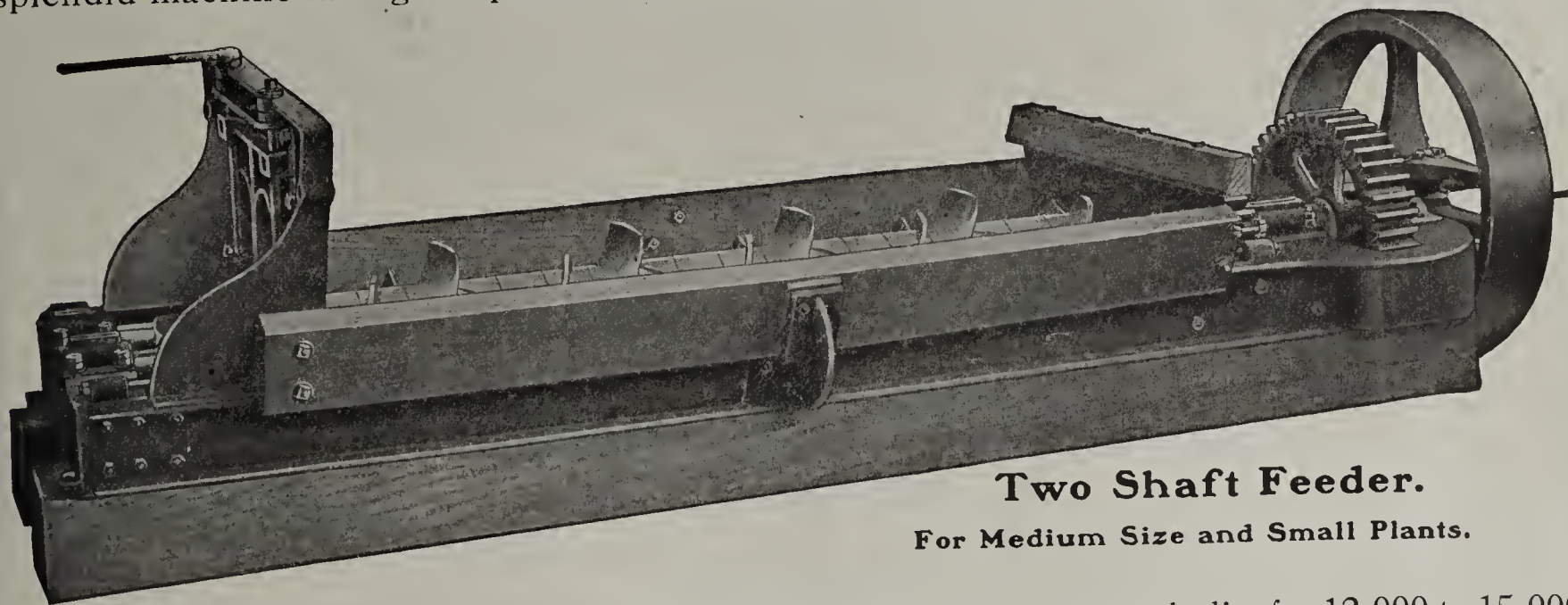


**Built With Either
Bevel or Spur Gear Drive.**

This new Granulating Feeder has several advantages over any other on the market.

The Granulating Knives will do more pugging and prepare the clay better than any other machine built.

The machine is built stronger than others. Larger shafts, stronger gears; hopper larger and more substantial. The adjustable gate in end of hopper controls the feed perfectly. A splendid machine taking the place of both Feeder and Granulator at a very reasonable price.



Two Shaft Feeder.
For Medium Size and Small Plants.

This is a great machine for the smaller plants. Will handle enough dirt for 12,000 to 15,000 four-inch tile per day, or 25,000 to 30,000 brick, and will pug the clay up in fine shape.

Note the heavy Gears, Granulating Knives. Hopper can be built up to any height, and it will feed the clay just as you want it.

It is low in price, and no plant can afford to do without one. Write for prices.

Sole Builders of
Madden Machinery

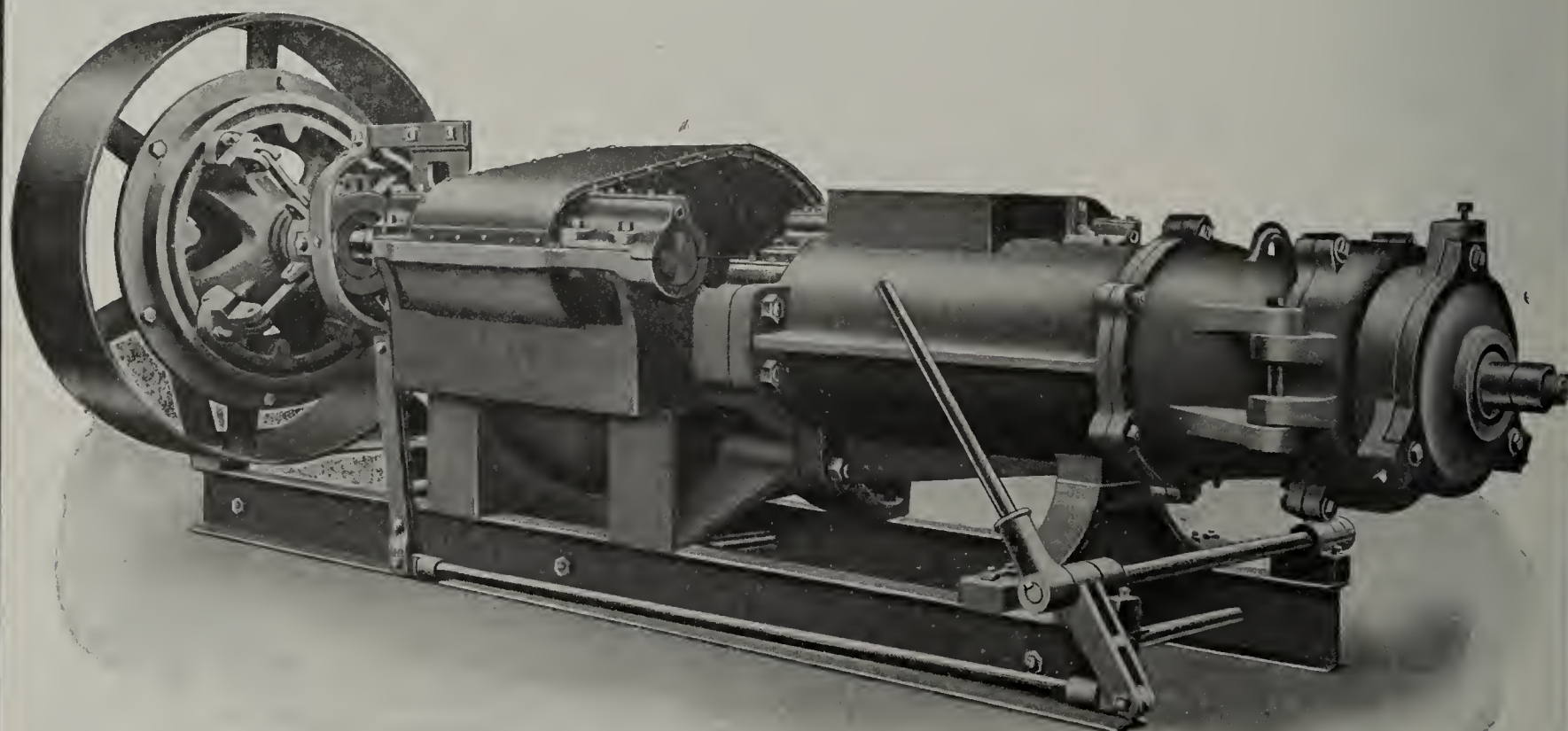
ARBUCKLE & CO., Rushville, Ind.

Sold by Scott-Madden Iron Works Co., Keokuk, Iowa.



The Brewer No. 88 Horizontal DRAIN TILE MACHINE

A high grade, high speed, heavy duty pattern, new enough to be up to the minute, but old enough to have shown what it can do.



Here Are a Few Construction Points:

- Cut gears, covered and running in oil.
- Gear frame cast in one piece.
- Cylinder cast in one piece.
- Hammered steel shafts. Self-oiling bearings.
- Sectional lined screw case. Heavy 29-in. disc clutch.
- Tool steel bushed dies.

Ask for complete catalog, references and prices.

H. BREWER & COMPANY, Tecumseh, Mich.

THE CLAY-WORKER'S POCKET KIT.

Worth its Weight in Gold to Every Factory Superintendent and Foreman.

EMBODIES

1. Pocket Knife.
2. Leather Punch.
3. Swedging Awl.
4. Wire Cutter.
5. Wire Pliers.
6. Alligator Wrench.
7. Hoof Hook.
8. Screw Driver.
9. Screw Bit.



INVALUABLE TO

Yard Superintendents,
Factory Foremen,
Mechanics, Miners,
Farmers, Horsemen,
Sportsmen and
ALL WORKINGMEN.

This is Not a Cheap Knife, But a First-Class Combination Tool Built for Practical Use.

CUTS OFF BARBED FENCE WIRE AS EASILY
AS AN ORDINARY 8-INCH PLIER.

Can be carried in the pocket and used as an ordinary knife, but is far stronger and more useful.

"A Stitch in Time Saves Nine."—So it is about a clay plant, a bolt tightened at the right time may save a serious breakdown, causing loss of time and money. How often would this be avoided if the superintendent or foreman had the right tool within reach when wanted. How often are these little, but very important details neglected because the necessary tool is not convenient, or has been mislaid, and how much time is lost in consequence. Avoid all this by carrying in your pocket the C. W. Pocket Kit. You will find use for it a hundred times a day.

One Tool Does Not Interfere With the Free Use of
Another. Each One Works Independently.

A Great Premium Offer.

This POCKET KIT, which is a marvel of mechanical ingenuity, will be mailed to any address, postage prepaid, for \$1.50.

Or we will mail this POCKET
KIT and THE CLAY-WORKER
for One Year to any address in
the United States or Canada for

\$2.50

THE C. W. Pocket Kit is built for practical use, and is not filled with knickknacks or flimsy makeshifts as is the case with ordinary combination knives. Instead it is a practical, efficient combination. Its workmanship is first-class. All rivets are countersunk. The temper is drawn in Screw Driver, and Point of Awl to prevent either from breaking. It is no more clumsy or awkward to carry in the pocket than an ordinary three-bladed knife. The blades are made of the best 85 carbon cutlery steel, and tempered to withstand hard usage.

The Pliers and Wire Cutters are Drop-Forged TOOL steel (not steel castings), and tempered especially to do the work required of them, and give entire satisfaction in handling and cutting fence wire, baling and binding wire, harness rivets, etc.

The Leather Punch will be found indispensable for making various sized holes in leather for buckles, rivets, belt lacing, etc.

The Leather Punch acts as a wedging awl or marlin spike WHEN TURNED TO THE LEFT; especially adapted for use in LACING BELTS, untying knots, etc. Besides being a perfect leather punch and swedging awl, this tool is a perfect screw bit, making a tapering hole in wood for various sized screws WHEN TURNED TO THE RIGHT.

The Screw Bit and Screw Driver features of this knife are perfect in their operation.

The Lace Hook and Hoof Hook formed on end of plier handle will be found convenient in many ways.

T. A. Randall & Co., Publishers The Clay-Worker, Indianapolis:

You will please send me THE CLAY-WORKER POCKET KIT and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued,

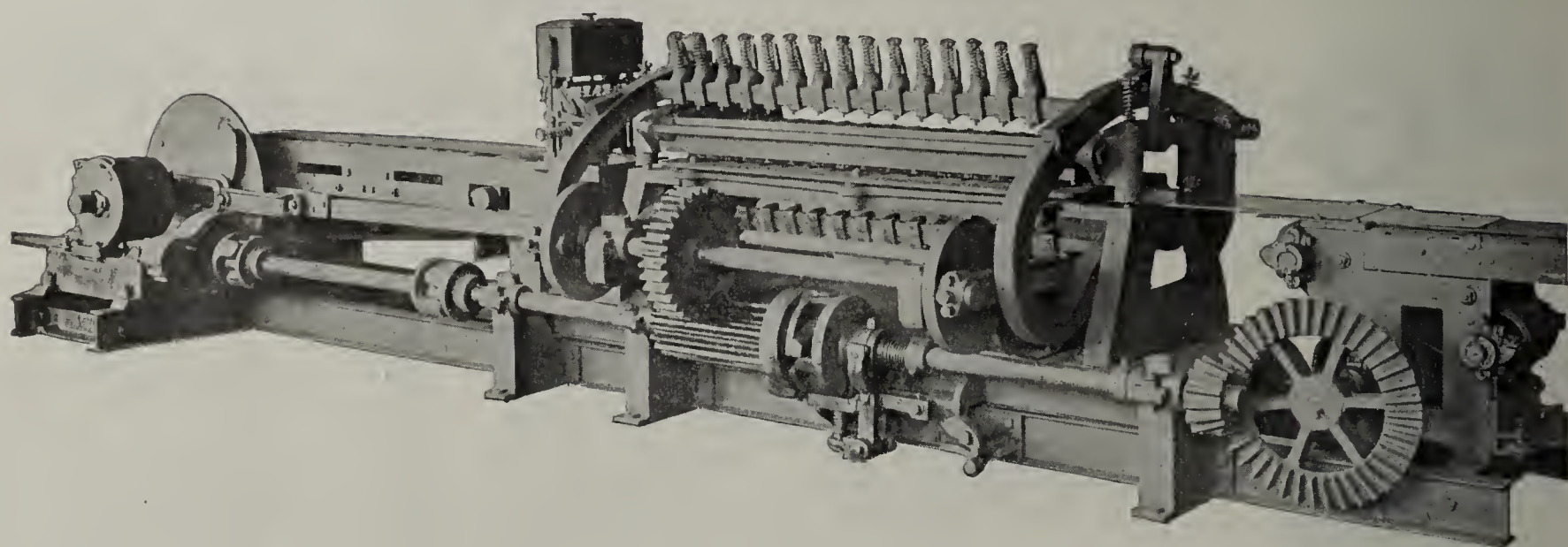
beginning with the issue. Enclosed find \$.

Name

Postoffice

Street and Number

County State



Model T 60 Reciprocating Automatic Cutter

This cutter, which is of the reciprocating type, is built in two Models "T 50" and "T 60" for capacities up to 12,500 brick per hour or more. The design is extremely simple and substantial. It embodies many of the well tried features of our Rotating Automatic Cutters.

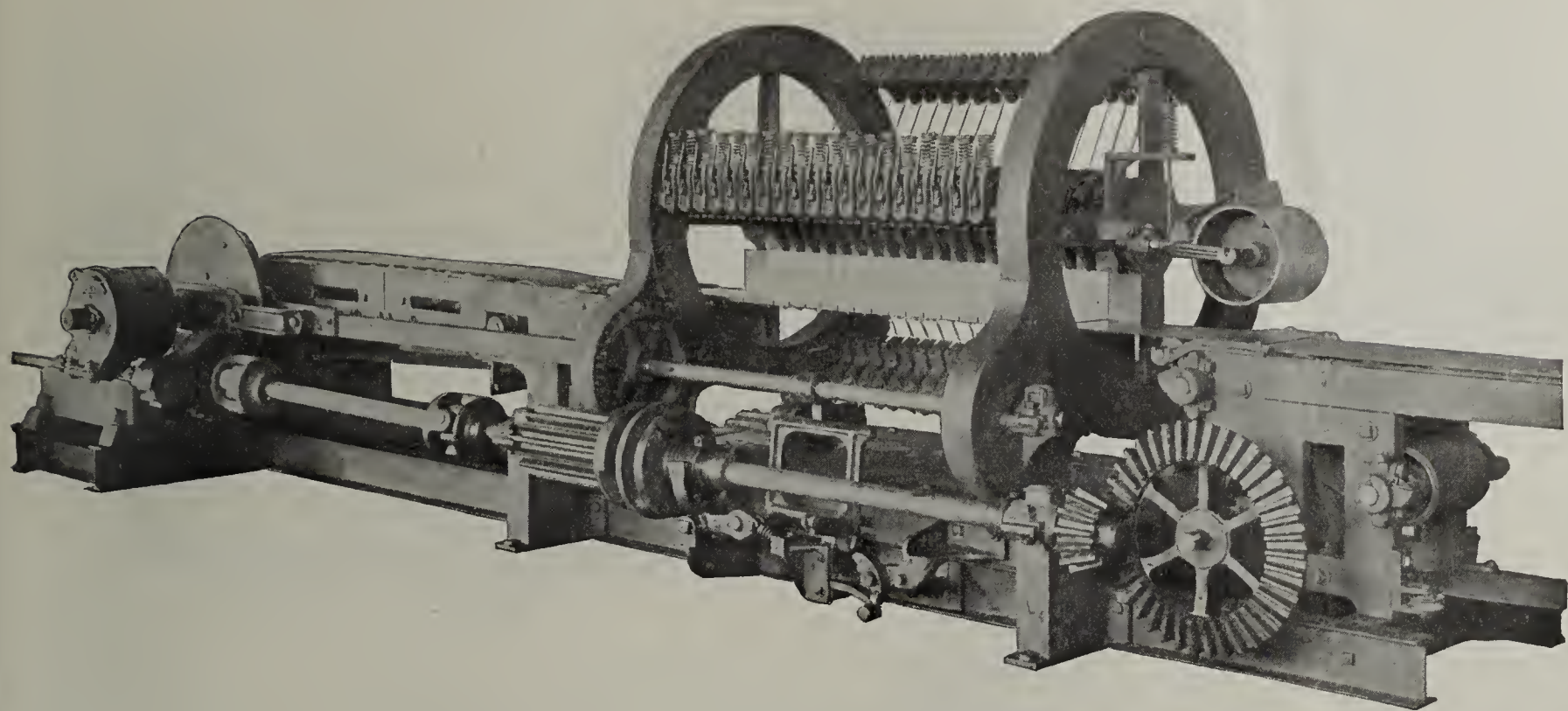
The cutting frame carries only one set of cutting wires and has a swinging movement, avoiding the wear and play common to sliding parts. It is actuated by cranks, driven by a single gear and pinion, giving a smooth, quiet starting and stopping of the cutting stroke. The frame remains stationary between cuts, affording ample time to renew broken wires.

The platens are very easily removed and replaced when the thickness of cut is to be changed. Four bolts hold the platen in place. When these are removed it can be lifted straight up, between the end castings. Only a few minutes required to make the change. An upper platen can be furnished to insure smooth upper edges on the brick. This is automatically raised to clear the clay column after the cut is completed and is returned to position in time for the next cut, avoiding any tendency for the column to become wedged. Solves the problem of making smooth edged brick on a reciprocating cutter.

Either Model is made to suit a variety of work. The "T 60" is built special to accommodate the largest sizes of fireproofing, etc. These cutters can also be especially arranged for cutting the Dunn Wire-Cut-Lug Paving Blocks.

E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



Model C 20 Rotating Automatic Cutter

We build rotating automatic cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for hollow ware, fireproofing, radial chimney blocks, etc., up to $13\frac{1}{2}$ in. by $7\frac{1}{2}$ in.

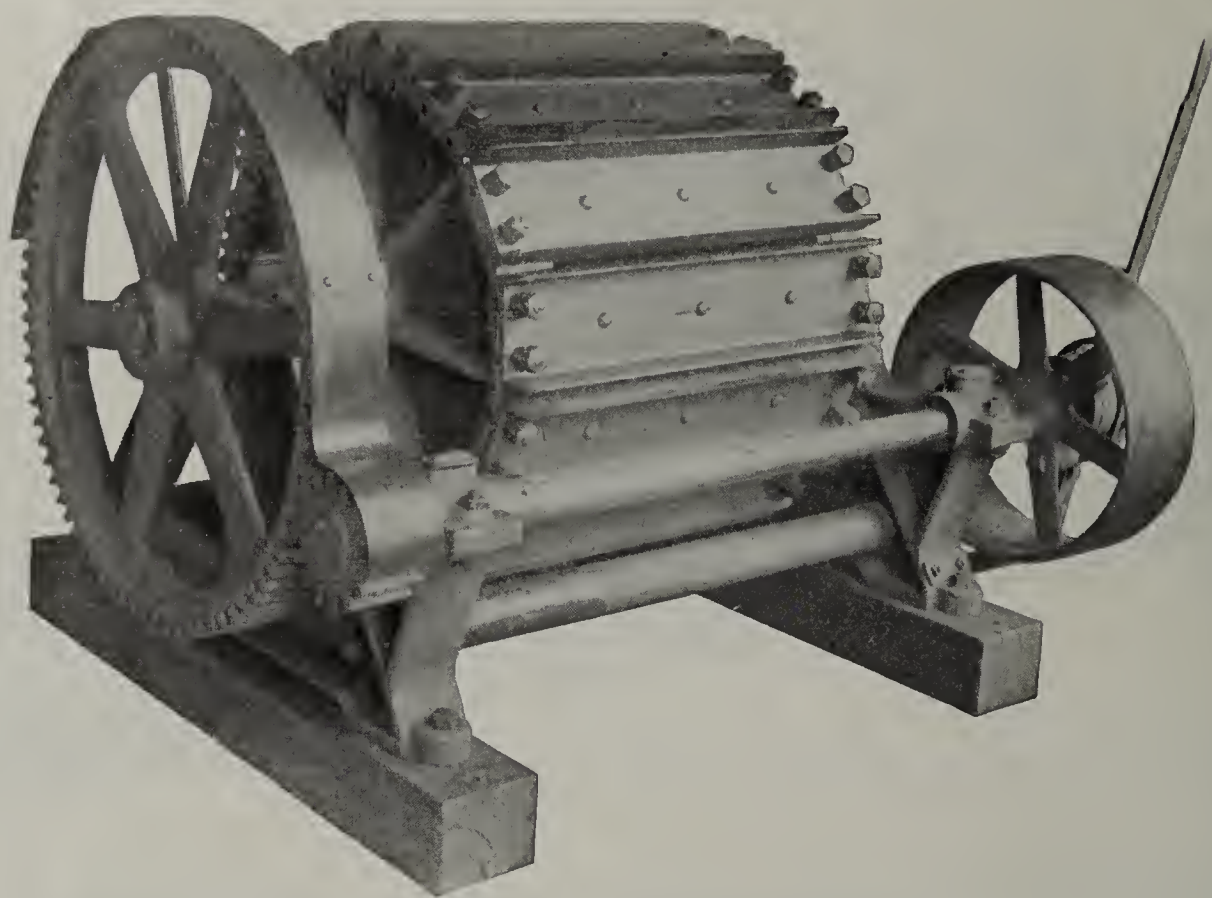
The above illustration shows the Model C 20 Cutter, which is an improved model of our well-known Size 16. It is intended for capacities up to 7,500 standard size brick per hour—18 brick are cut at each cut. At this speed the cutting reel makes only a little over two revolutions per minute, remaining stationary between cutting strokes. It is not necessary to stop the brick machine to renew broken wires, as this gives ample time.

The cutting apparatus, including drive for separating belt, is entirely self-contained, being mounted upon one set of I-beam sills, assuring permanent alignment of all parts. The measuring and separating tables are built with iron or steel sides.

Cutting reel and carriage are carried on rollers requiring little or no oiling. Carriage is positively moved with the clay by an accurate cam. Clutch mechanism is the simplest possible. Wearing surfaces have renewable steel plates.

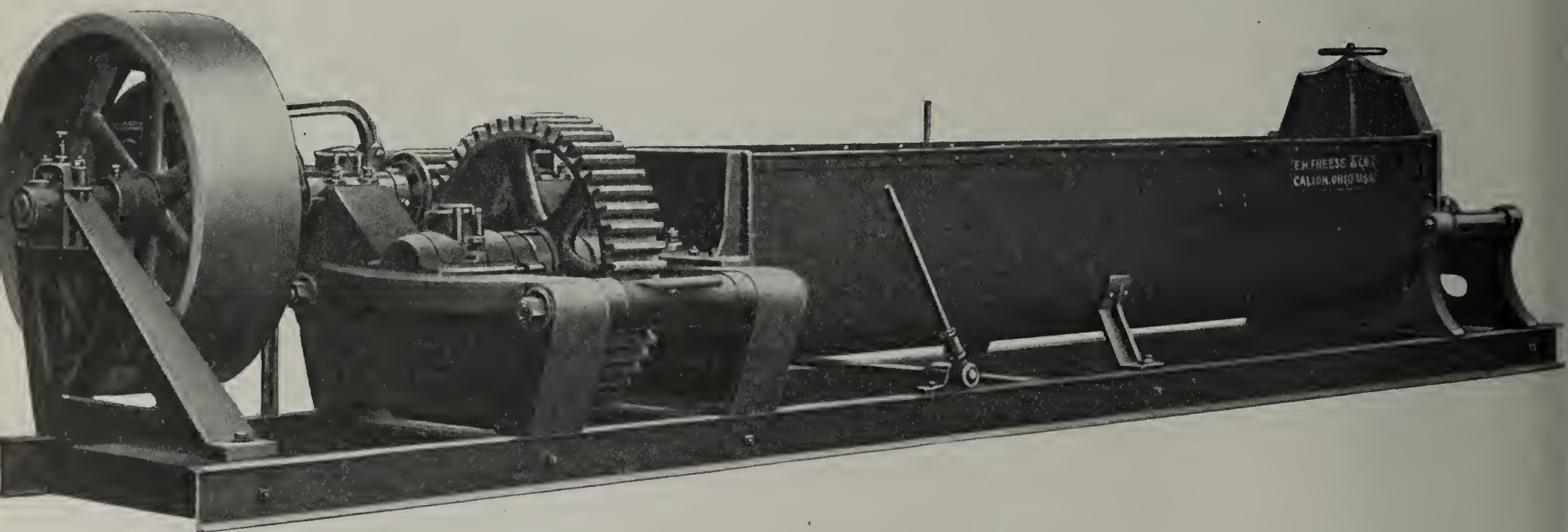
Particular attention is called to the platen construction. The platen is cast in one piece of tubular cross section and is very rigid. Surfaces covered with renewable steel plates, insuring fine slots. The angle of the cutting wires has been changed to give perfect edges on the brick. Built to give long service without skilled attention. Complete description will be furnished on request.

E. M. FREESE & COMPANY, Galion, Ohio



STANDARD RATTLER FOR PAVING BRICK

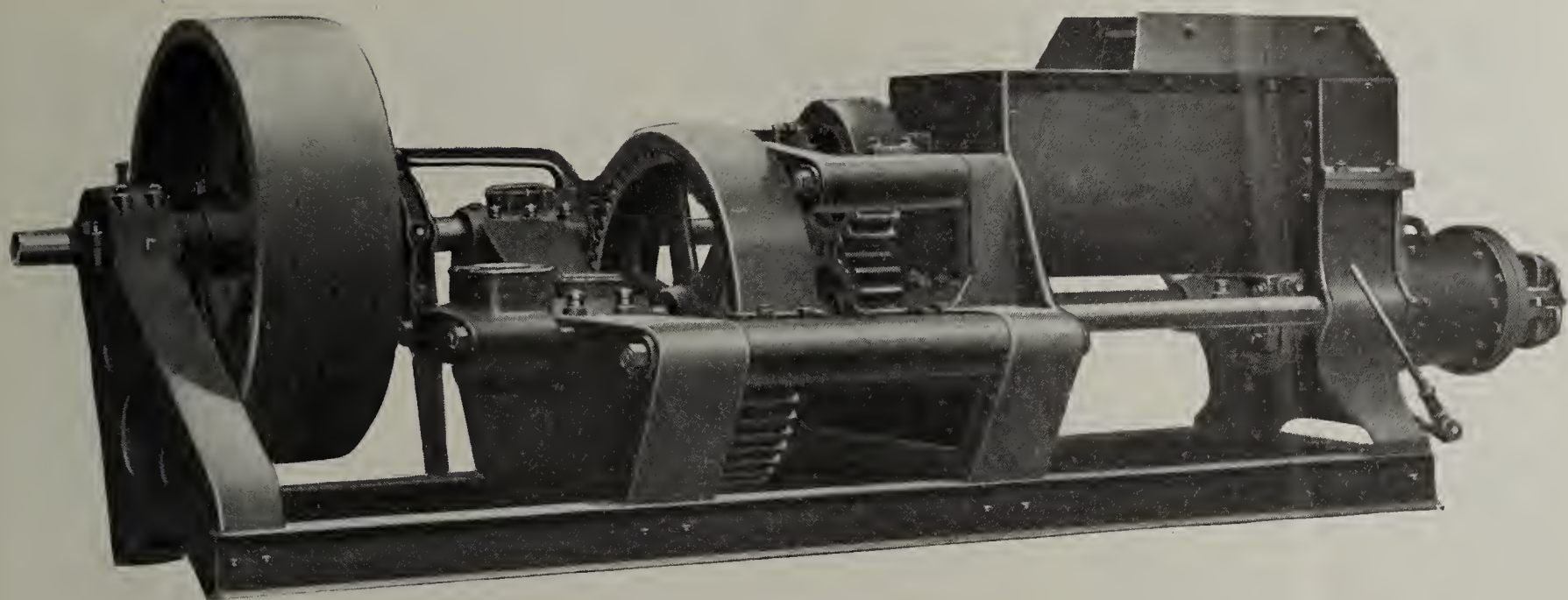
Built to fully comply with the new specifications adopted by the National Paving Brick Manufacturers' Association. Write for detailed information.



We are building Pug Mills in great variety—more than forty patterns and sizes. We have both spur and bevel geared Pug Mills of all sizes, arranged to discharge at either end as may be specified. The above is an example of a heavy, direct geared machine of large capacity, designed for most exacting requirements.

Let us send particulars.

E. M. FREESE & COMPANY, Galion, Ohio



Model "KC" Auger Brick Machine

This machine has several features of merit. The construction is simple. The parts conveniently accessible. Each of its three shafts has three journal bearings, insuring substantial support for the gearing and more permanent alignment. The feeding chamber is open its entire length and the auger chamber is kept positively and uniformly supplied with clay. The gearing is designed for smooth and quiet operation. All the shafts are of large diameter and the proportions throughout are extremely heavy. The workmanship and material are of the best.

Intended for first-class product and economical operation.

E. M. FREESE & COMPANY, Galion, Ohio

1912 A Drain Tile Year

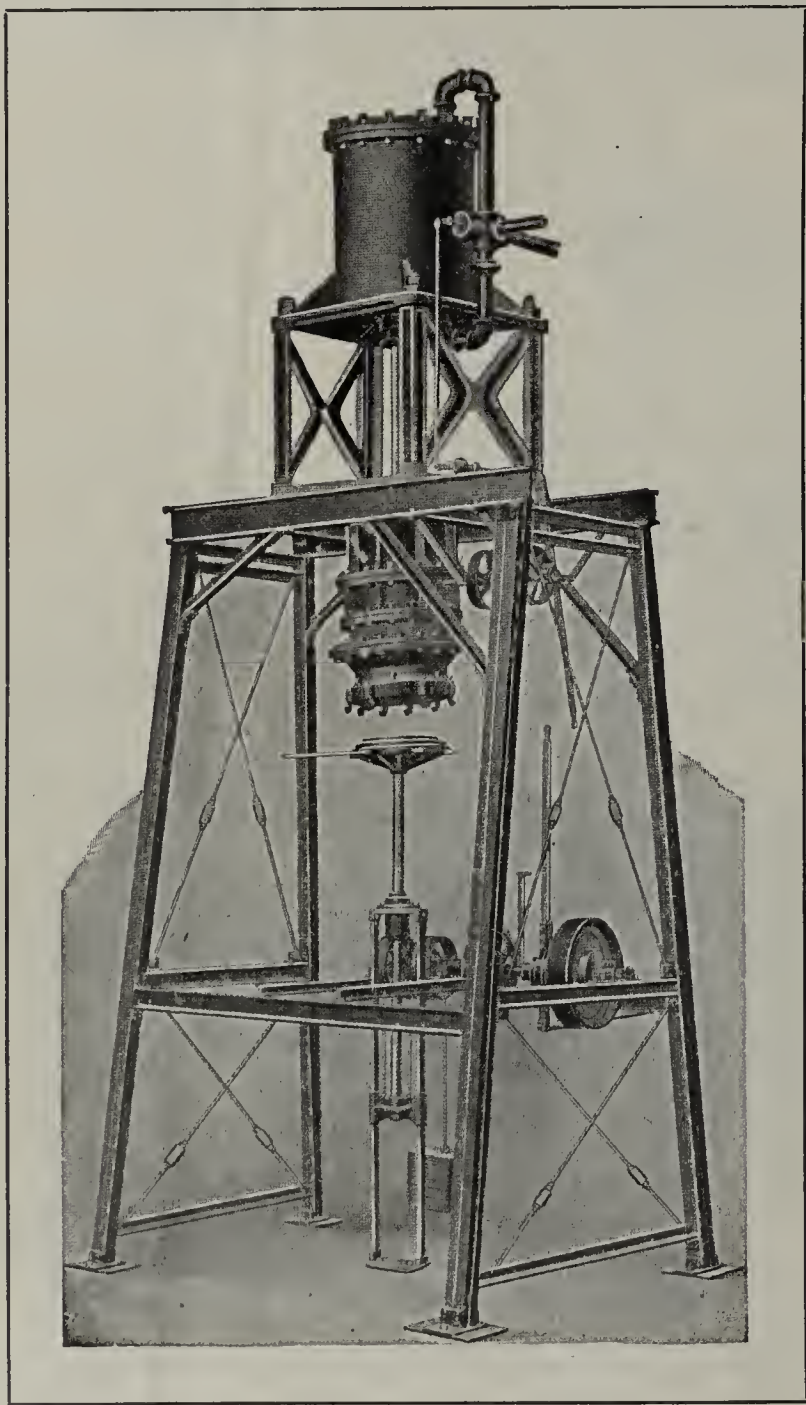
THERE are off years in drain tile as in the apple crops; but there is every reason to believe that 1912 will be a banner year in the drain tile industry, and it will be wise for all the drain tile manufacturers to prepare themselves accordingly.

Many plants which make good drain tile in the small sizes are unable to bid on contracts calling for the large sizes of tile, and consequently are shut out of much profitable business. Why not get into line to bid on the big business as well as small business? To make large tile at low cost, all you need is the

Stevenson Press

Many of the largest manufacturers of sewer pipe and drain tile throughout the country are equipped with the Stevenson Press, and it is making "Good" wherever installed.

The Stevenson press is made in a number of different sizes to meet all requirements. It will pay you to figure with us and let us tell you what an equipment for your needs will cost. We can give you some facts regarding this matter which will interest you.



THE STEVENSON CO.

WELLSVILLE, OHIO

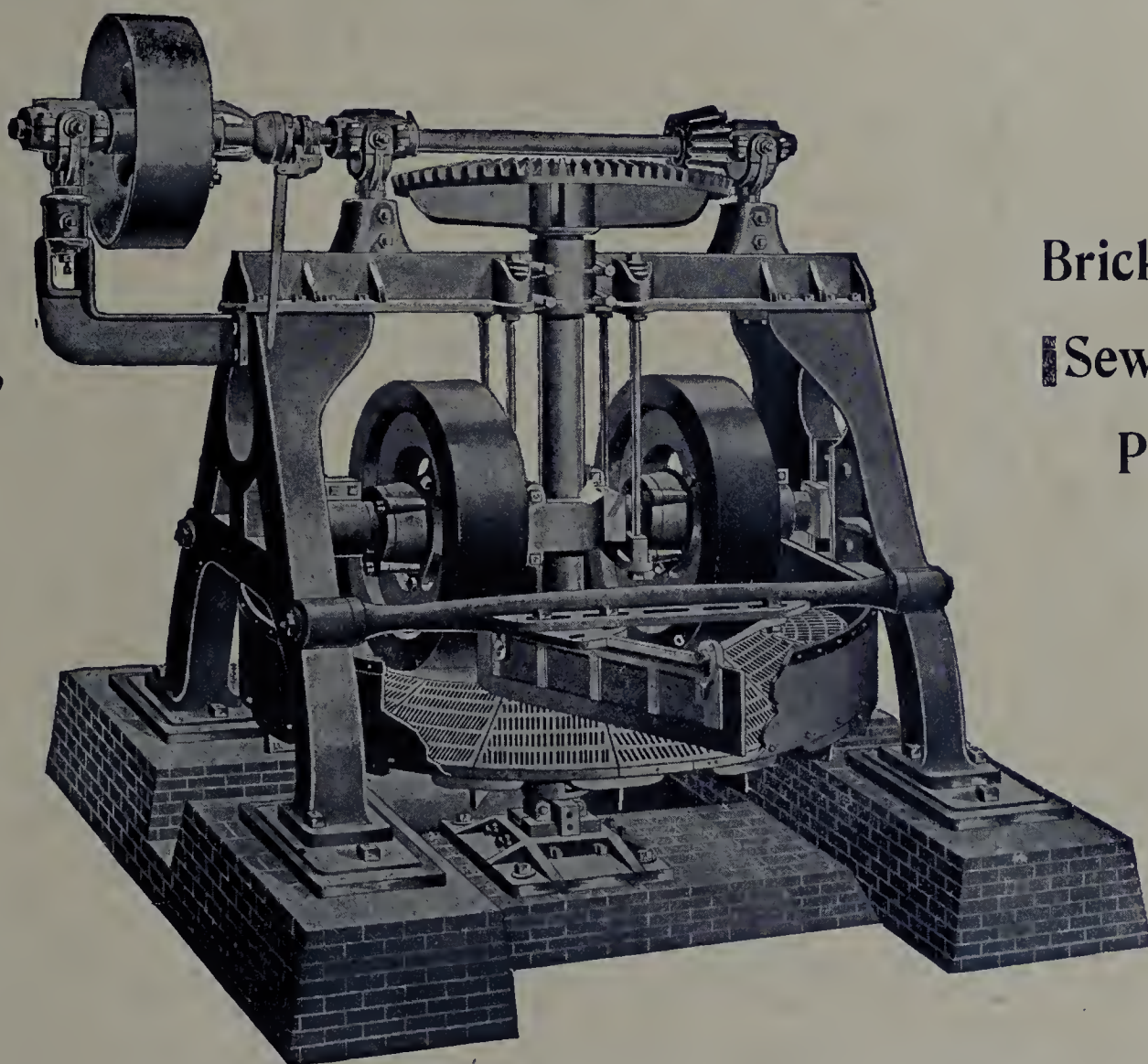
For Sixty
Years
The Name

Frost

Has stood for all
that is best in
Power Plant
Equipment, Clay
Crushing and
Mixing Machinery

We Manufacture Dry and Wet Pans in Six, Eight and Nine Foot Sizes

For
Cement Mills,
Steel
Foundries,
Etc.



Brick Plants,
Sewer Pipe
Plants,
Etc.

To interested parties a postal will bring you our catalogue No. 110, giving full detailed description of construction and operation of our pans. Don't forget we manufacture Power Equipment of every description to meet the needs of all users.

Write for Special Bulletins and Specifications.

The *Frost* Manufacturing Co.

Works at
GALESBURG, ILL.

CHICAGO OFFICE:
112 West Adams St., CHICAGO, ILL.
Cable Address "FROSTMANCO," Chicago.

ANNOUNCEMENT

To Paving Brick Manufacturers==

Note the increase in numbers and the character of the manufacturers with whom we have contracted for the production of

WIRE=CUT=LUG BLOCKS

in preference to the so-called repressed or stamped brick.

During the year 1910	{	Corry Brick & Tile Co.,	Corry, Pa.
		United Brick Company,	Conneaut, Ohio.
1911	{	Sterling Brick Co.,	Olean, N. Y.
		Kushequa Brick Co.,	Kushequa, Pa.
		Reynoldsville Brick & Tile Co.,	Reynoldsville, Pa.
		Danville Brick Co.,	Danville, Ill.
		Patterson Clay Products Co.,	Clearfield, Pa.
During 1st month (January) 1912	{	Wabash Clay Co.,	Veedersburg, Ind.
		Clinton Paving Brick Co.,	Clinton, Ind.
		Alton Brick Co.,	Alton, Ill.

The last named Company has three large plants located at Cleveland, Carrollton and Malvern, Ohio.

Over SIX miles of Wire-Cut-Lug Brick pavement were laid within the State of New York in the year 1910 and over TWENTY miles in 1911. More than ONE HUNDRED MILES of this pavement have already been contracted for 1912.

Over 400 cities have advised us that their specifications now admit Wire-Cut-Lug Blocks on an equal basis with the stamped brick.

Brick has long been recognized as the MOST PERMANENT PAVEMENT and now Wire-Cut-Lug Brick means THE PERMANENT BRICK PAVEMENT.

We are making provisions for a Permanent Publicity and Educational Campaign during the Entire Life of our Patents. This Practically Insures Business for the Manufacturers of Wire-Cut-Lug Blocks.

We will License Reputable Manufacturers whom we are satisfied are able to produce No. 1 Paving Blocks.

The Dunn Wire-Cut-Lug Brick Co., Conneaut, Ohio

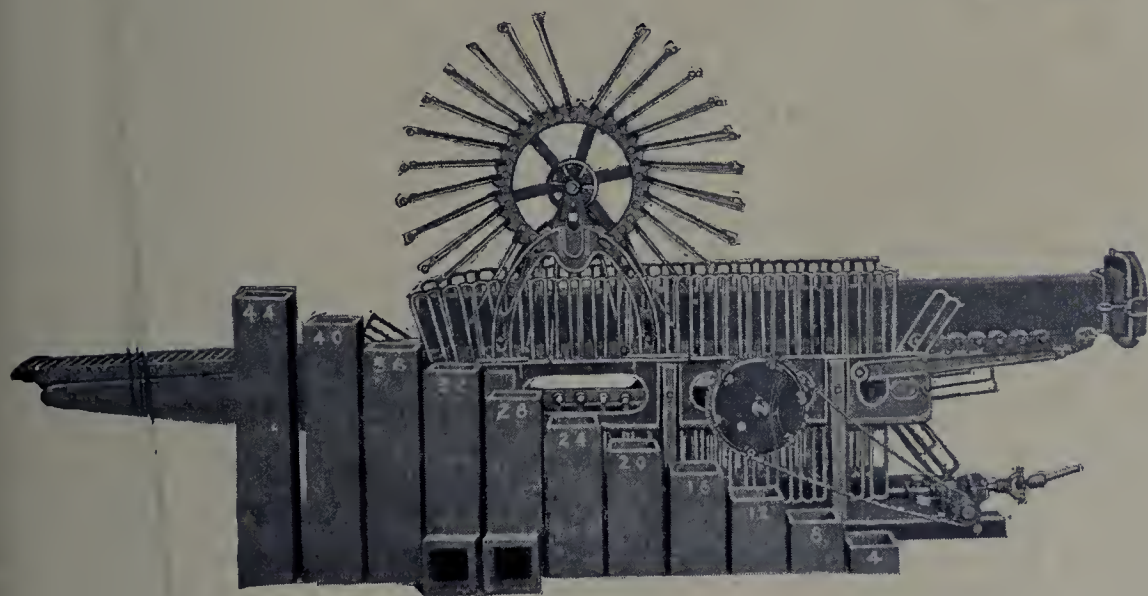
Patented in the United States, Canada, England and Mexico

FIRE PROOFING SUGGESTIONS



Special Premier Fire Proofing Machine, equipped with special set of nozzles and augers for large sizes and also one for small sizes. The most up-to-date machine for this purpose on the market.

Standard Bensing Automatic Tile Table, fitted with platens for cutting hollow blocks and fire proofing from 4 in. x 9 in. to 10 in. x 12 in. Can be furnished to cut any length from 12¼ in. to 14 in. long.



Special Bensing Automatic Table with roller delivery and friction driving device for hollow blocks and drain tile. Cuts in multiple lengths of 4½ inches and will handle blocks up to 11 inches high and 13 inches wide.

See Us at Chicago, Rooms 1118, 1120 and 1122 Congress Hotel and Annex

The J. D. Fate Company

Plymouth, Ohio

A. E. DAVIDSON, Western Representative
604 Blake-McFall Bldg.
Portland, Oregon.

Manufacturers' Equipment Co.
Sales Agents
Dayton, Ohio.

1896

1912

14 Years of Constant Satisfactory Service In Many Clay Plants

Is the Record of the PERFECT CLAY SCREEN

Why continue with your old clay screen from which today the product is entirely too coarse, tomorrow too fine, next day scarcely anything, and always requiring constant attention.

FIGURE up the cost and let us quote you on a PERFECT CLAY SCREEN that will give you ABSOLUTE CONTROL OF YOUR CLAY. The same fineness every day in the year and you get every pound of clay that is fine enough for your product.

Just think what it costs to have a man cleaning and breaking up your screen, and then not get capacity or proper fineness. THE PERFECT CLAY SCREEN is automatic, self cleaning, and the plates last many times as long as do plates on an ordinary screen. Increased and improved output at less cost, is our GUARANTEE. Let us try, if we don't do it IT WON'T COST YOU ONE CENT.

DUNLAP MFG. CO., **Bloomington, Ill.**

LAKEWOOD LINE

No. 241 "Lakewood" two-way dump car, with motor, for underground or overhead trolley, or without motor; has a clean, quick dump, with no danger of rocking off frame, or of car jumping track.



Dump operated from one end of car only—no dumping the wrong side. May be locked in a partly tilted position to facilitate easy loading by hand. All steel, well braced, heavy chilled wheels, self-adjusting bearings.

Send for Catalog No. 9.

**Ohio Ceramic En-
gineering Co.**

CLEVELAND - - OHIO

BRANCHES

Chicago—555 West Quincy Street.
Pittsburgh—1205 Fulton Building.

No. 241 Two-Way Dump Car.

MARCH - 1912

THE CLAY-WORKER

OFFICIAL REPORT

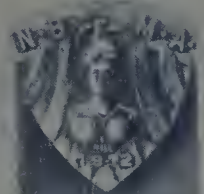
TWENTY SIXTH

: CHICAGO :
ILL.

Chicago
Clay
Club

RECEPTION

1912



DELEGATE

ANNIVERSARY

: MARCH :

1912

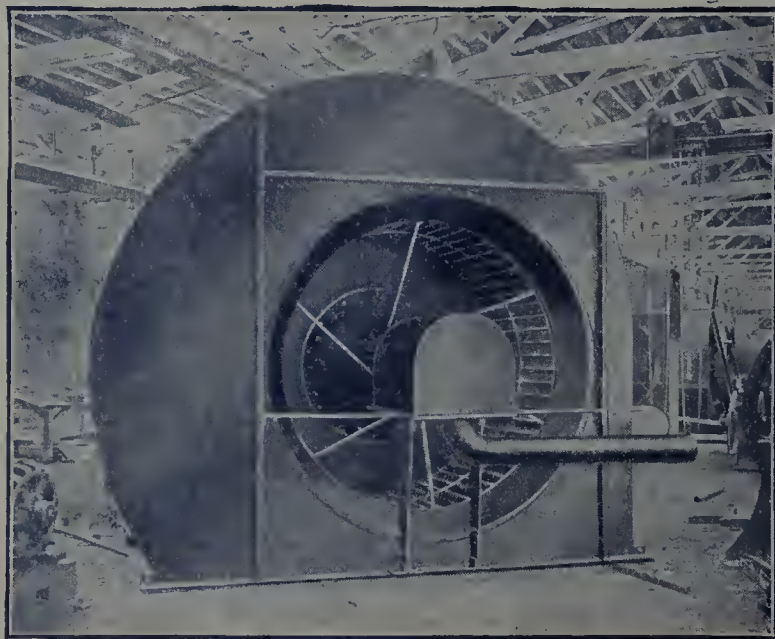


N.B.M.A. CONVENTION

Published Monthly by
T.A. RANDALL & CO.
INDIANAPOLIS, IND.
OFFICIAL ORGAN OF THE N.B.M.A.

"Sirocco"
TRADE MARK

Waste Heat Fans for Brick Dryers



"Sirocco" Waste Heat Fan with hood (a) and pipe connection used to cool bearing.

EVERY Brick Manufacturer wants to cut the cost of production as low as possible. "The most for the least" is his motto.

A "Sirocco" Fan in connection with well designed Waste Heat Dryer is an important factor in accomplishing the desired result.

"Sirocco" Fans save Power. Have enormous capacities for small space required. Installation and maintenance costs low.

Investigate "Sirocco."

AMERICAN BLOWER COMPANY
DETROIT, MICH.
U. S. A.

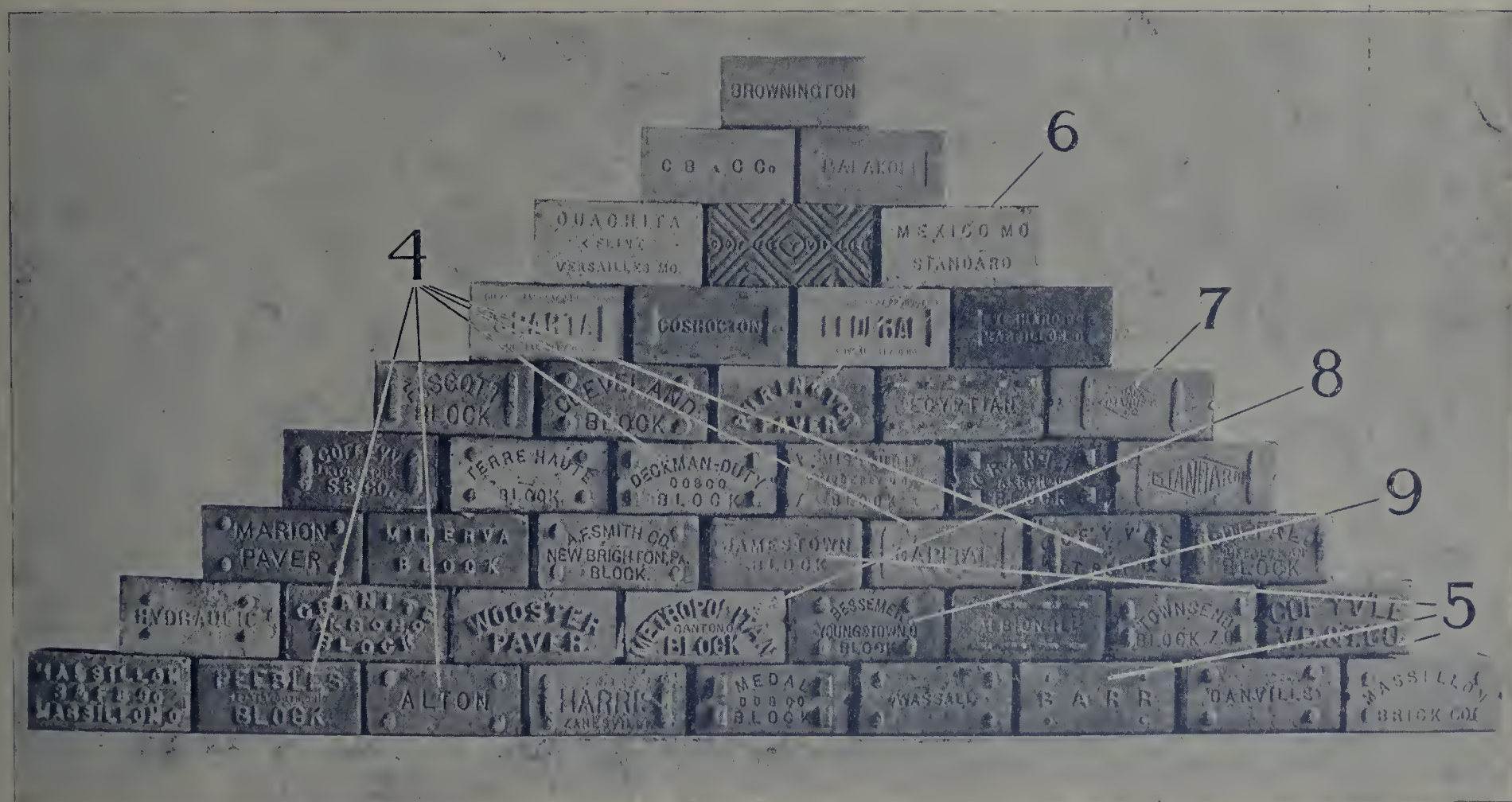
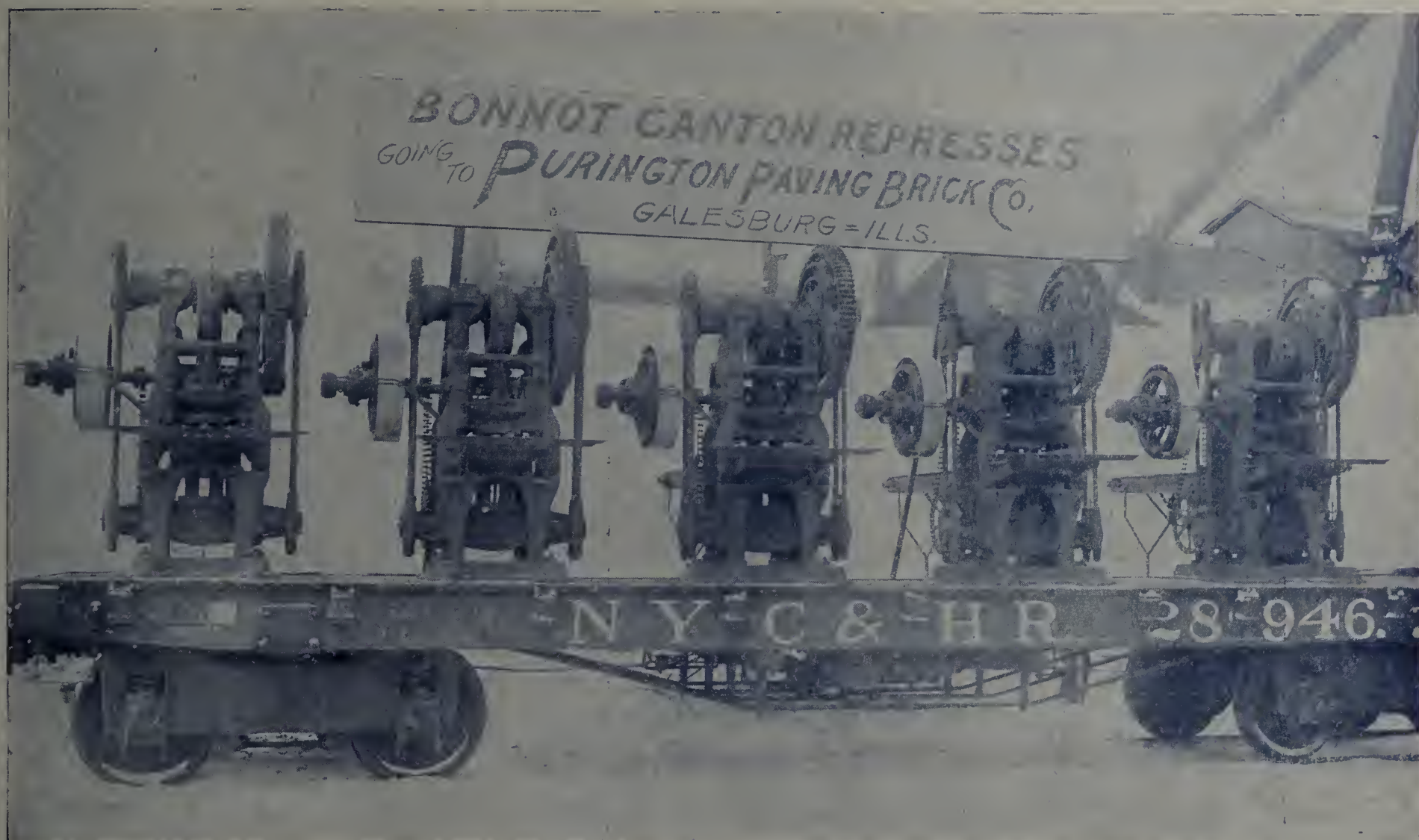
ADDRESS HOME OFFICE OR NEAREST BRANCH

New York, 141 Broadway.
Philadelphia, Hale Bldg.
Pittsburgh, Empire Bldg.

Chicago, Marquette Bldg.
St. Louis, Title Guaranty Bldg.
Atlanta, Empire Bldg.

Minneapolis, Plymouth Bldg.
San Francisco, Rialto Bldg.
Seattle, Arcade Annex.

Bonnot Repress has been Adopted by Purington Paving Brick Co.



A study of this cut will show the class of brickmakers who use BONNOT REPRESSES and the number of machines some of them are using.

909 New York Life Building,
Kansas City, Mo.

THE BONNOT COMPANY, Canton, Ohio

Mention THE CLAY-WORKER.



Rodgers Waste Heat Dryers

Stand for

Reliability
Originality
Durability
Guarantee
Economy
Rapidity
Satisfaction

THAT our efforts have been appreciated by the clay-workers of the country is proven by the fact that we are now the *LEADERS* in America in the designing of complete plants and the installing of Waste Heat Dryers.

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists
Brick Works Engineers

Largest Manufacturers of Brick Drying Equipment in the United States

30 North LaSalle Street

...

...

CHICAGO



RODGERS



PERFORATED STEEL SCREENS.

No Doubt You Use Screens—Let's Get Acquainted.

¶ You may never have obtained them from us. It would pay you to do so.

¶ There's more to a Perforated Steel Screen than a sheet of metal with some holes in it. The shape, the spacing, the size and accuracy of the perforations and the quality of the metal of which the Screen is made, all have a bearing on the working and wearing of the Screen—all must be *exactly right*.

¶ There are Screens that cost less than ours, but then guess-work always does seem cheaper than know-how.

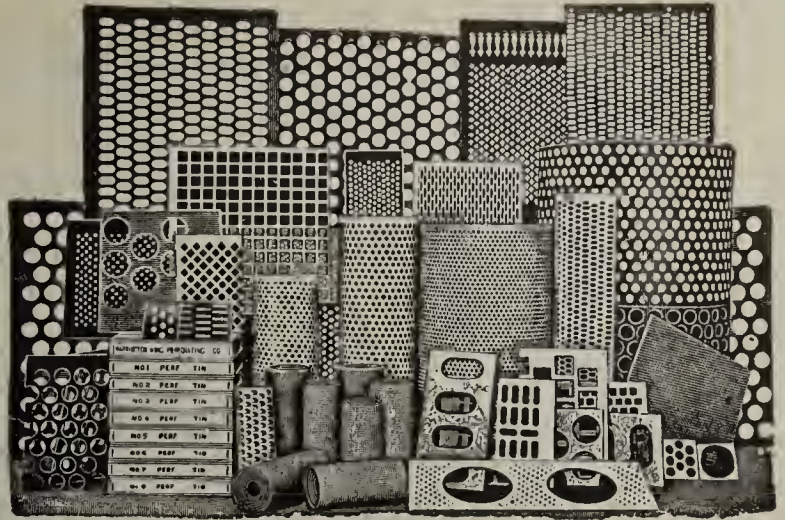
¶ We make Screens for Clay, Sand, Gravel, Cement, Stone, etc., and for Drying Floors, Car Bottoms, Conveyers, Dry Pans and cleaning and grading apparatus.

¶ You are not likely to want a size that we can not furnish. During our experience of over thirty years in the business (and that counts for something) we have acquired patterns by the thousand.

¶ Give us the size of sheets, the guage (or thickness), the size and shape of holes, the number of sheets wanted and what for.

¶ With quotation we will send samples or Blue Prints.

¶ The work is made entirely to order.



The Harrington & King Perforating Co.,

NEW YORK OFFICE,
No. 114 Liberty St.

No. 624 North Union St.,
CHICAGO, ILL., U. S. A.



No. 1205
Triple Deck Car.



No. 6425
Electric Locomotive.



No. 103
Stiff or Soft Mud Car.

CARS

For Brickyards, Quarries,
Cement Plants,
Dryer Cars, Dump Cars,
Locomotives,
Turntables,
Track, Switches, Etc.



No. 217-S
Side Rocker Dump Car, small capacity.



No. 913
Double Track Electric Transfer Car.



No. 160-E
Side Dump Gable Bottom Car.

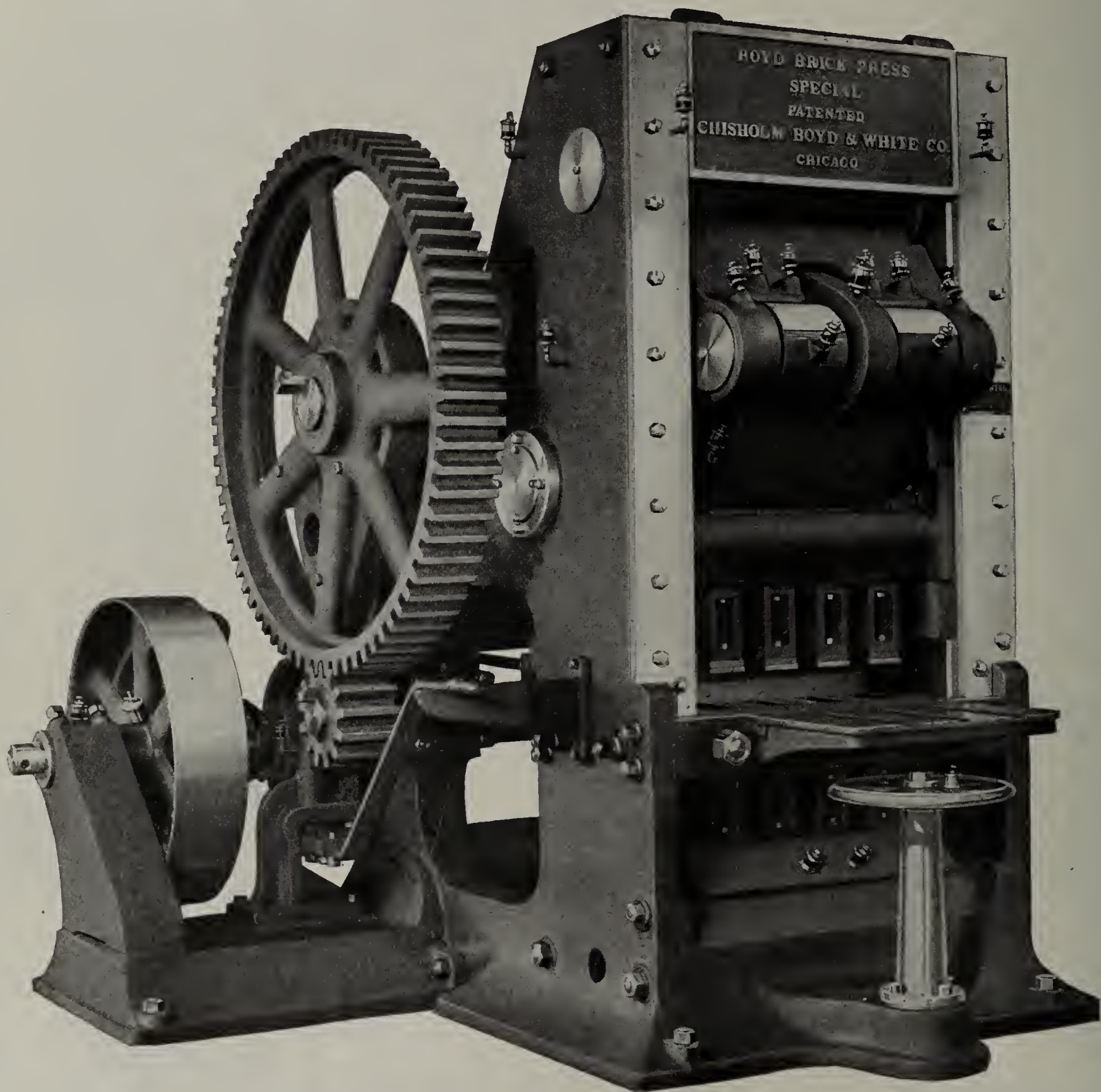


No. 145-C
Pressed Steel Top, Ball Bearing
Turntable; Patented.

THE ATLAS CAR & MFG. CO.
CLEVELAND, OHIO

The Boyd Brick Press

"Built Up to a Standard—Not Down to a Price."



SPECIAL FEATURES OF THE BOYD BRICK PRESS

BALANCED-PRESSURE—brick lifted in molds under pressure.
PRESSING TIME FACTOR—long duration, 50% of the cycle.
GEARS, SHAFTS, BEARINGS and other parts exceptionally large.
FREE from complicated parts—**ACCESSIBILITY** unequaled.
TOP and BOTTOM of brick equal hardness—**NO** granulated surfaces.

Write for latest Catalogue No. 25, which contains plans and suggestions concerning the design and equipment of brick plants.

Chisholm, Boyd & White Company

Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

The Boyd Brick Press in Canada

MILTON PRESSED BRICK CO.

Limited

Manufacturers of

High-Grade Pressed Bricks

and

Terra Cotta Mantels

DR. ROBERTSON,
President.

J. S. McCANNELL,
Vice-Pres. & Man. Dir.

All quotations are subject to change without notice. All agreements are contingent upon strikes or other delays beyond our control, and all contracts must be approved by the head office.

MILTON, ONT..

Nov. 7th, 1911.

Messrs. Chisholm, Boyd & White Co.,
57th & Wallace Sts.,
Chicago, Ill., U.S.A.

Dear Sirs:-

We are pleased to advise you that the new Four Mold "Special" Boyd Brick Press which we recently purchased from you arrived in good condition and is now making bricks.

We have now six Boyd presses in a row and expect to be in the market for another in the course of a few months. It is now nearly twenty-two years since we installed the first Boyd presses.

We tore out the first one put in to make room for the new Boyd "Special" which is built on a very much stronger scale than the ordinary machine. However, we have still one of these old machines in operation and producing first-class bricks. For a number of years this machine worked night and day.

We might state that we are well satisfied with the Boyd press or we would not be using your machine exclusively.

We are satisfied that we are making the best bricks made in Canada with your machines.

Thanking you for prompt shipment of the last press, we remain

Yours truly,

J.S. Mc/

Milton Pressed Brick Co., Limited.

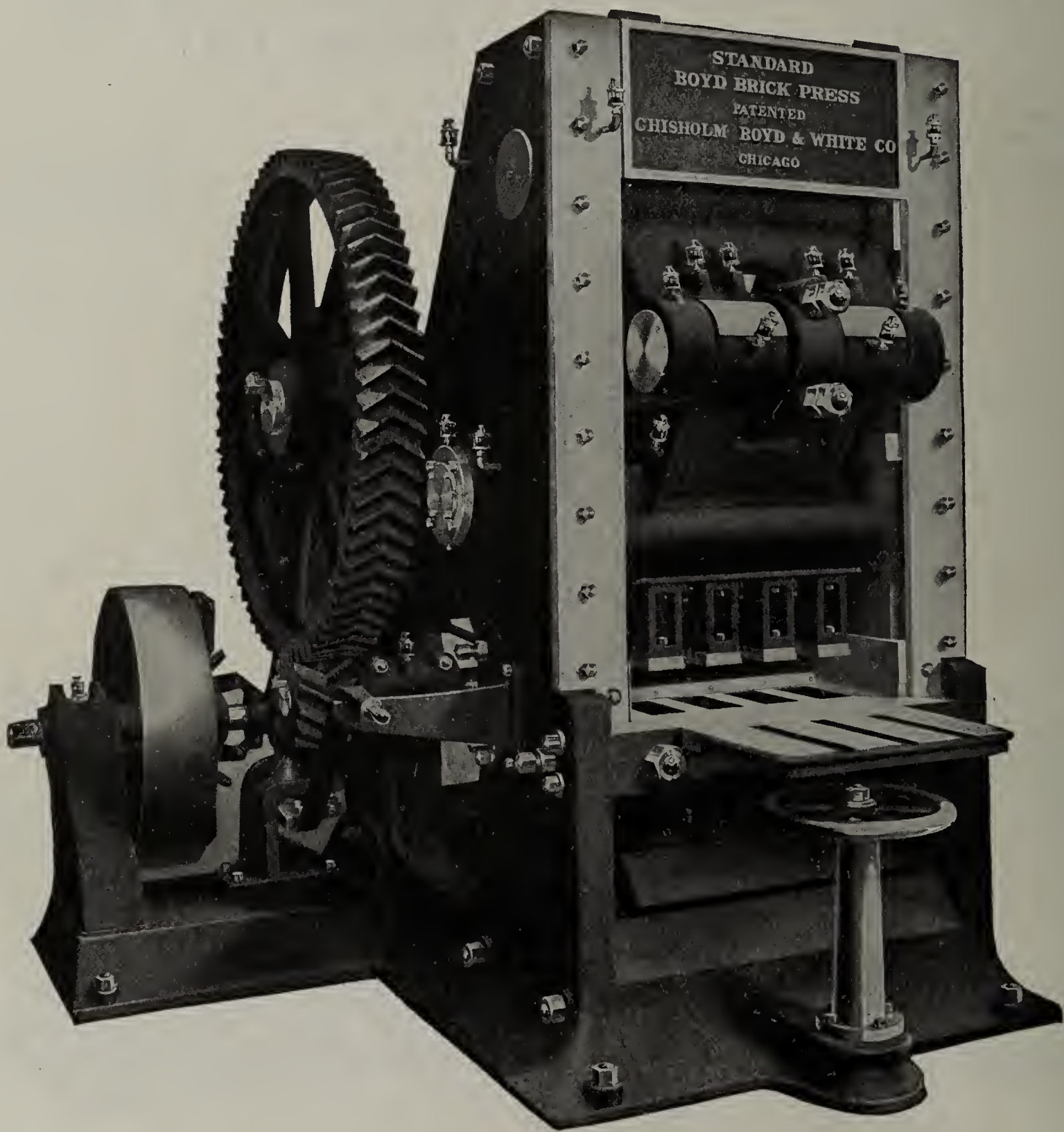
J. S. McCannell
Man'g Director

CHISHOLM, BOYD & WHITE CO.

57th and Wallace Sts., CHICAGO

STANDARD BOYD BRICK PRESS

"Built Up to a Standard—Not Down to a Price."



BALANCED—PRESSURE

The BOYD is the only Brick Press having this feature. Patent on this improvement just issued.

Write for latest Catalogue No. 25, which contains plans and suggestions concerning the design and equipment of brick plants.

Chisholm, Boyd & White Company

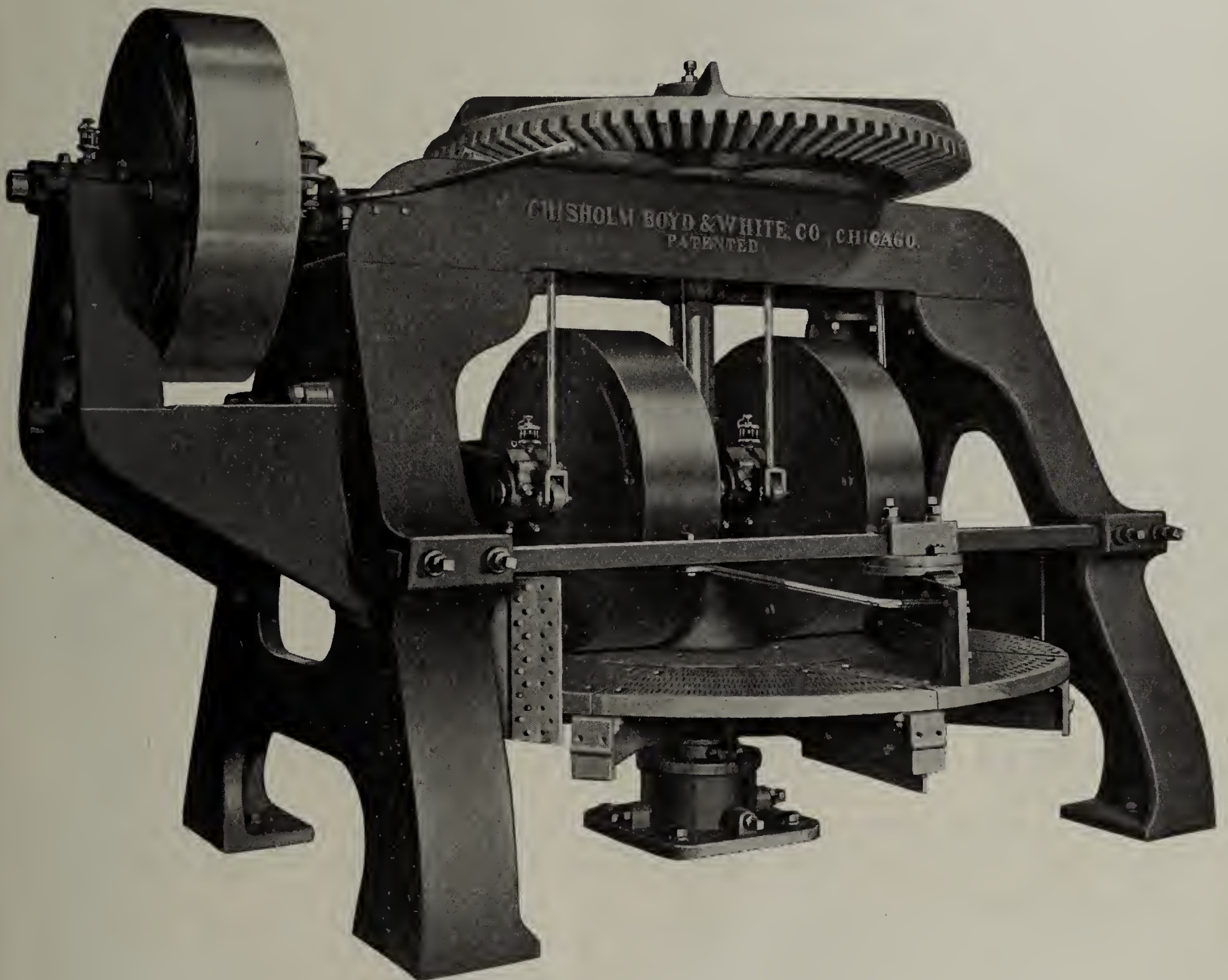
Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

Mention THE CLAY-WORKER.

DRY PANS.

BOYD QUALITY.



OUR NEW NINE-FOOT HEAVY DUTY DRY PAN.

For design, strength, durability and efficiency
this Dry Pan has no equal.

Chisholm, Boyd & White Company,

Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

Mention THE CLAY-WORKER.



BAD WEATHER IS COMING

Be prepared to take care of your rush business, rain or shine. The Mathews Gravity Brick Carrier, as shown above, will work in any kind of weather, permitting men to be under cover at both ends.

Hundreds of American brickyards are using the Mathews Gravity Brick Carrier. Any one of them will tell you that they have cut their loading expense 50% over the old wheelbarrow method. The Carrier is made entirely of steel, scientifically constructed, absolutely dependable at all times and under all circumstances. Write us for literature and special information.

BRANCH FACTORIES:

British Mathews, Ltd., London, Eng.
Canadian Mathews Gravity Carrier Co., Toronto, Ont.

BRANCH OFFICES:

New York: 30 Church Street, Room 726.
Boston: 164 Federal Street, Room 50.
Philadelphia: 1002 Drexel Bldg.
Rochester: 1459 South Ave.
Chicago: 9 South La Salle St.
St. Louis: P. O. Box No. 568.
San Francisco: Hicks, Nell & Marks, 604 Mission St.



Main Office and Factory
ELLWOOD CITY,
PENN., U. S. A.

Buyers Ready Reference List.

To Find Any Particular Firm or Advertisement See "Index to Ads" as Cited on Front Cover Page.

Ammeters.

The Brown Instrument Co.

Analysts and Chemists.

Ceramic Supply & Con. Co.
N. J. State University.
Ohio State University.
Richardson-Lovejoy Engr. Co.

Automatic Clay Bin Emptier.

Raymond Co., The C. W.

Automatic Cutting Tables.

(See Cutting Tables.)

Barrows and Trucks.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
H. Brewer & Co.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Illinois Supply and Con. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Barytes, Carbonate of

Gabriel & Schall.
Roessler-Hasslacher Chem. Co.

Bearings, Roller.

(See Supplies.)

Belting.

Gandy Belting Co.
Sawyer Belting Co.

Belt Conveyors.

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Gandy Belting Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.

Blowers.

American Blower Co.
American Clay Machinery Co.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

Boilers.

American Clay Machinery Co.
Arbuckle & Co.
Frost Mfg. Co.
Morehead Mfg. Co.

Brick (Building).

Bloomfield Clay Co.
Bolivar Face Brick Co.
Fiske & Co., Inc.
Kushequa Brick Co.
Marion Brick Works.
Purinton Paving Brick Co.

Brick (Fire).

Chicago Retort & Fire Brick Co.
Evans & Howard Fire Brick Co.

Brick (Paving).

Barr Clay Co., The
Bessemer Limestone Co.
Clinton Paving Brick Co.
Danville Brick Co., The
Hocking Valley Fire Clay Co.
Marion Brick Works.
Metropolitan Paving Brick Co.
Natl. Pav. Brick Mfgs. Assn.
Purinton Paving Brick Co.
Terre Haute Vit. Brick Co.
Thurber Vitriified Brick Co.
Shawmut Vit. Pav. Brick Wks.
Wabash Clay Co.

Brick Conveyors.

American Clay Machinery Co.
Mathews Gravity Carrier Co.

Brick and Tile Machinery.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Chisholm, Boyd & White Co.
Dunn Wire Cut Lug Brick Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Fernholtz Brick Machy. Co.
Freese & Co., E. M.
Hensley, J. W.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Ohio Ceramic Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice & Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Brick Machines (Soft Mud).

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Wellington Machine Co.

Brick Machines (Stiff Mud).

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice & Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Brick Machines (Dry Press).

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Chisholm, Boyd & White Co.
Chicago Brick Machinery Co.
Fernholtz Brick Machinery Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Mueller Bros.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.

Brick Recutter.

Raymond Co., The C. W.

Brick Setting Machinery.

American Clay Machinery Co.

Brickyard Engineering.

Heald, G. W.

Buffing Machine.

American Clay Machinery Co.

Burning and Drying Systems.

Boss, John C.
Buhner, Jacob.
Dennis, F. W.
Haigh, H.
Hoehne, Richard B.
Hoffmann Construction Co.
Illinois Supply & Con. Co.
Koch, J. J.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Rodgers Engineering Co., L. E.
Snowden & Co., Geo. E.
Standard Dry Kiln Co.
Tate, Jones & Co.
Trautwein Drying & Engr. Co.
Vogt, Anton.
Yates, Alfred.

Cars.

(See Dryer and Dump Cars.)

Castings.

Arbuckle & Co.
Caldwell & Sons Co., H. W.
Chambers Bros. Co.
Wallace Mach. & Foundry Co.

Ceramic Engineers.

F. Julius Fohs.
Hoehne, Richard B.
Koch, J. J.
Richardson-Lovejoy Engr. Co.

Clay Crushers and Pulverizers.

American Pulverizer Co.
American Road Machine Co.
Arbuckle & Co.
Brewer Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Phillips & McLaren Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Wallace Mfg. Co.
Wellington Machine Co.

Clay Dryers.

American Process Co.

Clay Feeders and Mixers.

American Clay Machinery Co.
Arbuckle & Co.
H. Brewer & Co.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
E. M. Freese & Co.
Illinois Supply & Con. Co.
Raymond Co., The C. W.
Taplin, Rice-Clerkin Co.
Scott-Madden Iron Works.
Stevenson Co., The

Clay Gatherers.

(See Scrapers.)

Clay Steamers.

American Clay Machinery Co.
Raymond Co., The C. W.

Clay Technologists.

Koch, J. J.
Richardson-Lovejoy Engr. Co.

Clutches.

(See Supplies.)

Coloring Materials.

Chattanooga Paint Co.
Clinton Metallic Paint Co.
National Paint & Manganese Co.
Ricketson Mineral Paint Co.
Roessler-Hasslacher Chem. Co.
Williams & Co., C. K.

Cones.

Orton, Edward, Jr.

Conveying Machinery.

American Clay Machinery Co.
Arbuckle & Co.

Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Mathews Gravity Carrier Co.
Mueller Bros.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.

Contracting Engineers.

Dennis, F. W.
Haigh, H.
Heald, G. W.
Hoehne, Richard B.
King, E. A.
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Wurz & Hillenbrand.
Vogt, Anton.

Couplings.

(See Supplies.)

Cutting Tables (Brick & Tile).

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Dunn Wire Cut Lug Brick Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.

Cutting Wires.

Arbuckle & Co.
Brewer & Co., H.
Ceramic Supply & Con. Co.
E. M. Freese & Co.
Manufacturers Equipment Co.
Raymond Co., The C. W.

Dampers.

(See Supplies.)

Dies.

(See Supplies.)

Disintegrators.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Wallace Mfg. Co.
Wellington Machine Co.

Drain Tile.

Evans & Howard Fire Brick Co.

Drain Tile Machinery.

(See Brick & Tile Machinery.)

Drums, Hoisting and Winding.

(See Supplies.)

Dryers.

American Blower Co.
American Clay Machinery Co.
American Process Co.
Chambers Bros. Co.

(Continued on next page.)

Buyers Ready Reference List—Continued.

Manufacturers Equipment Co.
 Martin Brick Mach. Mfg. Co., H.
 Ohio Ceramic Engineering Co.
 Potts & Co., C. & A.
 Raymond Co., The C. W.
 Richardson-Lovejoy Engr. Co.
 Rodgers Engr. Co., The L. E.
 Standard Dry Kiln Co., The
 Steele & Sons, J. C.
 Trautwein Dryer & Engr. Co.

Dryer Cars.

American Clay Machinery Co.
 Atlas Car & Mfg. Co.
 Arbuckle & Co.
 Bonnot Co., The
 Chambers Bros. Co.
 Chase Fdy. & Mfg. Co.
 E. M. Freese & Co.
 Fate Co., The J. D.
 Ohio Ceramic Engineering Co.
 Raymond Co., The C. W.
 Rodgers Engr. Co., The L. E.
 Scott-Madden Iron Works Co.
 Standard Dry Kiln Co., The
 Steele & Sons, J. C.
 Trautwein Dryer & Engr. Co.
 Wellington Machine Co.

Dry and Wet Pans.

American Clay Machinery Co.
 Anderson Fdy. & Mach. Works.
 Arbuckle & Co.
 Bonnot Co., The
 Brewer & Co., H.
 Chambers Bros. Co.
 Chicago Brick Machinery Co.
 Chisholm, Boyd & White Co.
 Eagle Iron Works.
 Fate Co., The J. D.
 Freese & Co., E. M.
 Frost Mfg. Co.
 Illinois Supply & Con. Co.
 Phillips & McLaren Co.
 Raymond Co., The C. W.
 Scott-Madden Iron Works Co.
 Stevenson Co., The
 Taplin, Rice-Clerkin Co.

Dump and Clay Cars.

American Clay Machinery Co.
 Atlas Car & Mfg. Co.
 Arbuckle & Co.
 Bonnot Co., The
 Brewer & Co., H.
 Chambers Bros. Co.
 Chase Fdy. & Mfg. Co.
 Eastern Brick Machinery Co.
 E. M. Freese & Co.
 Hensley, J. W.
 Ohio Ceramic Engineering Co.
 Potts & Co., C. & A.
 Raymond Co., The C. W.
 Steele & Co., The J. C.
 Scott-Madden Iron Works Co.
 Wellington Machine Co.

Electric Shovels.

The Marion Steam Shovel Co.
 Thew Automatic Shovel Co.

Electrical Furnaces.

Brown Instrument Co., The
 Richardson-Lovejoy Engr. Co.

Electric Instruments.

The Brown Instrument Co.

Electrical Locomotives.

Atlas Car & Mfg. Co.

Electrical Supplies.

American Clay Machinery Co.
 Raymond Co., The C. W.

Elevating Equipment.

(See Conveyors.)

Engines.

American Clay Machinery Co.
 Chambers Bros. Co.
 Frost Mfg. Co.

Engineers.

Rodgers Engr. Co., The L. E.
 Trautwein Dryer & Engr. Co.
 E. H. Callaway.

Fans.

American Blower Co.
 American Clay Machinery Co.
 Rodgers Engr. Co., The L. E.
 Trautwein Dryer & Engr. Co.

Feed Water Heaters.

American Blower Co.
 American Clay Machinery Co.
 Frost Mfg. Co.
 Morehead Mfg. Co.
 Standard Dry Kiln Co.

Filler (Paving).

Barrett Mfg. Co.

Filter Presses.

American Clay Machinery Co.
 Raymond Co., The C. W.
 Stevenson Co., The
 Taplin, Rice-Clerkin Co.

Fire Brick and Fire Clay.

Bloomfield Clay Co.
 Chicago Ret. & Fire Clay Co.
 Evens & Howard Fire Brick Co.

Fire Clay.

Evens & Howard Fire Brick Co.

Fire Proofing.

Evens & Howard Fire Brick Co.

Floor Tile.

Chicago Ret. & Fire Brick Co.
 Evans & Howard Fire Brick Co.

Flower Pot Machinery.

Rockwood Mfg. Co., The

Friction Clutch Pulleys.

(See Supplies.)

Furnaces.

Brown Instrument Co., The
 Illinois Supply & Con. Co.
 Raymond & Co., C. W.
 Richardson-Lovejoy Engr. Co.
 Tate, Jones & Co.

Gas Fire Continuous Kilns.

Raymond Co., The C. W.

Gears.

(See Supplies.)

Granulators.

American Clay Machinery Co.
 Anderson Fdy. & Mach. Works.
 Arbuckle & Co.
 Bonnot Co., The
 Brewer & Co., H.
 Chambers Bros. Co.
 Chicago Brick Machinery Co.
 Fate Co., The J. D.
 Freese & Co., E. M.
 Martin Brick Mach. Mfg. Co., H.
 Potts & Co., C. & A.
 Raymond Co., The C. W.
 Scott-Madden Iron Works Co.
 Steele & Co., J. C.
 Stevenson Co., The
 Taplin, Rice-Clerkin Co.
 Wallace Mfg. Co.
 Wellington Machine Co.

Gravity Carriers.

Mathews Gravity Carrier Co.

Gravity Haulage.

American Clay Machinery Co.

Hand-Power Presses.

American Clay Machinery Co.
 Carnell, Geo.
 Illinois Supply & Con. Co.
 Mueller Bros.
 Ohio Ceramic Engineering Co.
 Raymond Co., The C. W.
 Scott-Madden Iron Works Co.
 Stevenson & Co.

Hand Winch.

(See Supplies.)

Hangers.

(See Supplies.)

Hoists.

(See Supplies.)

Hoisting Engines.

American Hoist & Derrick Co.

Hollow Block Machinery.

American Clay Machinery Co.
 Arbuckle & Co.
 Bonnot Co., The
 H. Brewer & Co.
 Freese & Co., E. M.
 Raymond Co., The C. W.

Scott-Madden Iron Works Co.
 Stevenson Co., The
 Taplin, Rice-Clerkin Co.
 Wallace Mfg. Co.

Hollow Partition Tile.

Evens & Howard Fire Brick Co.
 Ohio Clay Company.

Jacks.

(See Supplies.)

Kilns.

American Clay Machinery Co.
 Boss, J. C.
 Buhner, Jacob.
 Chisholm, Boyd & White Co.
 Dennis, F. W.
 Haigh, H.
 Hoehe, Richard B.
 Hoffmann Construction Co.
 Illinois Supply & Con. Co.
 Manufacturers Equipment Co.
 Raymond Co., The C. W.
 Richardson-Lovejoy Engr. Co.
 Snowden & Co., G. E.
 Shumaker, J. H.
 Vogt, Anton.
 Yates, Alfred.

Kiln Bands.

(See Supplies.)

Kiln Doors, Castings and Frames.

(See Supplies.)

Kiln Floor Tile.

Chicago Ret. & Fire Brick Co.
 Evens & Howard Fire Brick Co.

Kiln Irons.

(See Supplies.)

Kiln Furnaces.

Illinois Supply & Con. Co.

Kiln Lugs.

(See Supplies.)

Knives.

(See Supplies.)

Locomotives.

Davenport Locomotive Works.

Locomotive Cranes.

American Hoist & Derrick Co.

Manganese.

(See Coloring Materials.)

Mechanical Draft.

American Blower Co.
 Boss, J. C.
 Rodgers Engr. Co., The L. E.

Mineral Paint.

(See Coloring Materials.)

Molds (Brick).

Carnell, Geo.
 Eastern Brick Machinery Co.
 Hensley, J. W.
 Martin Brick Mach. Mfg. Co., H.
 Potts & Co., C. & A.
 Raymond Co., The C. W.
 Wellington Machine Co.

Mold Sanders.

Carnell, Geo.
 Eastern Brick Machinery Co.
 Hensley, J. W.
 Martin Brick Mach. Mfg. Co., H.
 Potts & Co., C. & A.
 Raymond Co., The C. W.
 Wallace Mfg. Co.
 Wellington Machine Co.

Mortar Colors.

(See Coloring Materials.)

Oil Burners.

Ill. Supply & Constr. Co.
 Schurs Oil Burner Co.
 Tate Jones Co.

Paints.

(See Coloring Materials.)

Pallets.

Ohio Ceramic Engineering Co.
 Ohio Galvanizing & Mfg. Co.

Pans (dry and wet).
 (See Dry and Wet Pans.)

Patents.

Scientific American.
 Watson and Boyden.

Paving Brick or Block.

(See Brick.)

Perforated Sheet Metal.

Caldwell & Sons Co., H. W.
 Harrington & King Perf. Co.

Pitch (Paving).

Barrett Mfg. Co.

Plows.

(See Scrapers.)

Portable Track.

Atlas Car & Mfg. Co.
 Ohio Ceramic Engineering Co.
 Raymond Co., The C. W.

Pottery Machinery.

American Clay Machinery Co.
 Rockwood Mfg. Co.
 Raymond Co., The C. W.
 Stevenson Co., The
 Taplin Rice Clerkin Co.

Power Plant Equipment.

Rodgers Engr. Co., The L. E.
 Trautwein Dryer & Engr. Co.

Presses.

(See Brick Machines, also Sewer Pipe Machinery, also Roofing Tile Machinery.)

Pug Mills.

American Clay Machinery Co.
 Anderson Fdy. and Mach. Wks.
 Arbuckle & Co.
 Bonnot Co., The
 Brewer & Co., H.
 Chambers Bros. Co.
 Fate Co., The J. D.
 Freese and Co., E. M.
 Hensley, J. W.
 Mueller Bros.
 Raymond Co., The C. W.
 Steele & Sons, J. C.
 Scott-Madden Iron Works Co.
 Stevenson Co., The
 Wallace Mfg. Co.
 Wellington Machine Co.

Pulleys.

(See Supplies.)

Pulverizers.

American Pulverizer Co.
 Illinois Supply & Con. Co.
 Scott-Madden Iron Works Co.

Pumps.

Dean Bros. Steam Pump Wks.
 Pulsometer Steam Pump Co.

Pyrometers.

Brown Instrument Co.
 Ceramic Supply & Constr. Co.
 Rodgers Engr. Co., The L. E.

Rails and Railway Equipment.

Atlas Car and Mfg. Co.
 Arbuckle & Co.
 Davenport Locomotive Works.
 Milwaukee Locomotive Mfg. Co.
 Ohio Ceramic Engineering Co.
 Scott Madden Iron Works Co.

Rattlers (Paving Brick).

Ceramic Supply & Con. Co.
 E. M. Freese & Co.
 Hetherington and Berner.
 Phillips & McLaren Co.

Recording Gauges.

Brown Instrument Co.
 Ceramic Supply & Constr. Co.

Represses.

American Clay Machinery Co.
 Bonnot Co., The
 Chambers Bros. Co.
 Fate Co., The J. D.

(Continued on page 378.)

NEW MODEL BERG BRICK PRESS

WE MANUFACTURE AND INSTALL COMPLETE PLANTS UNDER GUARANTEE FOR THE MANUFACTURE OF SAND-LIME BRICK.

Still in the Lead

and

One Step Further Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact and

SHIPPED IN ONE PIECE.

All Machines
Are
Equipped With

CUT GEARING.

Manufactured and Sold by

THE ANDERSON FOUNDRY & MACHINE WORKS

Manufacturers of Soft Mud Brick and Drain Tile Machinery

Sold by the C. W. RAYMOND CO.,
Dayton, Ohio.

ANDERSON, IND.

Mention THE CLAY-WORKER.

Buyers Ready Reference List—Continued.

Freese & Co., E. M.
Illinois Supply & Con. Co.
Mueller Bros.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Taplin, Rice, Clerkin Co.
Stevenson Co., The

Revolution Indicators.

Brown Instrument Co.
Ceramic Supply & Constr. Co.

Revolving Steam Shovels.

Marion Steam Shovel Co.
American Hoist & Derrick Co.

Rock Crushers.

American Pulverizer Co.
Phillips & McLaren Co.

Roofing Tile Machinery.

American Clay Machinery Co.
Ill. Supply & Construction Co.
Mueller Bros.
Raymond Co., The C. W.

Rope.

(See Supplies.)

Rotary Dryers.

American Clay Machinery Co.

Sand Dryers.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Fate Co., The J. D.
Hensley, J. W.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wellington Machine Co.

Sand Lime Brick Machinery.

American Clay Machinery Co.
Anderson Fdry. & Mach. Wks.
Chicago Brick Machinery Co.
Chisholm, Boyd and White Co.
Fernholtz Brick Machinery Co.
Ill. Supply & Construction Co.
Ohio Ceramic Engineering Co.

Raymond Co., The C. W.
Scott-Madden Iron Works Co.

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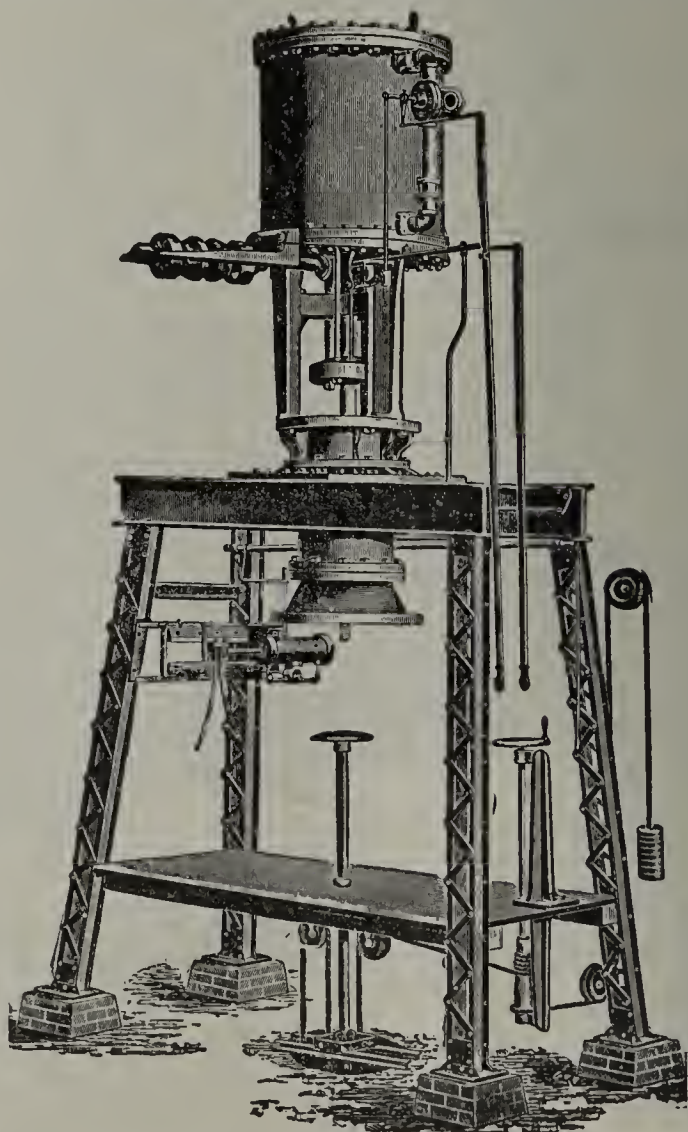
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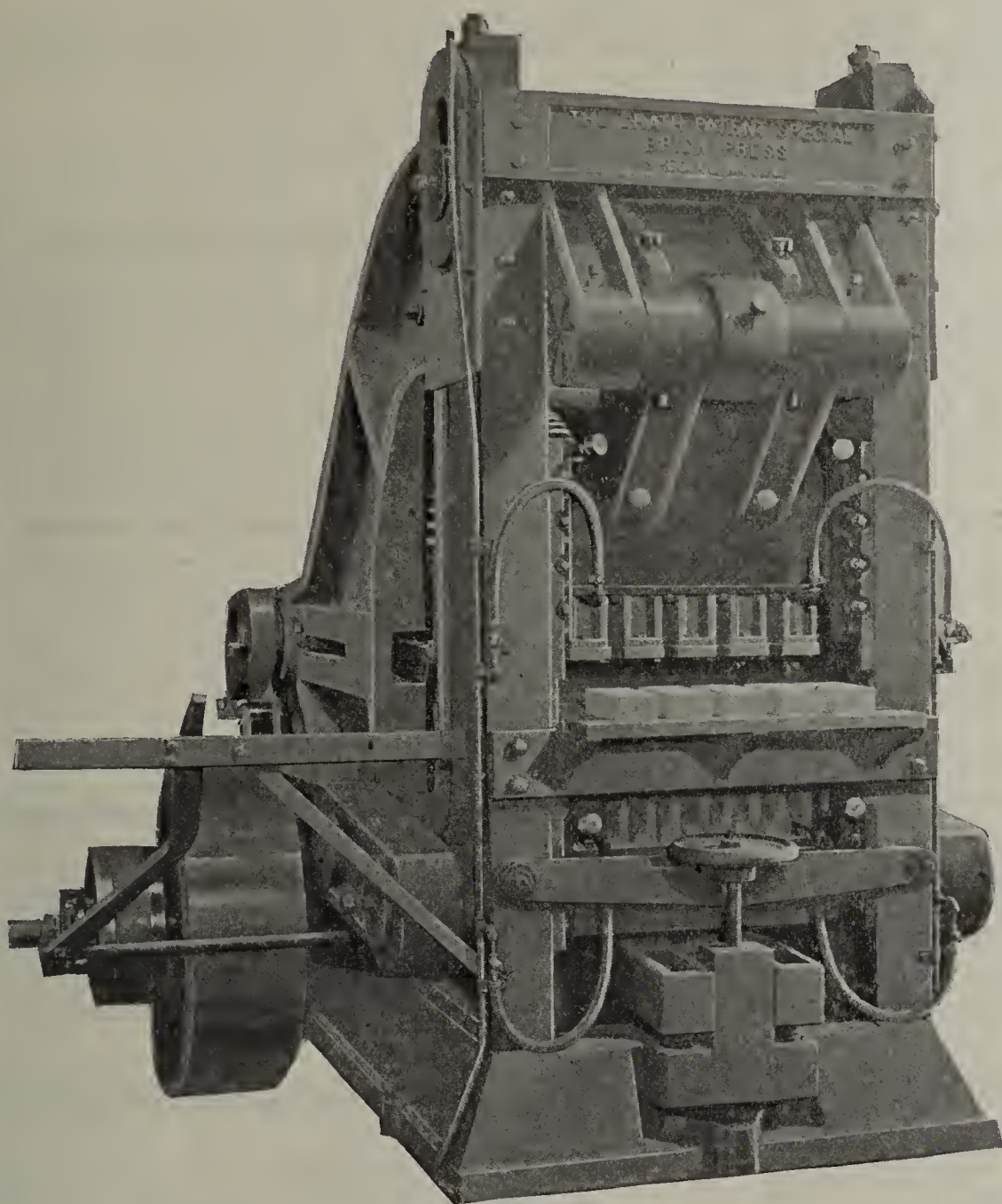
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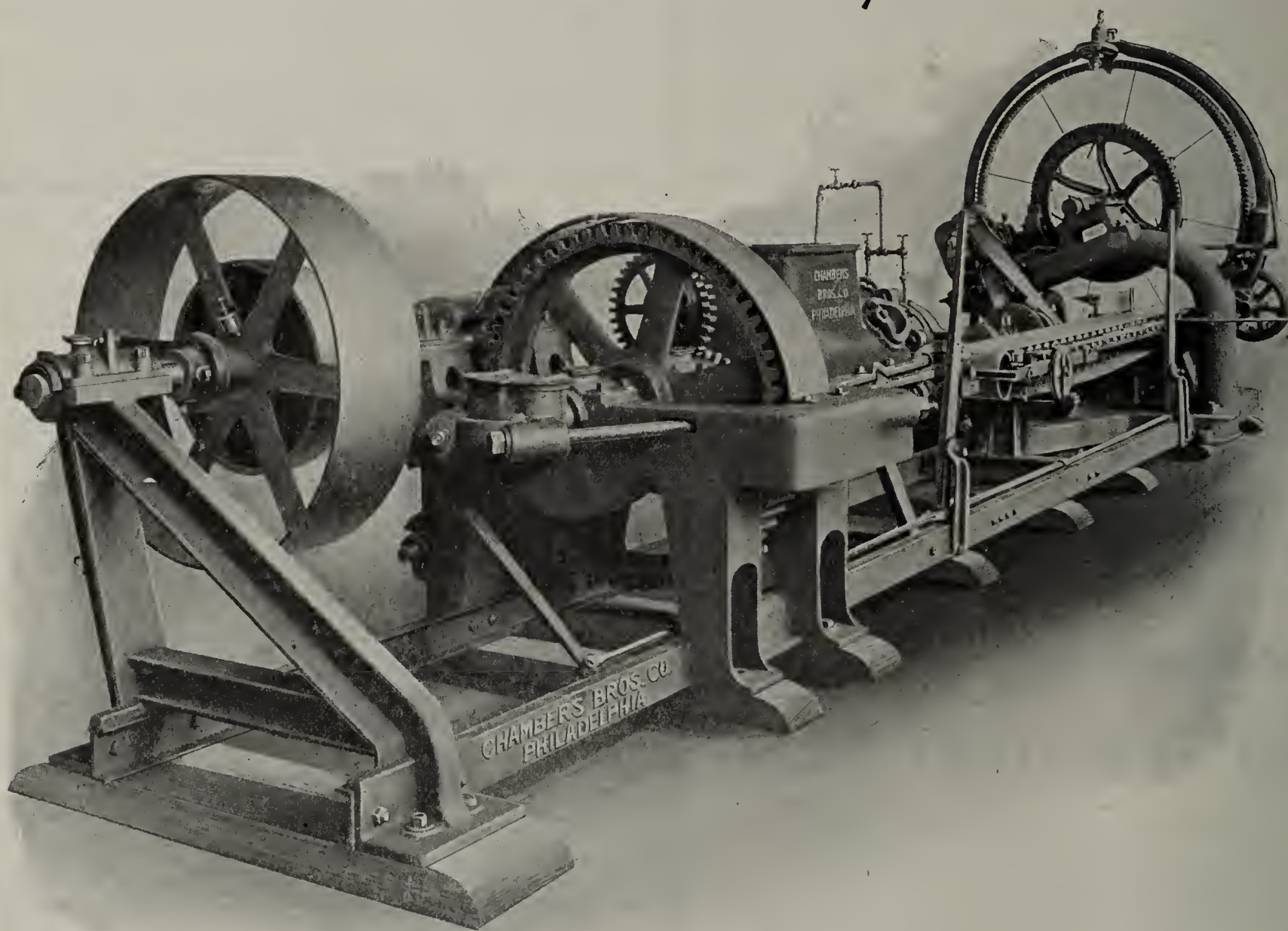
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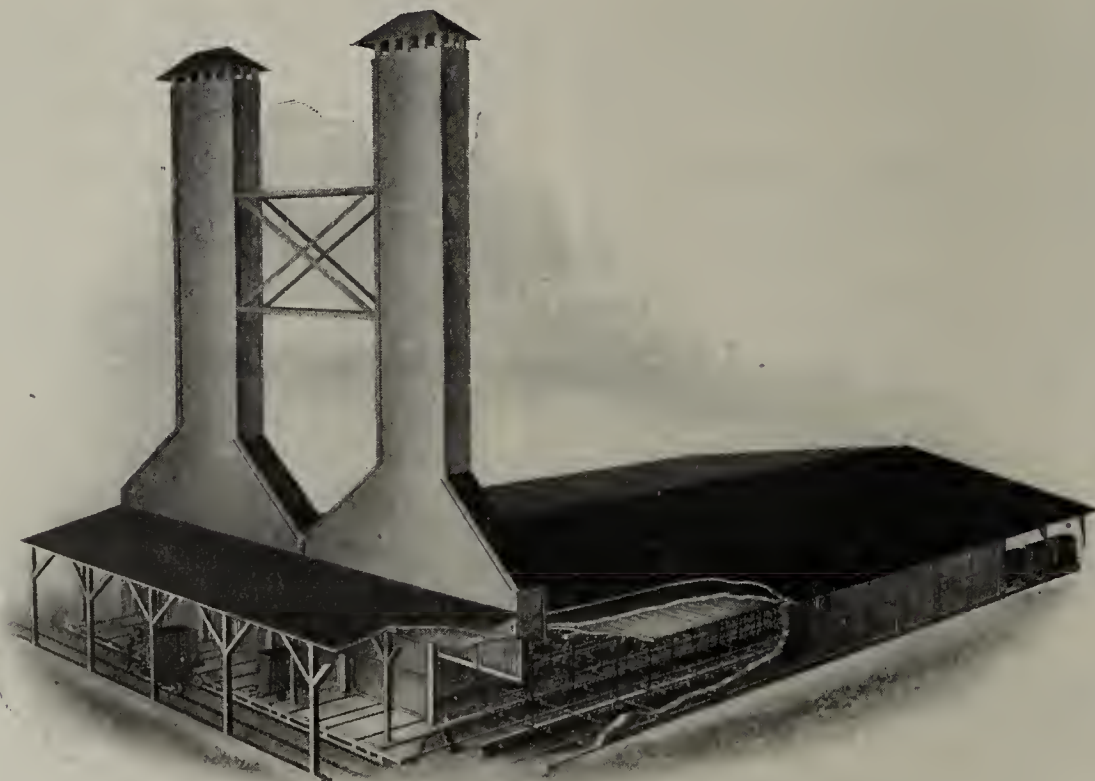
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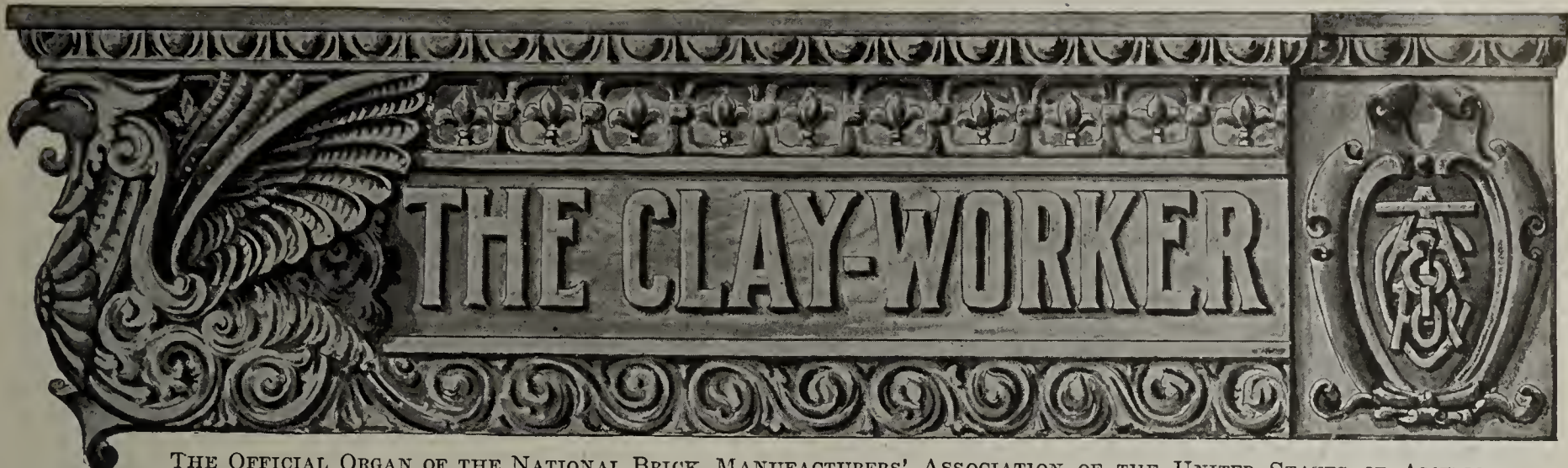
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THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LVII.

INDIANAPOLIS, IND., MARCH, 1912.

No. 3.



OFFICIAL REPORT OF THE TWENTY-SIXTH ANNUAL
CONVENTION OF THE NATIONAL BRICK MAN-
UFACTURERS' ASSOCIATION, HELD AT
CHICAGO, ILL., MARCH 4
TO 9, 1912.*

CHICAGO WILL live ever in the memory of all who participated in the twenty-sixth annual convention of the National Brick Manufacturers' Association. There was something doing every minute, from the hour that the first delegates arrived to that of the departure of those who tarried till the close of the Clay Products Exposition. Familiar faces began to appear in the corridors of the Hotel Annex early Sunday, and a few of the faithful arrived the previous week. The local committees were omnipresent at all times; the hour was never too early nor too late, apparently, for the active members of the Chicago Clay Club (if there were any inactive members the fact was not discovered). The visiting brick-makers were welcomed cordially and accorded every courtesy a stranger in a great city might expect or desire.

The demand for number buttons and badges became urgent early Monday, and during the balance of the week Secretary Randall's apartments on the parlor floor were thronged continuously from 9 a. m. till 10 p. m. The first numerical roster was issued Tuesday, and included 163 names. The last roster was issued Saturday morning and marked the high record of 815 registrations. Subsequently fifty-three additional names were enrolled, a record that will be hard to

beat in years to come. The Congress Hotel and Annex proved equal to every emergency and cared for the throng so satisfactorily that not a single complaint was heard. The convention halls were adequate, and so convenient and comfortable that the old-time members, who speak from experience, declare that the Annex is the best convention hotel in America.

There were not so many ladies in attendance as had been expected, but those who did participate were kept very busy throughout the week. Private shopping and theater parties were the preferred amusements, though the formal entertainments were thoroughly enjoyed. Miss Grace Kimbell and sister, Mrs. H. H. Hornsby, of New York, daughters of the redoubtable secretary of the Chicago Clay Club, E. C. Kimbell, yclept "Dick" for short, were in charge of the ladies' registration and information bureau, and, by their untiring and courteous attention, won the love of all visitors.

The convention sessions were unusually well attended, and, as the reader will see by the full report which follows, the papers and discussions were of absorbing interest. The first session, which is always the most largely attended, was a most strenuous and wakeful occasion. The immense and beautiful convention hall was literally packed, in more ways than one. For the first time in the history of the association a formal ballot was necessary to determine the choice for president. The victory of Charles A. Bloomfield was a fitting tribute to his lifelong service to the association. The attempt on the part of the local contingent to defeat him and thus break the precedent of promoting the vice-presidents, which has been in vogue for a number of years, was unfair and inconsistent, and, fortunately for the association, was defeated.

It is certainly a wise plan to recognize and encourage faithful and zealous workers in any good cause, and that is precisely what is done by the method of promoting our Vice-President from year to year. No member who is not willing to serve in a subordinate position should as-

pire to the chief office of such an organization. Those who do serve for a period of three years, as our vice-presidents now do, are thereby better qualified to direct the affairs of the association, hence it is to be devoutly hoped that the plan will be followed in the years to come. Much that was



President C. M. Crook.
Youngstown, Ohio.

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said in this connection on the floor of the convention must be taken with several grains of allowance. Almost without exception those who urged the departure from our adopted rule of procedure were comparative strangers, who apparently knew little and cared less about the real welfare of the association. The incident will serve a good purpose if it fixes more firmly in the minds of the faithful the importance of turning a deaf ear to local influences when matters of vital importance to the association are under consideration.

All the auxiliary associations were well attended. Success was written in large letters on every phase of the convention, and especially on the Clay Products Exposition, which, in excellence, surpassed the expectations of even the enthusiastic promoters. Contrary to the usual experience, the show was virtually complete in all essential features on the opening evening, and from that date until the close of the show it was crowded with interested spectators. On the last evening the crowd was so great it was difficult to make one's way through the aisles. Indeed, one had to follow the crowd to get anywhere. It was generally conceded to be the finest exhibition and most successful show ever given in the great Coliseum.

FIRST SESSION.

Wednesday, 2:30 p. m., March 6, 1912.

President Crook: The convention will please come to order. The hour has arrived for opening the twenty-sixth

age. We beseech Thee to visit this particular body of men with prosperity; grant them success, dear Lord, in such measure as shall make them serve Thee better. Enable them to confer happiness upon those who are dear to them and theirs. We ask it for Christ's sake. Amen.

President Crook: I am sure, gentlemen, of the convention, that we count it a privilege to hold this, our twenty-sixth convention, in this great and wonderful city of Chicago, the second in the United States, and measured by the years of its life, easily the first. I am sure we are glad to be welcomed here by the brothers of the craft, who have been extending a welcome all week, but the formal word of welcome will be given us by the Hon. L. E. McGann, Commissioner of the Board of Public Works, the representative of the Chief Executive. (Applause.)

Mr. McGann's Welcome Address.

Mr. L. E. McGann: Ladies and Gentlemen of the National Brick Manufacturers' Association: Mayor Harrison asked me to come here and say that because of a previous very important engagement with the Secretary of War that he could not be here, that he regretted it very much. He asked me to extend his fraternal compliments and as an official of this city to extend to you a hearty welcome. (Applause.) Finally and personally, he said, he was very much interested in the success of this meeting. The city of Chicago, because of the



First Vice-President W. H. H. Rogers,
Rochester, N. Y.



President-elect Chas. A. Bloomfield,
Metuchen, N. J.



Second Vice-President Eben Rodgers,
Alton, Ill.

annual convention of the National Brick Manufacturers' Association. As is customary, it will be opened by prayer by the Reverend Dr. McGann, Chicago, Ill.

The Opening Prayer.

Rev. John M. McGann: Let us pray. We invoke Thy grace and wisdom, O Lord, upon all men who employ and control the labor of man, and may the imperial rank of their position help them to keep a cool and patient temper, and enable them to rule wisely without harshness and anger. Suffer not the heavenly light of compassion for the weak and helpless to be quenched in their hearts when they are tempted to follow the ruthless ways of others and sacrifice human life and health for profit. Do Thou strengthen their will in the hour of need. Save them from the counsels of the heartless. May they not sin against the Cross by using the bodies and souls of men as mere tools to make things, forgetting human hearts and the longings of their brothers. Raise up among us, we beseech Thee, employers who shall be makers of men as well as of goods. Give us masters of industry who will enable the workers to increase in independence and to bear their share of the larger responsibilities of the coming

great improvements contemplated, is very much interested in securing valuable information that will enable the officials of the city to so plan that the great improvements to be made here will endure to serve the millions of people who gather here.

So far as making an address to this convention, I did not understand that I was expected to do so, but merely to say to you "Welcome," and your representative suggested that then I might depart, but I must confess that while sitting here listening to the prayer of the Rev. Dr. McGann I thought that if it were in my power to burn into the brains of every man, woman and child here the sentiments expressed in that prayer I would do it. Human success does not always depend on the material success. The higher and nobler things to which we aspire will not only lead us to a nobler success, but will enable us to reach a material success that the over-earnest business man frequently overlooks. The satisfied wealth creator known as the laborer, no matter how humble he may be, living under healthful conditions, sanitary conditions such as produce and promote the health of his children, under conditions produced by proper compensation, will do more to increase the wealth of the country materially,

as well as spiritually and mentally, than any other rule or legislation that this or any other convention of citizens of this country can adopt, enact or conform to. Why, before we individuals acquire any considerable portion of wealth the wealth must have been produced. It is a fact that men and women, families without the facilities for the moral development, education and livelihood, are not capable of producing the maximum of wealth that human being may produce. If the cupidity and avarice of the individual will result in producing conditions in sections of the country that will lower the standard of humanity and reduce the powers of production and consequently of the creation of wealth, to such an extent that such a policy has lowered the standards of production the result is that manufacturers or employers have deprived themselves of the opportunities of acquiring wealth. In the suggestion that I wish to make, while there may be the high moral suggestion, the highest in the creation of human or even the divine mind, the highest development of the human race, I also wish it understood that I make the suggestion purely from the standpoint of policy of material advancement, a policy that will create great wealth and leave for all of us an opportunity to participate in the distribution of wealth. We have passed the period in our national development when the directors of labor, the creators of wealth, can ignore this important factor,

of the materials that are represented, with a view to their application in the improvements now under contemplation. I simply wish to conclude by expressing the wish that you may have a most successful convention, that it may result in the material welfare of yourselves individually, of your respective communities, and of the whole United States. We are at a period when earnest men, in addition to their specific efforts, can give some consideration to the suggestions that have been made by Dr. McGann in his prayer. My own line of thought is that it is not a sacrifice, that our own self-interests justify us in giving consideration to the great truths that tend to the elevation of the human race, the development of the highest qualities in the human being for the production of wealth. The distribution of wealth is entirely another subject, and in our race for that each and every one of us will take unto ourselves such rules and laws as are consistent with the section in which we live. In conclusion, I wish you every success in your convention. (Loud applause.)

President Crook: We thank you, Mr. Commissioner, for your words of welcome. We appreciate the line of thought you have suggested. It is a vital subject to all of us. The formal response to this address of welcome will be given by one of our members, Mr. E. F. Knight, of Bradford, Pa. (Applause.)



Third Vice-President C. P. Mayer,
Bridgeville, Pa.



Secretary Theo. A. Randall,
Indianapolis, Ind.



Treasurer Jno. W. Sibley,
Birmingham, Ala.

the power of individual creation. And I simply want to second the suggestion of the gentleman who offered prayer, and to suggest that the thoughts of his prayer are the most important that we can take away with us. I possibly should apologize for this line of digression from the ordinary speech of welcome, but you know we cannot always control our own feelings, and when a diversion from ordinary thoughts is due to an overpowering influence we must yield to it. Please accept this as my apology for the line of thought I have suggested.

Personally, I want to say that I am very much interested in the materials you produce, and the citizens of Chicago are interested in the products of the gentlemen gathered here today, and wish to say that we have under contemplation in this city work of great value, and it is of great advantage to us to know of the economy and merits of the products of the National Brick Manufacturers' Association. I have been promised a copy of the proceedings of the association that will convey information indicating the merits of the different kinds of wares produced by the several divisions of this association, and I shall take great pleasure in calling the attention of the engineers and the superintendents of the various departments to the various phases

RESPONSE TO ADDRESS OF WELCOME.

BY MR. E. F. KNIGHT.

Mr. Chairman, Mr. Mayor, Ladies and Gentlemen:

I have listened with much pleasure to Mr. McGann's interesting and courteous welcome, and it is indeed a pleasant duty to tell him how much the National Brick Manufacturers' Association, assembled here in convention appreciates his greeting.

We, of course, are very sorry conditions are such that the mayor can not be with us. While we have not the pleasure of knowing the mayor personally, we nearly all of us have known of him for years. We know he is one of the few individuals who, having "lost out" or retired, was able to "come back," and he apparently is able to "come back" whenever he desires. We, however, appreciate very much the advice given by Mr. McGann; there is no doubt whatever but that the brickmakers need to have held up to them continually the fact that they should not try to put all the money into their own pocket. They should put at least a portion of it into the pockets of the men who are assisting them in carrying on their business. Unfortunately, however, conditions have been such that often after we have put into the pockets of our men their salary, we have to go down to the bank and see our friend, the cashier, and get sufficient money to pay the current expenses of the month. (Laughter.)

There are hundreds of conventions held in this city each year, and it is much appreciated when we are welcomed by the representative of the chief executive of a city of nearly 3,000,000 people. It is difficult to realize the importance and influence of this great

city when we reflect that this was a wilderness one hundred years ago.

The first public meeting as a town was held in August of 1833, and it is recorded that the first matter of business to be attended to in the new town was to construct a tree bridge across the river at Dearborn street, and the second was to build a solid and commodious jail. Chicago has always been a hospitable city. At that time it was derisively referred to as an amphibious city, and it has since that time practically lifted itself out of the mud, its present streets being eight feet above the original level.

The town treasury showed a credit of only \$1,993.00 when organized into a town, and for a while sledding was rough financially.

They needed to pave their streets, to build and to make other improvements, but when in 1837 they applied for a five-year loan of \$25,000.00 to the State Bank of Illinois they were refused.

The first census was taken in 1837, showing a population of 1800 men, 845 women and 1,344 children. No race suicide then. It is said at a convention once held in Texas a local orator, dilating on the glories and growth of his adopted state said, "Gentlemen, we have one woman in Clay county who is the mother of thirteen children." A voice from the gallery replied: "Send that woman to Colorado. We need her."

In view of the great growth of this city we cannot say of the people of Chicago what the Frenchman said of the English when returning from a six months' visit to that land. It is related that the Frenchman rushed into his favorite restaurant and ordered to be served immediately one dozen snails. After they had been served and while he was eating them and smacked his lips the waiter, noting his evident pleasure, said: "Why, it must be you have not had any snails lately?" "No," said the Frenchman, "I have been

Today we find her facing the future with the same spirit of confidence. Many of us, even in the East, have a very friendly feeling for "Dem Cubs" and the "White Sox." Chicago is the only city in the world to win three pennants in a year. The never say "Die" spirit of Chicago was never better manifested than when the Cubs and Giants met in New York in the fall of 1908 to play off the tie existing at the end of the regular National League season. I was in New York at that time and the evening before overheard a conversation between a Chicago man temporarily stopping in New York and a number of his friends, and they were conversing regarding the game to be played the next day. The Chicago man was overconfident and contended that the Cubs would win, but, said his friends, "Matthewson will pitch tomorrow, and when Matthewson is right you cannot beat him."

"We will beat him, all right," said the Chicago man. "It may take six or seven innings to get him, but when we get him it will be all off."

It was impossible to secure tickets to the game, but determining to see it if possible I went to the grounds quite early the next day, but found it absolutely impossible to secure admission. Tickets could not be had for love or money. Coogan's Bluff in the rear of the grand stand was packed with people. A dry goods box and a barrel does not make a very satisfactory seat, but it will do in a pinch, and from that elevation I had a fairly good view of the game. Not being from New York I did not fail to root a little for Chicago as the game progressed, and as a result had my platform kicked out from under me during one of the critical moments.

Donlin's two-bagger scored Tenny in the first inning, while Chicago was retired without scoring. The New York crowd went wild. The second inning went by without further scoring. Matthew-

MEMBERS OF THE CHICAGO CLAY CLUB WHO



Wm. Schlake.



Chas. B. VerNooy.



L. D. Binyon.



E. C. Kimbell.

to England for a six months' visit." "Well," said the waiter, "are there no snails in that country?" "Yes," said the Frenchman, "but they cannot catch them."

You must use the superlative when describing Chicago. It is the grain market of the world. It tells us daily how much we must pay for our flour, our eggs, our pork and other necessities. Thirty-nine railroads center here. Its paved streets, if extended in a single line, would extend from Chicago to New York and well on the way to Boston. It lights its streets with 100,000 lamps. It consumes daily 250,000,000 gallons of water. I presume that is a surprise. (Laughter.) It has an excellent school system, taking care of three quarter of a million children, with a woman superintendent who has made good. In fact, we can sympathize with that Chicago man referred to in the following dialogue:

"The trouble with you," said a visitor, "is that you exaggerate too much."

"We have to," said a Chicago man; "in fact, we have to lie to tell the truth about us." (Laughter.)

Eugene Field, once in a playful mood, crowned a picture of Chicago with a wreath of sausage links. If he had been alive today he would have hesitated. Sausage is now no joking subject. (Laughter.)

The Chicago fire in 1871 destroyed over 17,000 buildings, with a money loss of \$186,000,000.00. The Chicago spirit was never more vividly portrayed than when the first building was rebuilt before the ruins had ceased smoking. It was a rough frame shanty, about sixteen feet square and took the place of a large block destroyed by fire. It bore this sign, "Kerfoot block; everything gone but wife, child and energy." So much for the Chicago of yesterday.

son was in fine form and retired the Chicago Cubs as rapidly as they came to the bat. There seemed, however, to be no diminution of confidence on the Chicago bench. In the third inning they got to Matthewson. A three-bagger by Tinker, followed with hits by Kling, Evers and Schulte, produced four runs. There was no further scoring. New York's spirit was broken and the Chicago team never loosened their grip on the game and pennant.

Again, Mr. Mayor, we desire to express to you our appreciation of the cordial welcome you have given us to your city, and trust that as a result of this convention and the great Clay Products Exposition, now under way, that much good will result, not only to our own organization, but to the great city which you have the honor to represent. (Applause.)

Secretary Randall: Before announcing the next in order of regular business I would suggest that those standing in the rear of the room come forward and take seats. There are quite a number in the front and if they will come forward now they will avoid confusion a little later, when the president is addressing you. It is always pleasant to those giving a performance to know that the standing room only sign is hanging on the outer door, and that is the condition here today. It is now my pleasure to announce that the next in order is the annual address of our president, Charles M. Crook, of Youngstown, Ohio, and several points in Texas. (Applause.)

PRESIDENT CROOK'S ADDRESS.

Ladies and Gentlemen:

At the completion of my term of office as president of this association I remember with gratitude the kindness and co-operation of its officers and membership; the earnest, untiring efforts of our secretary, and again pledge myself that so far as lies in my power I will advance its interests in the future.

I count it a privilege and honor to have been identified with its activities. As the membership roll of this association is scanned I believe that a greater proportion of names than is usual in trade associations of its importance will be found to be truly representative of that mighty force, the common people.

By you, and such as you, hard working, clean living, sober thinking citizens, the public problems now engaging such earnest attention must be solved. It is probable that of our membership there are few but have known by experience the physical fatigue of manual labor. Most have attained positions where they direct the labor and are responsible for the financial investments of others. In a word, have been proved and found true, and we may without undue optimism believe that the composite decision of such a citizenship, when allowed unhampered expression, will be for justice and right.

There can be no question but that earnest consideration of these problems by such as you is of vital importance, and the indications are that it is being given. As not before in half a century, the public conscience is aroused and more and more the question asked of a given proposition is not, is this possibly honest by distortion and quibble of the law? but rather does it square with the foundation of the common law?—the golden rule? With the marvelous advance in communication and our constantly increasing interdepend-

knowledge, publicity, advertising. These properly used, I firmly believe, will benefit the buyer and your interests to an extent we cannot now estimate. An admirable start on these lines has been made by our allied bodies, the National Paving Brick Association and the Building Brick Association. Limited as their resources have been, the advantages and wonderful possibilities of concerted effort has been shown and I venture the assertion that if during the past year they had had ten times the money to spend the results would have been a hundred-fold greater. It is a matter of congratulation that in connection with this convention is being held our first International Clay Products Exposition. It is a splendid conception, and the enormous work and expense necessary to successfully carry through an enterprise of this kind is not generally realized.

Let us, therefore, gratefully appreciate all disinterested effort made in connection with it and determine that no matter how successful this initial attempt may be that we are doing to do better next time.

We have all been more or less concerned as to what extent competing materials, particularly concrete, would encroach on fields we had regarded as our own.

No one denies but that cement and concrete construction may be used with satisfaction and profit to an enormous extent. To what extent it may be safe, suitable or economical is being rapidly determined, and when determined I venture to say that many lines of construction which of late years as the result of a tireless, persistent advertising campaign has been diverted to concrete will return to the proper material—burned clay.

I was much gratified and impressed with a prominent article appearing in the last number of a leading periodical—one which

ENTERTAINED VISITORS CONVENTION WEEK.



H. L. Matz.



F. G. White.



E. K. Cormack.



Charles Bonner.

ence we are more acutely brought to realize that an injury to one is an injury to all—that we are, indeed, our brother's keeper.

There is a demand, growing to overwhelming proportions, that all men and all opportunities shall be equal before the law. That our natural resources and community-made values shall be honestly and efficiently administered for the community creating the values and not monopolized by a favored few. That every child born has an equal right with every other child to food, air, sunlight, a normal development and education. That constitutions and laws framed and applicable when present-day conditions were unbelievable and undreamed of shall be modernized to fit present-day needs. These and other questions which limited time will not allow mentioning await your decision.

It may be asked why mention these purely ethical questions today. Though interesting and important, what have they to do with the business interests we are here to consider. Answering, I will say, that as I read conditions this demand for fair dealing and honesty between man and man is another opportunity for our trade advancement. Our craft stands today as it has for uncounted centuries, the creator of a product which rightly made and used has no equal for intended purpose—artistic, durable beyond any other material—this we know. Could we impress our knowledge of the possibilities of burned clay as a constructive material on actual and prospective builders our factories would be overwhelmed with business. All about us there is a constantly growing demand for more homes, factories and streets which shall be attractive, sanitary and durable. You can supply the material if you furnish what was at the last convention termed the missing link, which in this case is, using three words to express the thought,

probably enjoys the widest circulation of any in the country. The title of this article is "How to Beat the Building Game." It should, if possible to secure it, be circulated widely in pamphlet form by this association, for it will open the eyes of thousands of uninformed or wrongly informed prospective builders who have been educated to the belief that concrete construction is the cure-all and end-all of building. In sober, convincing language it maintains the position taken long ago by this association in regard to concrete, viz.: "If it's cheap it's not good; if good not cheap."

Never has the time been so opportune for concerted effort which will bring prompt returns. Spread your knowledge locally. Second with time and money your association and whichever of the allied bodies you should belong. Make just as good a product as your material will permit. Establish a standard and live to it, not allowing your customers' interest to be betrayed by the possibility of temporary gain.

In former meetings the point I call attention to, and seemingly every other feature of trade interest, has been elaborated in able papers, carefully prepared, presented and discussed by men well qualified by experience to speak authoritatively. The proceedings of the various conventions are invaluable to the student or practical brickmaker. As you read and re-read you will be surprised to find many have experienced your own special trouble, and it is not unlikely you will there find comfort and relief.

In conclusion, I ask hearty, genial co-operation with the incoming officers.

The past year has seen much accomplished. Let us unite as one and determine to work harmoniously, shoulder to shoulder for further advancement. (Applause.)

Secretary Randall: The next on the program is the report of our treasurer, John W. Sibley, of Birmingham, Ala. (Applause.)

TREASURER'S REPORT.

To the Officers and Members of the National Brick Manufacturers' Association:

Gentlemen—When we were appropriating money so fast at the Louisville convention, I could see in prospect a vanishing surplus and accumulated deficit that under the laws would cost me my job.

My surprise on casting up the balance and finding a surplus still in the treasury of \$407.03 can only be compared to the sad case of the elderly darkey in Alabama who was charged with the theft of some chickens.

The negro had the misfortune to be defended by a young and inexperienced attorney, although it is doubtful whether anyone could have secured an acquittal, the commission of the crime having been pronounced beyond all doubt.

The darkey received a pretty severe sentence. "Thank you, sah," said he cheerfully, addressing the judge when the sentence had been pronounced. "Dat's mighty hard, sah, but it ain't anywhere what I expected. I thought, sah, dat between my character and dat speech of my lawyer dat you'd hang me, shore."

Trusting you will be as lenient in your judgment, I hand you herewith the report of receipts and disbursements for the year just ended:

RECEIPTS AND DISBURSEMENTS ACCOUNT OF THE TWENTY-FIFTH ANNUAL CONVENTION OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION.

RECEIPTS.

Balance in treasury, account 1910.....	\$ 465.80
Membership fees, 77 at \$5, account 1911.....	\$ 385.00
Membership fees, 539 at \$3, account 1911.....	1,617.00
Reports and pamphlets sold, account 1911.....	7.90
	\$2,009.90
Total receipts.....	\$2,475.70

DISBURSEMENTS.

Paid for programs, mailing, etc., per voucher..	\$ 125.10
Paid for convention reports, mailing, etc., per voucher	293.36
Paid for pamphlet, "The Missing Link," mailing, etc., per voucher.....	119.25
Paid for miscellaneous printing, per voucher....	161.21
Paid for engrossing membership certificates, per voucher	8.00
Paid for postage, exchange, expressage, per voucher	59.30
Paid for clerk hire, per voucher	300.00
Paid for secretary's traveling expenses, per voucher	550.00
Paid for assistant secretary, per voucher.....	100.00
Paid for extra badges, per voucher.....	16.70
Paid for convention expenses, per voucher.....	85.75
Paid for Ohio State University scholarship, per voucher	250.00
Total disbursements.....	\$2,068.67
Balance in treasury	407.03
	\$2,475.70

RECAPITULATION.

Balance, account 1910	\$ 465.80
Total expenses	\$2,068.67
Total receipts	2,009.90
Excess of expenditures over receipts.....	58.77
Balance in treasury	\$ 407.03

Respectfully,
JOHN W. SIBLEY,
Treasurer.

President Crook: You have heard the report of the treasurer. What is your pleasure?

C. A. Bloomfield, Metuchen, N. J.: I move the report be approved and placed on file in the records of the Association.

Warren D. deRosay, Corry, Pa.: I second the motion.

Carried.

Election of Officers.

President Crook: The next in order of business is the election of officers for the ensuing year. The first to be selected is for president, and nominations are in order.

M. E. Gregory, Corning, N. Y.: I would like to place in nomination the name of a man whom we all know, a man whom we have learned to love, because of his attendance at these conventions for the last twenty years, fifteen years of which time he was debarred from the office of president because he was not a brick manufacturer. Nevertheless he continued to come and spend his good money and work on the committees and help us in every way possible. In the last five years he has become a first-class brickmaker. He has cut his eyeteeth, and if you don't believe it just go down to his plant and see the back part of it. I take great pleasure in nominating Charles A. Bloomfield, of Metuchen, N. J., for the office of president.

Lemon Parker, St. Louis, Mo.: I desire to second the nomination of Mr. Bloomfield. He is a member whom we all know and love and we know he is a hard worker for the best interests of the association. I move that the nomination be closed and that the secretary be instructed to cast the unanimous ballot of this association for Mr. Bloomfield.

J. M. Adams, Columbus, Ohio: I desire to place in nomination for president of this association a man who has long been identified with the business, a man who is universally known wherever clay products are made. A man who from every standpoint demands your respect and admiration. I propose to nominate a man in recognition of whom you will



Warren D. deRosay, Corry, Pa.

recognize the city of Chicago and the universe, but especially the city of Chicago, in recognition of the magnificent work which the city of Chicago and those interested in clay working has done in making possible the great exposition which will open its doors tomorrow. The idea was conceived in Chicago, the money was raised largely in Chicago for this purpose—between fifty and seventy-five thousand dollars, I am told authentically, having been put up by the clayworking industry, or rather by those who are interested in clayworking in the city of Chicago, for this great enterprise. In view of that fact I think it is nothing more than fair or just to this city that we recognize this great work by nominating a citizen of Chicago for the honorable position of president of this great body of clayworkers. I think you will agree with me, many of you, when you have visited the Coliseum tomorrow or some day later in the week, that it is the greatest exhibit of clayworking industries that has ever been made in the United States, and, as far as I know, has ever been made in the world. The credit belongs to the energetic, vigorous men who are interested in clayworking in the vicinity of Chicago. This is an opportunity which we do not often have to recognize the immense value that must come to every one of us on account of this great exposition. I said the idea was conceived here, and it has been largely executed here. I am not a citizen, I am sorry to say, of this

city of Chicago, and I have no axe to grind in Chicago or anywhere else for that matter, but I believe that a recognition of this great work ought to be made by us now. I have no reason to oppose any other candidate, but I am urging the election of this gentleman because, first, as I have stated, he has long been identified with this association; second, because of the great work done in Chicago, and, third, because the gentleman whom I expect to nominate is a man from every standpoint. He is an honest man, he is a courageous man, he is a broadminded, broadgauged man. We cannot afford to have for a leader any man who is not a great man; we must have a man who can stand up and lead us to victory. There is no question at all, gentlemen, but that the future of brickmaking, the development of brickmaking in this country is only in its infancy, and we must have a man energetic and courageous and successful and filled with the spirit of leadership. The man I am going to nominate has all of these qualities. He is clean in life, he is clean in spirit, he is clean in his methods of leadership. I nominate, therefore, Mr. C. B. Ver Nooy, of the city of Chicago. (Applause.)

Ralph E. Sunderland, Omaha, Neb.: I heartily endorse the nomination of Mr. Ver Nooy, and in this act it is the result of deliberate, careful and considerable thought, not



Will P. Blair, Cleveland, Ohio.

of the man, but of the needs of this association. We have been prone too long, as have so many organizations, to consider friendship, to consider fraternal matters, other than what the association most needs. I consider that the N. B. M. A. has reached a crisis. We have come along through the years and where are we as an organization? Larger, perhaps, with a greater membership, perhaps, with therefore a greater opportunity for good for the whole industry. We have been governed by a precedent, and I will say to you, ladies and gentlemen, comparing this association with organizations other than this one, some of which have been governed by precedent, some of which have been governed by common sense, and the common sense organizations have forged to the front, while the precedent organizations have forged to the rear. I am not in any way personally or otherwise opposed to any of the candidates whose names are mentioned for the high office of president. It is not, as I see, a personal matter. What does the office of president involve? I say to you men, members of this association, that we had better do away with the office of president, unless we are going to make the office of president the active, actual permanent leadership of the N. B. M. A. It is an empty honor, an honor which few men would seek and ask an organization for the presidency without expecting, without being able, judging

from the plan by which the organization has hitherto been governed, to fill and return something worth while under that responsibility. It is not fair to the secretary, and I believe that no sane, sensible secretary would expect as a sensible, sane thing to assume all the responsibility of this organization, so that the president, who is the head, and should be directly responsible, is that in name only. Only when the president is the actual head can he grow and be as competent for the good of the whole industry, as he would like to be. Precedent is not a good thing. Now is a good time to break the precedent. The past year has seen an opportunity, an unusual opportunity, in that two men the same year have been given the highest honor. One man elected to the presidency last year by precedent, a man whom we all love and admire and respect, and against whom not one word will be said by me, on account of physical disability was not able to take up the presidency, and the man who was first vice-president, and who now comes before us for the presidency, has virtually had the honor of president. And this is a good time, I say, to break down the precedent without any man feeling that the association has robbed him of anything to which he is entitled. Take the exposition which you are about to see here in Chicago, launched with but scant support from the N. B. M. A. I say that in all kindness, because I think the N. B. M. A. officers did not appreciate that it was possible to get money enough and time enough to pull off such an exposition as you will see; it is the marvel of the age in the display of any wares. The body of men who have pulled off that great show is the type of man Mr. Ver Nooy is, because he is one of the leaders of it. I hope, as I stand here, that the future of this organization be made a reason for the members of this organization to vote for this man, who has not sought the office, who had to be urged to accept the office, a man whose own business will suffer if he assumes the office.

Mr. R. C. Penfield, Chicago: Mr. President, I rise to second the nomination of the gentleman, for whom I have the highest respect and whose actions and efforts and support during the last year have made it possible to bring to the clay industry a demonstration which I believe heralds good times for a greater exposition. We come to these conventions year after year, and learn and become acquainted for social intercourse and information. There is not a year but that we put in force some different plan to increase the markets, to stop the inroads of cement and put the great clayworking industry on the basis on which it stands at the present time. The gentleman whose nomination I second has the ability, the time and the inclination, and if this honor is given to Chicago and is given to Mr. Ver Nooy, every man here can expect a good account of Chicago; he can expect better days for the clayworking industry. Not that any of us have the slightest feelings for any other man, or men, who may be nominated, but at this time we appreciate what has been done for the Clay Products Show. Chicago men put their money into it to the extent of \$75,000, and that is what it cost the Chicago people to put the show where it is, and they expect to get every dollar back. An hour ago the members of this association were the invited guests of the Chamber of Commerce, and notwithstanding an unbroken precedent of this organization not to invite a trade organization before it, but the members of the N. B. M. A. in Chicago are represented in this wonderful organization and they were invited there today to speak on clay products. They had an attentive audience and a description of the clay show has passed into their publication. We have had members of this Chicago organization go to the mayor of Chicago, and he has written a wonderful letter on clay products which went to every mayor of every city of the United States of over 3,000 inhabitants. The school board of this city, at the request of these gentlemen, have opened the schools, and to every teacher we mailed information concerning clay products, and the children in

all the higher grades of school all have passes and will visit the show, on account of the educational advantages. This work has been brought about by the clayworkers of Chicago. I ask your support for the man from Chicago. For myself I have no clay products, but I see in the organization of a great N. B. M. A. greater possibilities; every industry should be a part of this organization. The sewer pipe people have come into the association, the terra cotta people have beautiful and wonderful exhibits, and every branch can be brought together. We want a big, broad organization, and we want a man at the head who can work and show by his work that he can bring results. I second the nomination of Mr. C. B. Ver Nooy.

H. R. Beagle, New Galilee, Pa.: As a delegate to this convention from Beaver county, Pa., I second the nomination of Mr. Ver Nooy.

George H. Tefft, Kansas City, Mo.: I have had the privilege and honor of associating with these gentlemen in Chicago as director of the International Clay Products Exposition, and I want to add my testimony to the support we have had from the Chicago people. The International Clay Products Show could not have been held without the support of these people, the brick manufacturers, the clayworkers, of the city of Chicago. We owe them this recognition and as



E. F. Knight, Bradford, Pa.

business men we owe it to ourselves. I desire to second the nomination of Mr. Ver Nooy.

President Crook: No one can appreciate more than myself the privilege of presiding over this convention, but for reasons purely physical, I shall call to the chair our former president, Will P. Blair.

E. F. Knight, Bradford, Pa.: I trust the members of this organization will grant me the privilege of saying something that I believe in heartily. I think every American is a lover of fair play. I personally realize and I believe every clayworker here realizes that we have come to a crisis. We have come to the parting of the ways. The N. B. M. A. has existed for the last twenty-five years and I want it to continue to exist for another twenty-five years. I hold no brief for Mr. Ver Nooy. I likewise hold no brief for Mr. Bloomfield. I believe I represent the sentiment of a very large element of the N. B. M. A. that desires these two factions, if we may call them factions, and I suppose we may just as well call them by that, for they have mapped out and decided on certain lines of policy that they believe should be employed for the betterment of the National Brick Manufacturers' Association. It is true that precedent has caused us from year to year to elect to the office of president the man who has been the first vice-president for the preceding year, and I for one dislike to take any action which may seem an injustice to the man who

is at the present time the vice-president of this organization. On the other hand, as has been said, this organization is organized for the benefit of brick manufacturers, and I believe that Mr. Bloomfield and Mr. Ver Nooy believe, should action be taken here which would work to the detriment of our organization, rather than the betterment, they would be the first men to call a halt. I do not believe it is necessary to take any action here today which may alienate or divide friends of either candidate. I personally have urged a compromise. I don't know how the members of this organization feel, but if I voice my personal sentiments I would ask that the election of officers be postponed for a period of two or four hours. However, if it is the sentiment of this convention that now is the time to precipitate this matter, I personally do not desire to avoid any responsibility. I believe that the time has come for us to decide, and if we must choose at the present time without any question of compromise, I rise to second the nomination of Mr. Ver Nooy. I do that not in the spirit of unfriendliness to any one. I merely claim the right of any American citizen and of a member of this organization to voice my sentiments. I say it is my sentiment that no matter which candidate is elected, that we as members of this organization should get squarely behind that man and hold up his hands. Let us go to the ballot, and no matter which man is elected, let us as individual members resolve this, that the National Brick Manufacturers' Association shall continue on to better things. (Applause.)

J. B. Hammond, Bolivar, Pa.: Gentlemen of the convention, I have known Mr. Bloomfield for a number of years, and I have a very high personal regard for him. To advance our vice-president has been the precedent for a number of years, and he is the logical man to be elected president of this association, but I believe this is not a time to follow that logic. I believe this association owes something to Chicago and the spirit Chicago has manifested in this Clay Products Show should be recognized by extending to it the honor of the presidency of this association. I say so with a very high personal regard for Mr. Bloomfield, and I do not know the other man, but I know a little of the spirit of Chicago, and I think it is due them that we recognize that spirit and show them that honor. I would like to see this matter worked out harmoniously, and I believe a very good solution of it would be to give Chicago the presidency of this association, and if you can say there are two factions here, and there is a contest, then re-elect all the old officers, the vice-presidents and treasurer and secretary, from top to bottom.

Secretary T. A. Randall: But once or twice before in all the twenty-five years since I have been secretary, have I taken the floor to speak on the election of officers. I am today in the position of the young lady with two beaux, "How happy would I be with either, were 'tother fair charmer away." I have no warmer personal friend in this association than Charles Ver Nooy. He is all the gentlemen have said he is, keen minded, clever, forceful. All that has been said of my friend Bloomfield is true, faithful always to the last ditch. Now it is not wise always to act on the impulse of the moment. It is all well enough to talk about new interests and new enthusiasm and all that, but behind it all is hard work and organization. We have been working for a good many years in the N. B. M. A., and those who have been in close touch with the executive committee know that the only errors we have made were made when we acted on impulse and elected to office men who were not really interested in our association. I am nothing if not loyal to my friends. Both these men are my friends. I would welcome with open arms my friend Ver Nooy as one of our executive committee if he came in the right way, but he does not. I wish he might have been satisfied to have started as third vice-president as other illustrious men before him have. I have traveled in double harness with my friend Bloomfield for twenty years, and know from experience that he is an enthusiast in all matters per-

taining to this association. There is no man in this association who would go farther or dig deeper into his pockets for the association than Mr. Bloomfield. I am going back into the history of this association and tell you what kind of a man he is. Many years ago, when we were much weaker numerically than we are now, he had a friend who was an expert clayworker, a bright man, but, like many bright men, he was not well-to-do financially, but he was a valuable member of this association, and as long as he lived one of the members of this association brought James Taylor to our convention and paid his railroad fare and his hotel bills because he thought James Taylor's knowledge was a valuable asset to this association, and that member was Charles A. Bloomfield. That kind of enthusiasm can not be forgotten, and I for one do not want to forget it. But in regard to the business side, the practical side of this question. It is not wise to break a precedent that has proven a wise one for this association. We reached a conclusion some years ago that it was a wise move to have a number of men rather than one man in line for the chief office of this association, and it has proven a wise plan. There has been talk about the nonentity of the presidents of this association. Look at our ex-presidents. Was D. V. Purington a nonentity? Was W. D. Gates a nonentity? Look at the man who is now in the chair! Is he a nonentity? (Applause.) He organized the National Paving Brick Manufacturers' Association and was president of that association, and is still its secretary. It is not fair to spring a proposition like this based on local pride or greed alone. We appreciate Chicago, that is why we are here. We are going to have the best convention we have ever had. I know Charlie Ver Nooy, and I know in his heart he does not want this honor at the expense of Charlie Bloomfield. I wish that he might be elected third vice-president and come up the line, but I doubt the advisability of breaking our precedent and turning down the man who has been faithful to this association just to make way for one who is a comparative stranger to this association. I second the nomination of Mr. Bloomfield. As the last speaker said, it is up to you. You will make no mistake if you elect Charlie Bloomfield your president.

B. Mifflin Hood, Atlanta, Ga.: Mr. Chairman, I come from the "Chicago of the South," do not know either candidate personally, but my feeling is that there is going to be created and generated in Chicago an enthusiasm that has never been known before in the N. B. M. A. It is not only the geographical center, but it is the brick center, and it seems to me that the enthusiasm that is going to be generated in this convention can only be created and the climax of effectual results in increased sales be reached by having from this center the able man whom you have recommended. (Applause.) There is a thing you call momentum; once you get a body in motion, it increases by gravitation to four, sixteen and so on, and in the same ratio when you get this enthusiasm of the Clay Products Show in full swing, and elect a man living in Chicago to become the chief executive, then we will form around him and stand behind him, man to man. In the south, we have more cement plants in course of construction than we can possibly digest in the next ten years. Mr. Chairman, what we desire to have is not a chief executive in name only, in honor only, but if brick is what we believe brick to be, we want to have an office maintained here in Chicago with the chief executive there an hour a day, or a certain percentage of his time per week. Chicago is that center, and we ought to be able to raise \$50,000 to push forward brick for 1912 as it has never been pushed before. I do not believe, Mr. President, that we should elect a gentleman living over in New Jersey, and I cast my first ballot in New Jersey, as an undergraduate student of the University of Pennsylvania. I believe as my friend the cashier of the bank once said to me, "Mr. Hood, the loaning of money is not a sentiment, it is business." The president of the National Brick Manufacturers Association is not a question of precedent, and we, as delegates of

the south, will appreciate having a strong man at the head of this association, a man who can be at the helm and can wield an influence in the campaign for brick. I hope we, as delegates, will not meet here without more than \$3.00 being appropriated, that we will get together a fund that will carry forward the clay show, and that as a nucleus around which that would be centered would be the man so highly recommended by our Chicago friends.

Ralph Sunderland: If in my remarks there was understood by any member of this association or any officer of this association the least suggestion that I thought our presidents had been men who were nonentities, then I owe you and them a distinct apology. Mr. Randall turned on me (he would do it privately just the same as publicly) as much as to say that had been the understanding he gathered from my remarks. I meant nothing of that kind.

R. C. Penfield, Chicago, Ill.: I want to say one word, as I know both gentlemen very well. Now it is up to a vote, and we have got to decide one way or the other, and no matter which way it goes, I know both men well enough to know that he will back the other one up and pull for brick and better times for clay. When I went down east to get help for the Clay Products Show, Mr. Bloomfield took off his coat and worked as only he can work. He is a fine worker, and so don't worry about the success of our enterprise. We are go-



M. E. Gregory, Corning, N. Y.

ing to go on and are going to be friends, for they are both royal good fellows.

Secretary Randall: It seems to be the rule to speak twice (laughter) so I will follow suit. There seems to be an impression that there are factions here; that is all nonsense. This is an election, and there is no question but that either candidate will do the very best he can and work for this association. Neither man is a quitter, so all this talk about factions don't go. I wish to repeat, though, that Mr. Charles Bloomfield is entitled to the honor and should be elected.

Charles Deckman, Cleveland, Ohio: I move we proceed to vote by ballot, as provided in our constitution.

W. J. Snyder, Brazil, Ind.: Some one has suggested that it might be well to understand as to the rights of this ballot. Who has the right to vote? Members of the association in good standing only?

Secretary Randall: Members of the association in good standing. The constitution provides that membership may be taken in the firm name, but only one vote goes with each membership. The constitution is quite clear on that, but I will read it if any one wants to hear it.

President Blair: Unless there is some question raised and some member desires to have the constitution read, we will not take the time for it now.

I. Solon, Chicago: I would like to know if the new ap-

plications have been passed on by the Executive Committee. I have just paid my money and I want to know if I am not a member because someone else did not do his work.

Mr. Penfield: There is one point in the constitution where it says that a new member must be acted upon by the Executive Committee. I wish to know whether it is necessary for these gentlemen from the south and from Chicago to have their applications passed on by the committee before they are entitled to vote.

President Blair: If the constitution requires that in order to be a member, a man's application must be acted on by the Executive Committee, that section of the constitution will certainly be complied with. The only way to get along is to follow our constitution.

I. Solon: If you folks have an idea that you can be delinquent in your work, it is about time that you should be made to do your work. I have paid my money for the purpose of ousting just such fellows as you who do not do your work, and others must suffer for it.

President Blair: The chair will enforce the constitution of the N. B. M. A. so long as he stands here. (Applause.)

W. D. Richardson, Columbus, Ohio: We know that at almost every meeting of our association that the rules are suspended that the secretary may be allowed to cast the ballot. Can we not now, in justice to those who have paid their dues,



Elisha Kane, Kushequa, Pa.

vote to give them a vote. I move that the constitution or rules be suspended and that the members who are registered as members on the roster at this meeting have a vote.

Mr. Penfield: Second the motion.

C. P. Mayer: I have sat here in silence and listened to every man who has spoken, but when a gentleman says he came and paid his money for the purpose of "ousting you," I feel that that gentleman should not have a vote. It is anything but fair. Why, if anyone wanted to pay the money or the fee of certain men who never had interest enough in it to pay their fee, and they could come here and "oust you" with their vote, I want to say to you that it is rotten to the core, and they should not be permitted to do it. (Cheers and applause.)

President Blair: Gentlemen, we must have order.

Wm. Schlake, Chicago: I think we can arrive at a compromise of the situation by adopting a resolution to the effect that we give the Executive Committee time to pass on the eligibility of the gentlemen who have filed their applications at this meeting. I do this for this reason, I have not come here for the purpose of putting something over. I am one of the Chicago brickmakers who expended for and in behalf of his company some \$15,000 for the success of the Clay Products Show. I don't think simply because I happened to overlook paying my dues until today, that people like myself

should be debarred from exercising their rights as members. If we are not qualified we are entitled to know it. I move we adjourn for fifteen minutes and give the Executive Committee an opportunity to pass on these applications.

President Blair: I recognize Mr. Schlake as having the floor, but if we are to make any progress we must abide by the ordinary rules of order. There is now a motion before the house, and you will have to vote that down, or vote it up, as the case may be, before we can entertain Mr. Schlake's motion.

Mr. Richardson: Mr. President, I withdraw my motion.

Mr. Penfield: I withdraw my second to that motion.

C. W. Lansing, Chicago: I want to second Mr. Schlake's motion, because I am in exactly the same position as Mr. Schlake. I have attended these conventions for a number of years. I believe our friends here who know me will recognize we have done our share and I am entitled to a voice in this matter. I registered and made my application personally for the first time yesterday, because heretofore I had simply paid the dues of the firm, and I ask for the right to vote as an individual in this convention.

Herman Matz, Chicago: I would like to know who is entitled to vote on this motion. (Laughter.)

President Blair: We will vote on this question in the usual way. If the vote is contested, we will investigate. We will not court trouble until we meet it. The question is now upon the motion of Mr. Schlake, that the convention take a recess of fifteen minutes to allow the Executive Committee an opportunity to act on the applications of new members.

The motion carried.

President Blair: The motion has carried and I would like in that connection to make the request that you be content as possible to keep quiet and remain in your seats until the Executive Committee can make its report.

Mr. Schlake: Will persons be given an opportunity to file application?

President Blair: I should say not. A man who has paid his five dollars or his three dollars, as the case may be, is entitled to a vote, but we are not going to delay this convention any longer. The Executive Committee will get together as quickly as possible.

President Blair: The convention will come to order.

Elisha Kane, Kushequa, Pa.: Mr. Chairman, I came here entirely unprepared for anything more than what we have usually had, looking forward to a continuance of that admirable regime which has brought this National Brick Manufacturers' Association from a little thing to a very big thing. It has brought this association to the most active city of the United States, the second largest in the country, for perhaps its biggest convention. I can not help but feel grateful to that admirable management which has built up this association. I can not help but honor that vice-president who, from the very beginning, even when not financially interested in brick-making, pushed this organization to the front. I believe that almost all of us have been paying according to our several means to make this great products show a success, and credit belongs equally to him who puts his small amount into it, as to him who puts his large amount, if he has done his best. If it were possible to distinguish, we might suggest that the more unselfishly we have been paying, the more we have deserved, and if one has contributed of his means quite largely, sending his money from afar to make the Chicago exposition a success, the more he deserves credit. I am glad to find so much enthusiasm on the part of a limited number of the people of this convention. Enthusiasm is what we want. I feel that it is in the nature of local pride when the local people recommend this highly honorable local representative who has done so much for them. I see no cause for the dividing of any way. I realize in this National Brick Manufacturers' Association there is such a spirit of fairness, that although it has seemed perhaps that there was

an effort on one hand to pack the convention with local votes, and override the convention, yet, on the other hand, the vote was unanimous for anything looking like fair play. If I hadn't any choice for anyone personally when I came, I really believe now that the spirit of the National Brick Manufacturers' Association, as an America-wide institution, will be best preserved by keeping away from local feeling, rather than by doing honor to a local representative. We can best show our America-wide spirit by electing today the man whose nomination I second, Mr. Charles Bloomfield, of New Jersey. (Applause.)

C. A. Phillips, St. Paul, Minn.: I am a new member here today, put in my application and paid my dues yesterday. I do not know either one of the candidates; I do not know much of anything about the Association, and I do not believe any of the new members do, and I think, in common decency and in common fair play, the new members should refrain from voting at all. A new member is not supposed to be competent to pass on any question for the welfare of the association for the first meeting he attends as a member. It looks to me as though there was somebody trying to put something over on the association. (Applause.)

Mr. Schlake: I suppose I am guilty of putting the Chicago contingent in wrong. The reason for asking that question was this: There are three Chicago brick manufacturers who found the doors of the secretary locked because the secretary had left for the convention hall. I merely wanted to know whether these three particular gentlemen were to be given an opportunity to become members. Chicago is not packing this convention. There is nothing farther from the minds of the Chicagoans than to pack this convention. We have in mind the interests of the National Brick Manufacturers' Association as much as anyone, and we want it to succeed. I suppose we have heard enough oratory; I move the nominations be closed and we proceed to ballot.

Wm. Hammerschmidt, Lombard, Ill.: I second the motion. Motion carried.

Mr. Penfield: We would like to ask if any member has paid his dues and filed his application who has not been accepted by the Executive Committee.

President Blair: The chair would rule that it is not necessary to announce the report of the Executive Committee. The chair will also rule that each member must put his name on his ballot and, if possible, his number.

Mr. Penfield: Mr. President, I wish to know if the committee did find any names of anyone they considered unworthy of a vote. That is what they went into session for, and I demand we hear their report.

President Blair: The Executive Committee will do nothing of the sort.

Mr. Penfield: I would like to know what the business of the Executive Committee is. The constitution provides that new members must have the action of the Executive Committee before they can vote. Then the convention voted unanimously to allow a recess of fifteen minutes, that the Executive Committee might pass on these names. I move it is the sense of the convention that the Executive Committee announce the result of their deliberations.

Charles Deckman: Second the motion. Motion carried.

President Blair: The secretary will give the report of the Executive Committee.

Secretary Randall: Fifty-one applications were considered, one of which was rejected.

Mr. Penfield: What is his name, it is only fair that we know.

Secretary Randall: Since you have asked for it, his name is I. Solon, of Chicago.

A member. What is his business?

Secretary Randall: He is connected with the Kenfield-Leach Company.

Mr. Kane: I wish to ask the chair if he will reconsider the ruling that we write our name as well as the number of our button on our ballots. I ask this because I, for one, have paid my membership fee—it was paid some time in advance—but I did not arrive in time to register and receive a number button.

President Blair: Where members have not received their number button, the name is sufficient. What is the will of the convention in regard to the report of the Executive Committee?

Mr. Penfield: I move the report be accepted and placed on file.

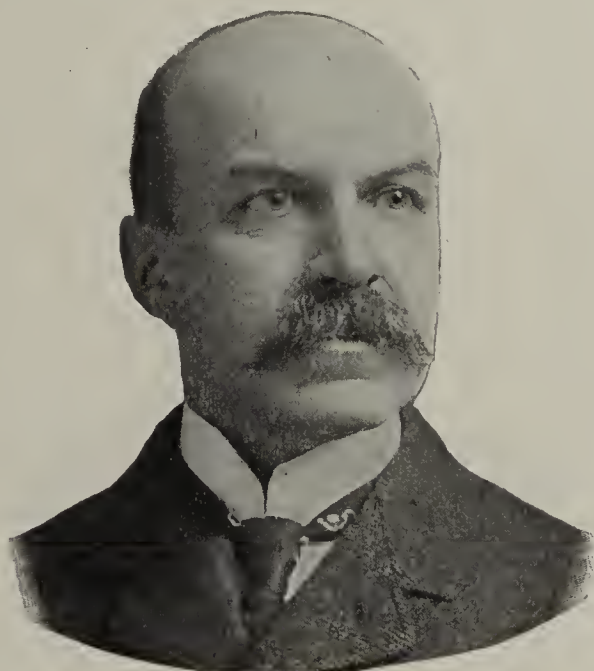
Carried.

President Blair: I trust now that everybody is satisfied. I will name as tellers R. G. Eisenhart, W. D. deRosay, Fred Manning, J. Fred Smith, Prof. Edward Orton.

Mr. Penfield: I do not find a man from Chicago among the tellers appointed. Now, just to avoid criticism, I move that one man from Chicago be added to the tellers.

Seconded by several.

Charles Deckman: Mr. Chairman, I move that such a motion be not considered but laid on the table, and on that motion I desire to be heard. There has been no intimation on the outside that there is any desire on the part of anyone to pack this convention except as it has come from the mem-



R. G. Eisenhart, Horseheads, N. Y.

bers from Chicago. I say this because I have heard remarks from members from Chicago in this convention. There is no desire on the part of anyone, and never has been any desire upon the part of those in a position to appoint this committee, to place members on that committee of tellers who had not been equally fair with each candidate whose name has been suggested, and it is a reflection on the integrity of the brightest men of this convention to assume that such a thing could possibly occur when there is no reason for it, and I am unalterably opposed to such a suggestion, even. I deplore such action and declare it a most ungentlemanly and unnecessary request that anyone should be added to this committee or usurp the place of anyone already appointed. I desire to say further that if any one man is to dominate and continuously speak on the floor of this convention, that we had better turn this convention over to Mr. R. C. Penfield and let him run it. (Loud and prolonged applause.)

Mr. Penfield: Mr. President and gentlemen of the convention, I regret exceedingly that any interpretation could have been placed on my words that in the slightest degree reflected on the gentlemen appointed. It was only to relieve them that I made the suggestion, and not in the slightest degree to question their integrity. I simply moved that one man from Chicago be added to the committee, and I believe the motion was seconded.

Mr. Sibley: Mr. Chairman and gentlemen of the convention, I have sat here patiently and listened to all this oratory that has been going on first on one side of the room and then on the other, and it reminds me of a sermon that an old darkey parson friend of mine preached on one occasion. "Sisters and brethern," he said, "I don't know whether the whale swallowed Jonah or whether Jonah swallowed the whale, but one thing sartin', swallowing were done." (Laughter.) And there is one thing that is inevitably certain as to the outcome of this election, and that is, there is going to be a "Charley" president of this association. We have had a great deal of talk here about pulling apart, but we want to get together and pull together. It reminds me of another story, if you will pardon me for posing again as a Mark Twain. A young man and his wife were quarreling as to the sort of a vehicle they should buy. The young man wanted a motorcycle and the wife wanted a runabout built for two, and the argument waxed loud and long. One day a friend met him on the street and said, "Well, what did you get, a motorcycle or an automobile?" "Oh, we compromised," he said, with a smile, "we compromised on a baby carriage." (Laughter.)

Mr. Blair: The motion before the house, as I understand it, is first by Mr. Penfield that one member from Chicago be added to this committee of tellers. This motion was seconded. The other motion was made by Mr. Deckman and is



O. N. Townsend, Zanesville, Ohio

to the effect that Mr. Penfield's motion be laid on the table. Now, the question before the house is whether or not that motion should be tabled.

Mr. Sunderland: I think the motion of Mr. Penfield was exceedingly unfortunate. The chair, with the power given him, appointed tellers for this election; that, with any self-respecting organization, ought to be enough. I believe that Mr. Penfield had no thought such as has been put by some one regarding his motion, and if he had such thought, I believe he can prove it by withdrawing his motion at this time.

President Blair: I desire to make one statement.

Mr. Penfield: I wish to withdraw my motion.

President Blair: Following the instruction of this body, I tried to be very careful in appointing a committee of tellers composed of men that are nationally known and respected, and I felt sure that everybody would be absolutely satisfied. I appointed on that committee not one who had spoken, and persons living a great distance apart, and I am sure Mr. Penfield would consent, as he has already, that this committee will stand as appointed. The chair rules that this body shall proceed with the ballot, and that the tellers do their duty.

(The counting of the ballot was a tedious task, as each vote had to be checked with the records. This was done carefully, the tellers occupying the platform instead of re-

pairing to a committee room. During the count, which required an hour or more, Secretary Randall introduced Mr. L. D. Binyon and Mr. E. C. Kimbell, chairman and secretary of the local entertainment committee, who announced the various entertainments which were to follow:

RESULT OF BALLOT ON PRESIDENT.

President Blair: Gentlemen of the convention, the Committee of Tellers have completed their arduous tasks and are now ready to report. Prof. Orton, you will announce the result.

Prof. Edward Orton: Mr. Chairman and Gentlemen of the Convention—The committee has counted this vote with the most absolute care, every vote has been checked. We find that Mr. Bloomfield received 108 votes, Mr. Ver Nooy 102, Charles M. Crook, 1 vote. Total number of votes cast, 211, of which Mr. Bloomfield received the majority.

Charles B. Ver Nooy, Chicago, Ill.: Mr. Chairman, I move the election of Mr. Bloomfield be made unanimous.

Mr. Penfield: Second the motion.

Motion carried.

President Blair: I scarcely think it is necessary to make any announcement with reference to this vote just cast. I am very sure the action of the convention itself will melt into unanimity after an election of this sort, but one or two little unkind suggestions in regard to the committee which has just counted the vote has caused a statement to come from them that the committee itself was divided as to the candidates, so there could be no question in regard to the committee.

The next in order will be the election of first vice-president and nominations are now in order.

William Conway, Philadelphia, Pa.: I desire to nominate for the office of first vice-president Mr. W. H. H. Rogers, of Rochester, N. Y. He is an old-time member of this association; his interest has never flagged, and I would like to see him elected to the first vice-presidency.

Warren D. deRosay, Corry, Pa.: I second the nomination, and move that the nominations be closed, and the secretary be instructed to cast the unanimous ballot of this convention for Mr. W. H. H. Rogers for first vice-president.

P. A. Smith, New Brighton, Pa.: I second the motion.

Motion carried.

President Blair: The secretary has cast the ballot and I declare Mr. W. H. H. Rogers elected first vice-president of this association.

W. D. Richardson, Columbus, Ohio: I have in mind another man by the name Rodgers. He is now third vice-president, Mr. Eben Rodgers, of Alton, Ill., and I nominate for second vice-president Mr. Eben Rodgers.

Charles J. Deckman: I second the nomination and move the secretary be instructed to cast the ballot for Mr. Eben Rodgers for second vice-president.

F. M. Brady, Cleveland, Ohio: Second the motion, Mr. President.

President Blair: Mr. Randall has cast the ballot, and Mr. Eben Rodgers, of Alton, is declared your second vice-president. We will now hear nominations for third vice-president.

J. B. Hammond, Bolivar, Pa.: Mr. President, Pennsylvania is the leading clay state in the Union in the value of products, and we would like to have the third vice-presidency for the ensuing year. I am pleased to nominate Mr. C. P. Mayer for third vice-president.

Charles M. Crook: I second the nomination of Mr. Mayer.

Mr. Bloomfield: I move a suspension of the rules and that the secretary be instructed to cast the ballot for Mr. Mayer.

Mr. Townsend: I second the motion.

Motion carried.

President Blair: The secretary having cast the ballot according to instructions, I declare Mr. C. P. Mayer duly elected third vice-president. Nominations are now in order for secretary of this association.

Mr. Mayer: Mr. Chairman—I rise for the purpose of nom-

inating one whom you all know. One who has a record, and his name is associated with the history of this association to such an extent that it is inseparable. Back in the year of 1886 there was a man by the name of D. V. Purington who while passing an insane asylum saw four guards herding in the neighborhood of two hundred men, and he asked one of the guards: "How is it possible for your four men to control that bunch of demented men?"

The answer came back, and it came back quick: "They are not sufficiently intelligent to organize." (Laughter.)

From that remark there came a thought to Mr. Purington. The brickmakers at that time had no organization; the business was demoralized and the need of organization was very apparent, and Mr. Purington asked himself this question: "Are the brickmakers demented?" and he answered it: "No! Then why should they not now organize?" From that remark came an agitation by Mr. Purington, through the columns of THE CLAY-WORKER, which resulted in a call for the brickmakers to meet in Cincinnati. They organized what then proved to be a very small association. It seems that they needed a man to take hold of the association, and this man appeared, a young man, almost boyish then, who seemed to have almost been an inspiration of the Almighty Himself that took charge of this association, and here it is under his guidance what you have today. This man has honesty, has integrity, has vitality, has everlasting push and snap, and has never been questioned. I want to say that the nation is today calling long and loud the name of one of their beloved sons "Teddy!" (Laughter.) I want to say to you, Mr. Chairman, ladies and gentlemen, that in this the people of the nation are playing second fiddle to the brick manufacturers. We have had a "Teddy" for twenty-six years. The musical resonant sound has vibrated in the ears and hearts of the brick manufacturers from the Atlantic to the Pacific, and from the Gulf to the Great Lakes. We have had it right along, so we are one ahead of them on that "Teddy" business (Laughter.) I want to say to you, and I feel as being honored to say to you that in the city of Philadelphia I first met him and made his acquaintance. At that time I had an abundance of trouble with this brick business. There was no end of my troubles, the scum and the cracking of the brick, and it seemed to me that the whole business was full of little snags. I unburdened my troubles to this young giant, and he gave me very good advice, incidentally getting me to read literature on brick. He was to me apparently what he has been to thousands of other brickmakers, like a loving mother. Do you know this brick business and this man's relationship are so identical that we want no other. Even the little grandchild knows when you are talking about him, but I was going to say his guiding spirit was like the soft hand of a loving mother stroking back the hair from the forehead of the crying child. I want to say to you that it is an honor to be permitted to place the name of this gentleman before this convention as secretary of this association, and his name is Theodore A. Randall. (Loud applause.)

Several members: Second the nomination.

H. R. Beagle, New Galilee, Pa.: I also want to nominate a candidate for secretary of this National Brick Manufacturers' Association, a man whom I greatly admire and have admired for a long time. A man who has never held any office in the National Brick Manufacturers' Association. A man who has been a visitor to the office of most of us once a month, and lately twice a month. I am glad to place in nomination a man who will make a splendid secretary. I want to place in nomination Mr. C. W. Lansing, of Chicago.

Mr. C. A. Phillips: I want to second the nomination of Mr. Randall and to move that the nominations be closed and the assistant secretary be instructed to cast the unanimous ballot of this convention for Mr. Randall.

President Blair: The motion is out of order.

Wm. G. Bohnsack, Chicago, Ill.: I second Mr. Lansing's nomination.

J. H. Chambers, Philadelphia, Pa.: I want to second the nomination of Mr. Randall for secretary.

Mr. Hammond: I also want to second the nomination of Mr. Randall.

Charles J. Deckman: I move the nominations close and we proceed to ballot.

Mr. Hammerschmidt: I second the motion.

Mr. Lansing: I dislike to be the bone of contention in any way. When I permitted my name to be used as a candidate for the office of secretary it was with the idea that this was a free country, and that all of us had a right to our ambition, and certainly I should feel highly honored by this association to be made its secretary. Before everything else, gentlemen, I want to see harmony among the members of this association, and I want to see this association grow and its purpose grow and its field and scope extended. Now for that reason, and that reason only, and to end all this contention here on this floor, I wish to withdraw my name as a candidate.

Mr. Tefft: I desire to move the suspension of the rules and that the assistant secretary be instructed to cast the vote of this convention for Mr. Theodore A. Randall for secretary.

Seconded by many.

Motion carried.



George O. Berry, Columbus, Ga.

Mr. Blair: The ballot having been cast for Mr. Randall he is declared elected for the ensuing year.

President Blair: The next in order is the election of treasurer.

George O. Berry, Columbus, Ga.: I nominate Mr. John W. Sibley to succeed himself.

Mr. deRosay: I second Mr. Sibley's nomination.

Mr. Kane: I move the nominations close, and that the secretary cast the ballot for Mr. Sibley.

Mr. Parker: Second the motion.

Motion carried.

President Blair: The secretary has followed your instructions and I declare Mr. Sibley duly elected treasurer of this association.

Mr. Tefft: I ask for the floor for a few moments as a special privilege, for the benefit of harmony of the National Brick Manufacturers' Association and its allied interests. We would all be poor business men and poor men if we did not want harmony, for out of harmony only can come success, or our success only can come out of harmony. I want to present this resolution:

"In view of the valiant service rendered to the industry by THE CLAY-WORKER, by Brick and Clay Record, by the Dealers' Record and by the Brick Builder to the clay inter-

ests, that the National Brick Manufacturers' Association hereby designates these journals the official organs of the association. Hereby also repealing all parts of the constitution or by-laws as may conflict with this act."

President Blair: Under the rules this resolution will go to the committee on resolutions. The next is the installation of officers just elected. I wish to appoint to escort to the chair our newly elected president Mr. Conway, of Philadelphia, and Mr. Ver Nooy, of Chicago. In introducing your president-elect I wish to disabuse your minds of a little impression that came from one of the men who nominated him. He made a little misstatement in reference to this new president. While Mr. Bloomfield has not been a brickmaker until during the last six or seven years he has been a clayworker for about thirty-five or forty, or fifty, or possibly sixty years. (Laughter.) Gentlemen, your new president, Charles A. Bloomfield. (Applause.)

President-elect Bloomfield: Ladies and Gentlemen—I am not going to detain you. I simply want to thank you all, friends all, for the high honor you have conferred upon me this afternoon. As I have been in the past, as I am now, and as I always will be while there is breath in my body, I shall always be loyal to every branch of the clayworking industry of the United States. (Applause.) Because I know it is the only material in this world that will make a permanent home



Charles H. Bray, Helena, Mont.

in which at night you may put your head on the pillow and know, come what may, if your home is built of brick or burned clay, you will have no fire to rob you of your life and your dear ones. Gentlemen, I thank you. (Applause.)

President Blair: Will Mr. Tefft, of Kansas City, and Mr. Smith, of Omaha, present our newly elected first vice-president, Mr. W. H. H. Rogers, to the chair. It gives me great pleasure to introduce to you, gentlemen, one of the most successful brickmakers in the country, your first vice-president, W. H. H. Rogers. (Applause.)

Vice-President Rogers: Mr. Chairman, Ladies and Gentlemen—I am not unmindful of your courtesy in electing me first vice-president. I appreciate the honor, I accept the office, and ask your indulgence.

President Blair: I would ask Mr. Tefft and Mr. deRosay to escort to the platform Mr. Eben Rodgers, of Alton, Ill., our new second vice-president, but he seems to have escaped, but I am going to say a word about him. Mr. Rodgers is one of the younger brickmakers of the country who gets right down and knows what he is doing. He has learned it from almost babyhood up, and by his own efforts and his own industry he has gotten one of the best up-to-date brick plants in the United States. I will ask Mr. Tefft and Mr. deRosay to conduct Mr. Mayer, our newly elected third

vice-president, to the platform. I am pleased to present him to the convention.

Mr. Mayer: Mr. Chairman, Ladies and Gentlemen—I am very thankful for the honor of having been made third vice-president of this great association. I know that you are all ready for a better place than this, and I am not going to detain you. At the St. Louis convention they presented me with a red hat and dubbed me the "Cardinal of the East." I have got the red hat and I have got the balance of the paraphernalia, the red vest and the red tie. (Laughter.) I hope in the future to give a good account of myself. (Applause.)

President Blair: Will Mr. Hammond conduct our stranger, Treasurer-elect Mr. Sibley, to this platform. Gentlemen, this is your treasurer-elect for the ensuing year. He hails from the city of Birmingham, spreading from 32,000 in 1900 to 133,000 in 1910. (Applause.)

Treasurer Sibley: Mr. President, Ladies and Gentlemen—I want to thank you again for the honor conferred on me. I will do the best I can. Judging from the number of empty seats here right now everybody is evidently in about the same fix as the autoist who struck Brook, Ind., the seat of the teetotal belt in Hoosierdom. He had a puncture, and after he had sweat around in the hot sun for several hours he had his puncture mended, and went into the little town, and he said to the first man he met: "Friend, can you tell me the nearest place around here where I can get a good cool drink of beer?" The man pointed down the road over which he had come and said, "Straight down that road, fifty miles." (Laughter.) I think these empty chairs would indicate that refreshments seem a long ways off, and I will not detain you any longer. (Applause.)

President Blair: I would like to ask the retiring president of the association himself to present to this convention the secretary. Mr. Crook, will you please introduce Mr. Randall to the convention.

President Crook: It gives me great pleasure to introduce this dear worm-eaten, old chestnut whom we all love. I do not know what he will find to say this time. It is always pretty good, and I am sure it will be all right this time. Mr. Randall, gentlemen of the convention, whom we all know and love. (Loud applause.)

Secretary Randall: There are a whole lot of things I want to say, but the fellows I wanted to say them to have gone. For twenty-five years this thing has been coming to me, and this afternoon I thought I saw a ballot coming. I would have given a pretty to have had a ballot on my election. I am glad to be re-elected. I appreciate these friendships. I am glad to stand side by side with Charley Bloomfield for another year. There are not going to be any factions and there is not going to be any trouble. The National Association is going to go right on as it has been doing. We owe a lot of credit to the people who have promoted the clay show, but I guess it would have gone on the same if we had not had the convention here, and I know that the N. B. M. A. would have gone on the same without the clay show, but that is neither here nor there. We are going to march to the tune of progress. I am glad I am still secretary of this association. I thank you. (Applause.)

Prof. Edward Orton: I move we adjourn.

Seconded and carried.

SECOND SESSION.

Thursday Afternoon, March 7, 1912.

President Bloomfield: The convention will come to order. I will ask the vice-presidents to kindly take seats on the platform. The secretary will please announce the first order of business.

Secretary Randall: The first paper on the morning's program is a paper by Mr. Dwight T. Farnham, of Seattle, Wash.,

on "The Technical Man as a Commercial Asset in the Clay Industry." Mr. Farnham is unable to attend the convention, but he has sent his paper, of which he writes as follows:

Mr. T. A. Randall, Secretary National Brick Manufacturers Association, Indianapolis, Ind.:

Dear Sir—We are sending you today by registered mail our paper on "The Technical Man as a Commercial Asset in the Clay Industry." We are sending also a copy to Professor Purdy, asking him to make it as hot for the paper as possible. There are one or two points in it which the clay school professors may not like. They have seemed to the writer of some importance, however, and he feels that a red-hot discussion is the best way to settle it.

It is very doubtful if the writer shall be able to reach the convention, and I would esteem it a great favor if you will read the paper yourself. If your voice is entirely gone by the time the paper is due I wish you would give it to some other person with a strong voice and a sense of humor.

I would like to obtain in some way or other about fifty copies of the paper once it has been printed. This request and the one in regard to the strong voiced orator—that is, in case the convention has time for the paper at all—are my only requests in this matter.

Wishing you all success and assuring you of our heartiest sympathy as a company in the matter of the great publicity work that is being done by yourself and associates, I remain,

Yours very truly,

D. T. FARNHAM, Assistant Manager,
Denny-Renton Clay and Coal Co.

THE TECHNICAL MAN AS A COMMERCIAL ASSET IN THE CLAY INDUSTRY.

BY DWIGHT T. FARNHAM, SEATTLE, WASH.

Mr. President and Gentlemen of the Convention:

This is a subject which has been of great interest to the writer for some years, during which time he has been instrumental in developing for his company—and in one or two instances, entirely inadvertently for competitors—burners, foremen, assistant superintendents and superintendents from the material at hand. Sometimes he has sympathized with the cynic who decided after mature deliberation that the more he studied men the better he liked dogs. For the most part, however, the enthralling interest of the subject more than pays for the trouble, and when a man shows intelligence, develops enthusiasm and finally forgets all about quitting time and the size of his pay check, in his eagerness to learn the whole business—and that right off—you forget that you ever have been up against laziness, stupidity and indifference.

Every company of any size is constantly in need of new men. All sorts of plans have been adopted to secure this new blood. The two extremes are represented perhaps by a large blower company, which has a standing order placed at several universities for college graduates, and a gigantic foundry, whose president until recently put in his spare time writing bloodthirsty serials on the utter uselessness of anything born in the same state with a university.

That is the trouble with most discussions of the value of technical men; to one class they are the hero of the play—the handsome, up-right youth, bearing the torch of knowledge into the benighted realms where ignorant and hide-bound brickmakers dwell in utter darkness. To the other class the graduate of a technical school is the unlicked cub, who is listened to with mock respect and is dubbed a "dishwasher" or a "college feller" by the honest brickmaker, who, having made his pile by his own methods, does not propose to be contradicted by any fledgling who never earned a dollar except by writing home to father.

The middle course—mutual respect and patience, with an honest desire on the part of each to help the other, and a careful avoidance of the "know it all" attitude on the part of the technical graduate, as well as on the part of the practical brickmaker—is the course productive of real results. I think even the most radical on both sides realize this, for I notice some of the technical men, who have been having their troubles, in earnest conversation with some of the men who have been through the mill, while the most loudly self-styled "practical man" generally drops around to the ceramic meetings to "see what the professors have got to say."

The Denny-Renton Clay and Coal Company about two years ago felt the need of a regular source of supply to draw upon when positions of responsibility were to be filled. After carefully considering the matter, it was decided to establish an apprenticeship course open to graduates of technical schools. In May, 1910, circulars were sent out, from which the following is an excerpt:

"The object of this course is to give men who are already familiar with the theory of clay working a thorough knowledge of the practical end of the work in order to have material to draw from when positions of responsibility are to be filled. The compensation for continuous service for the first year has been fixed at \$75.00 per month.

"The factories of the company are located at Van Asselt, Renton and Taylor.

"At Van Asselt are located the sewer pipe and architectural terra cotta plants and the laboratories.

"The Renton plant manufactures paving brick and pressed brick. This plant has a capacity of 180,000 paving brick a day.

"The Taylor plant is a large combination plant consisting of a recently constructed and thoroughly up-to-date sewer pipe factory, together with a brick plant having a capacity of about 35,000 stiff mud and 40,000 dry press brick per day. This plant is operating on dry press face brick, fire brick, electrical conduits, drain tile, fire proofing and sewer pipe.

"All work is in charge of men who are capable of giving technical information on the lines in which applicants shall work.

OUTLINE OF THE WORK.

"A year's course, divided somewhat as follows, has been tentatively made out:

"Two months' firing at Renton. This is designed to thoroughly familiarize the men with the coals of this section, the proper management of fires and firing practice in general.

"One month working at the sewer pipe press, either at Taylor or Van Asselt, combining with this work a certain amount of work around the drying floors, which will enable apprentices to become thoroughly familiar with the details of drying hollow ware, treatment of the ware to prevent cracking, the details of finishing, turning, and the management of the steam drying system. As there is considerable to be learned in this department, the length of time spent in this work may be increased if it is found desirable.

"One month working on stiff mud brick machine, either at Taylor or Renton. This work will familiarize the apprentice with die



D. T. Farnham, Seattle, Wash.

management, cutting table adjustment and the operation of the pug mill machine and represses in general. It may be found advisable to supplement this course with from two weeks to a month spent about the waste heat dryers at one of the plants.

"One month as machinist helper in one of the three plants. It is designed, however, to familiarize the men with the repair and care of the various pieces of machinery about the plants. It may be found desirable to spend a month at each plant in this work.

"One month as millwright assistant in one of the three plants. This is designed particularly to familiarize the apprentice with different sorts of lumber, methods of building construction and the general work of millwrighting, which is so necessary in the construction of plants.

"One month on the setting gang in one of the three plants.

"One month will be spent with the head sorter of the various plants in familiarizing the student with the quality of ware that is suitable for the various markets. Also, this work will allow the student to analyze the effect of the different processes of his work on the finished ware.

"The balance of the year should be spent on the burnlug at the various plants. The plants are all equipped with the latest technical apparatus and the burning is done in a thoroughly systematic manner, in all cases under the supervision of technical men. Two or three months, at least, could be spent at each of the plants very advantageously.

"On all this work the apprentice would be expected to work the same hours and with at least the same diligence as the men regularly employed in the various operations.

"Those particularly interested in a special branch of the work will be permitted, where possible, to specialize in that work."

These circulars were sent to a number of universities, among

which may be mentioned the Ohio State University, University of Illinois, Cornell, Michigan, Wisconsin, Armour Institute, M. I. T., and the University of Washington. From these universities there were a number of applications, twelve of which were considered seriously. After some correspondence with the men themselves and the instructors under whom they had been working, six men were selected. These men went to work during the summer of 1910 at Taylor and Renton. One remained about six months, two more for approximately eight months, two more stayed their year out, and one man is still with us in a position of responsibility.

Although it might be interesting to discuss the reasons why our harvest was only 16 per cent, such a discussion is obviously impossible at this time.

The following spring we began recruiting again, making, however, a change in our system. Instead of sending east, we began picking up men from among our own employees, and from among the technical men who sought employment from time to time. We have at the present three men so gained who are in various stages of apprenticeship. Two more men have been given regular employment in positions of responsibility, having been graduated from the regular course rather suddenly to fill executive positions.

We have found in our modification of the first plan several advantages. When we recruit our apprentices from among men who apply for work in person we are better able to judge the men. In sending east to the technical schools we have to depend, in many cases, upon the judgment of instructors unknown to us, who, not knowing our requirements, are obviously at a disadvantage in making their selection. Furthermore, if a college man applies for work at our office, is employed for a time and proves suited to our requirements, we are under no obligation to do anything more than give him a fair trial. If we have induced him to travel several



J. H. Mead, Warners, N. Y.

thousand miles, there is a certain moral obligation to keep him the full year at least.

We are in a still better position to judge our man when he is recruited from among our own employees. Such men are usually encouraged to attend night school and to do supplementary reading for a few months before they are admitted to the apprenticeship course.

So much for what we have done. Before discussing the technical man, as such, lest our position be misunderstood and some one else conclude that the company is not in sympathy with college men, we would state that 61 per cent of our active executives, from assistant superintendents up, are college men.

The faults of youth and inexperience are so bound up with the faults of the recent graduate from the technical school that it is difficult to avoid confusion in discussing them. Many men lose sight of this fact in discussing the value of the college man. They also forget the axiom that "College does not make wise men—it simply develops them," and conversely, "College does not make fools—it simply develops them." The result is that the faults of youth and the faults of the other thing are very often foisted upon the college training, which is entirely innocent.

To the writer's mind, the greatest handicap the young engineer has to labor under is his lack of commercial training. This is a fault that is not attributable to youth or inexperience, chronic or otherwise. I do not mean that he has not studied bookkeeping and banking; I mean that he loses sight of the reason for existence of the industry in which he is engaged, in his interest in the technical problems. If you will stop and analyze this you will see what I mean. Who usually starts a clay plant? Some man with money. Why does he start a clay plant? To make more money.

How will he make the most money? By producing goods for the least money. Who will he honor the most? The man who helps him secure the lowest cost of production. There is the whole answer to the question of why more technical men do not succeed in the clay business. At present there are comparatively few places in the clay industry in this country for purely technical men. There are a few in the terra-cotta business; more in the white ware industry, and three or four in the manufacture of art pottery. The fellows who don't get these jobs have to make a place for themselves as head burners, assistant superintendents, superintendents, etc., if they wish to live on the scale (and most of them do) to which they have been accustomed at college. The securing and holding of any of these jobs rests about one-third on their technical ability and two-thirds on their commercial ability, which is a mixture of executive ability and the financial instinct.

The before-mentioned capitalist goes out on the yard; the technical burner approaches him, shows him a good kiln of ware, and then launches off into a description of an intricate reaction which has taken place during the oxidation period. The gentleman with the eye to the main chance listens politely, nods wisely, and gets away as soon as he can. That night he reflects that "That college feller is a visionary sort of a cuss, but his kilns look pretty good, so I guess I'll keep him."

Suppose the technical burner is wise instinctively, or has in some way secured some hard-headed business ideas; he approaches the representative of the capitalistic class as before, shows him a good kiln of ware, tells him he is carrying on some technical experiments, conducted with such caution that even if they go wrong there won't be much loss, which he feels will quite likely save one-tenth of the burning time, which means one-tenth of the coal, or twelve dollars a day, besides increasing the kiln capacity as much as if he spent \$2,500 building that new kiln he spoke about last week. Furthermore, by spending \$50 for fixing up the roads, the size of the coal carts can be increased so that the horses can haul a ton and a half, thereby saving one cart and man, and paying for the investment in about a month, after which there will be a net saving of two dollars per day. Contrast the aforesaid plutocrat's post-prandial musings with those which have gone before. Will he keep him? Will he raise that college man's salary? Will he make him assistant superintendent? What does he do? He bounds from his easy chair and does the hundred yards across the street in ten flat to warn his business competitor against wasting any money on technical men! Well, even if he doesn't, that college man has achieved his success.

A couple of years ago an English engineering society conducted an investigation to find out why so few engineers were a business success. The conclusion was that the very fascination of the work was such that engineers very seldom cared to give attention to the business detail, the general advertising, etc., that are needed to make commercial enterprises a success. Contrast for yourself the number of engineering firms in this country which are known to the general public with the banking firms, the merchants or the manufacturers who are spoken of daily. You all know about Marshall Field, Sears-Roebuck, J. P. Morgan & Co., the International Harvester Co. But who built the Blackstone Hotel, the Brooklyn bridge, the Chicago drainage canal, the Singer building, many of which you see daily?

There would seem to be almost a conspiracy on the part of nature to relegate the commercial to the background in the engineering profession. Why does a man become a professor in a technical school? Because his strong commercial instinct drives him to it to make large sums of money? Well, hardly! It is because his high ideals, his love of his profession, his paternal instinct or something equally strong in him drives him to look down upon mere money-getting as a thing of relatively little importance.

What chance has the boy, spending the four formative years of his life, to absorb commercial training when he is looking up to an instructor who despises it, and on top of this, studying the most fascinating profession in the world—that of causing things to grow by one's own hand and brain? If the boy develops a strong commercial instinct, it is in spite of his environment.

The remedy, if the clay schools want to turn out men who will achieve success by climbing to positions of trust in the clay industry, lies in a wise blending of the commercial with the technical during the latter part of the college course. Studies in cost-keeping and the reduction of costs, labor-saving devices, plant organization, etc., etc. It is unfortunate that we are a sordid, money-getting nation, but since we are most of us have to choose between falling in line or becoming one of the unfittest who failed to survive.

The other weaknesses of the technical graduate just from college are, most of them, of the gentle order, which, though we ridicule, we nevertheless feel kindly toward. He does love his flannel shirt and his high boots. He hungers for a title of some sort—third assistant coal shoveler, or almost anything will do at first. If he happens to get into one of the white shirt departments, he isn't happy until he has acquired a desk and several push buttons which will bring a stenographer or a page on the run. These things don't matter much, because if he is the right sort he will become so



The Convention Hall, Annex Hotel, During the Closing Session of the N. B. M. A., March 8, 1912

Supplement, March, 1913, Clay-Worker.



The N. B. M. A. Banquet, Gold Room, Congress Hotel and Annex, Chicago, March 8, 1912

interested in his work that he will forget all about such vanities. If he isn't, he will receive some hard knocks which may show him the relative importance of things in general, or else will put him in the ranks of the great army of the unlucky.

This matter of acquiring knowledge of the relative importance of things in general leads us to touch upon another important situation. Business, being what General Sherman said war was, is quite different from college life. When the newly graduated engineer begins to find this out for himself, he isn't happy, and, being inexperienced, he is quite likely to lay his troubles to those nearest him, and sometimes, like the dog, he will bite the hand which is removing the chicken bone from his throat. This doesn't help him any in his progress toward success. Realizing this, some companies prefer to select their men from among those who have been several years out of college and have knocked around enough to have a well-educated sense of proportion, and so are less likely to jump at once to the conclusion that their troubles are entirely the result of the jealousy of their untechnical superiors.

There is another thing which is not entirely due to youth, although it is usually attributable to lack of worldly knowledge. That is a certain cocksureness—an idea that the problem in hand is a very simple matter. When a man secures his knowledge by actual experience, he usually has made mistakes enough from which he has suffered to learn that it doesn't pay to be too sure about anything in the clay business—that generalities have a way of developing multitudinous progeny in the way of exceptions. When a man has learned from a book that there are five things that may develop during a certain operation, together with the five ways of meeting the difficulty, he is reasonably certain to feel that the problem should hardly be known as such. He therefore goes merrily ahead, meets the five developments valiantly; he is a little surprised, perhaps, by a sixth contingency which the book did not say anything about. This doesn't worry him much, though—a mere detail. The kiln is opened—it goes over the dump. Perhaps he follows it, the most hurt and injured and surprised man in the world. If he hadn't been quite so certain, having learned from the book "all there was to it," he would have proceeded slowly and more cautiously, and would not have experimented until he had the actual experience with which to back up his book knowledge.

The errors on the part of the practical brickmaker or business man who hires a technical man fresh from school are, for the most part, the converse of those already mentioned with the college man. Of course, if the business man is new at the clay business, he may blame, without just cause, the ceramist for a lot of the uncertainties of the clayworking industry. In such cases the capitalist has to learn at the expense of the repudiation of several superintendents that a hundred tons of clay in the bank does not produce one hundred tons of No. 1 quality paving brick or sewer pipe. Even the experienced capitalist or brickmaker owner is very often prone to expect too much of the technical graduate; he perhaps puts him in a position of responsibility at which he, through lack of commercial experience in handling men, is not able to make good. Perhaps he fires his burner after the technical man has been on the job a few days, and expects a man who never fired anything bigger than a test kiln to raise heat on thirty-foot kilns, keep the coal bill down, produce 90 per cent No. 1 ware, and economically handle a gang of Dagoes. If he falls down, that brickmaker is through with technical men for good and all.

If he would watch his man closely and place responsibility upon him as he is fit for it, meantime giving him the same sort of talks he would his son if he started him in firing kilns; if he did not expect too much of him, would help him and make him see that his criticism was friendly and for his own benefit, the brickmaker would develop a man in most cases, after a year or two, upon whom he could depend, and who would be of inestimable benefit to his business.

Let us assume that we have in our clay plant a man who has been properly trained in a ceramic school, who has had properly developed in him the commercial instinct and who has had a year or two of practical experience, during which the brickmaker has carefully drawn out his abilities, supplemented his weaknesses and given him the sympathetic encouragement he would have given a member of his own family. What can such a man do for the non-technical brickmaker or business man?

In the first place he is well grounded in the theory of ceramics. A fault which to the ordinary burner or factory foreman is a calamity is, to the ceramist, a problem to be met, tackled and solved. Instead of blindly and frantically applying one rule of thumb after another, he has a trained mind, which enables him to analyze the trouble, separating it into its elements, putting aside all the elements which are identical with the elements before the trouble, and concentrating with a series of experiments upon the elements which have changed, in such a way that, by a careful process of elimination, he discovers the exact element, the change in which has caused the trouble. By correcting this he corrects the trouble and puts the process back upon its former successful and paying basis. To help him in work of this kind he has all that he learned at school, his familiarity with practice all over the

country and abroad, and a wide acquaintance with other technical men who will gladly respond to his call for help.

When troubles are encountered which require a knowledge of chemistry to solve, such as scumming, he can run an analysis, locate the cause and eliminate at once the source of loss which would take weeks of experiment to locate and do away with.

He is familiar with all the latest technical apparatus, knows how to burn the kilns the same whether the wind is blowing four or forty miles an hour. He knows with his Orsat how much of your coal is going up the stack when it should be heating up the ware. He can make the burning so simple with his pyrometer and his Seger cones that every man on the burning shift, provided he is ordinarily intelligent, can finish his own kiln. This raises the coal shoveler's job to the dignity of a trade. The men take an intelligent interest instead of being mere mechanical devices, and you'd be surprised how this intelligent interest in burning on the part of your Dagoes cuts down your coal and shoves up your percentages.

By means of his careful records of every operation he makes his experiments—and experiments cost money, no matter how conservatively conducted—the property of the manufacturer, rather than the personal experience of some close-mouthed burner who holds his job because the boss don't dare fire him.

He wears out pencils instead of shoe leather, and instead of chasing all over the place and trying to be in seventeen places at once, he drops down on one of his foremen with the piece of information that it cost him twice as much to dig clay the day before as it did last week, and he wants to know why, and if it can't be stopped.

He works up statistics to show which kiln has been most economically operated for the past six months, and then comes



Fritz Salmen, Slidell, La.

around and shows you that for three hundred dollars you can change one of the kiln bottoms, reduce your coal 10 per cent, and increase your percentage 15 per cent on that particular kiln.

When he has troubles with the burning, what does the old-fashioned burner do? He blames it on the clay, fires one of his Dagoes, or else lengthens out the whole burning period. The technical man studies the trouble, relegates it to its own particular period—water-smoking, oxidation or vitrification—lengthens out that period two or three hours and eliminates it. Instead of upsetting your plant from mine to siding and ending up by cutting down your kiln capacity and increasing your coal bill, he gives the early oxidation perhaps three hours more—maybe cuts three hours off the water-smoking at the same time, and everything goes on as before.

Furthermore, he knows when your kilns are running at the highest efficiency. If he hears of a drop in the price of oil, he begins to figure right away how much it would cost to change to oil and what the saving would be in a year, where your old-time burner would be so scared if you said "oil" to him that he wouldn't be able to tell whether the next kiln he looked into was cherry red or sky-blue pink.

All these and many more things the properly taught and experienced technical man can do for the man whose capital is invested in the clay industry—provided he will let him. (Applause.)

General Discussion.

Vice-President W. H. H. Rogers in the chair: Are there any present who desire to discuss this paper? I believe that Mr. Farnham expected Professor Purdy to speak on this question.

Ross C. Purdy, Columbus, Ohio: May I ask the secretary

to tell the convention the substance of a letter I wrote him recently?

Secretary Randall: Really, I am afraid Professor Purdy has the best of me. I get too many letters to repeat a lengthy letter very long after it is received.

Training of Technical Men.

Mr. Purdy: Well, my point was this: that a college professor has no more right to that title outside of the college or off the campus than any other of the rest of you. He knows no more about his special business than you specialists know about your business. We do not need that distinction any more than you need the distinction to your name, such as Brickmaker Smith or Tilemaker Jones. I therefore object to the professor business outside the college or off the campus. I am going to have this paper put up in some form so that I can present it to each of the students in our department. It is the same sort of a sermon that I teach to them, and if there are any number of my students here they will fortify me in that. We argue all the time that it is impossible in our laboratory to give the factory atmosphere; that they must learn it when they go out of our laboratory; that they must learn to acclimate themselves to factory conditions; that as soon as they get out from the laboratory they are not going to be dependent on their books, and they will come in contact with men who are not in sympathy with them, as we are; in



Ross C. Purdy, Columbus, Ohio.

many instances they will be connected with people who are antagonistic. That is shown in many instances. Where boys go out with their father, as Mr. Ittner's son did, for instance, they succeed fairly well. When they get with strangers there is apt to arise friction, because the boy does not understand how to get along with men; the employer is not in sympathy with him, and so they get at loggerheads. We teach them to do—one of my boys is over there now—what is it we teach you to do? Say it out loud.

Answer: Think.

Mr. Purdy: That is it exactly. They come and ask me a question, and I say, "Don't come and ask me; think. You have got to do that when you get away from me; so think now; think all the time." Our first laboratory course or first two grades are directed in detail by me. I show them how to conduct a plan of experiments, giving details. About the third exercise I do about half that much, and about the fourth I say, "I want this, and you have got to produce it in four weeks." Isn't that right, Fred? Another one of my boys down there.

Answer: Correct.

Mr. Purdy: They get about four of these exercises on that basis. They are with me, as with you. I have no more sympathy for them than you would have. If the boy doesn't come

up to the mark, I say, "You are a failure; I haven't any more use for you." We are trying to duplicate the conditions under which the boy is going to be placed when he leaves us. We have our thirty-foot kiln, but we try to burn it in the same sort of fashion that you do in your factory. We do not conduct our experiments on the bench, with the pyrometer or with a microscope. We have a kiln, a coal pile and a shovel, and we have a student there who does the shoveling; and, furthermore, my students will tell you that they are assigned more work than they can possibly do in the time they are scheduled to do it. I force them to work things out for themselves, and force them to get them out before the time they are scheduled to. Is that right, fellows?

Answer: That's right.

Mr. Purdy: They say the "proof of the pudding is in the eating o' it." I don't care what gathering of boys you take, a certain percentage will be failures, because there is nothing else in them. Not all of the boys who come to the ceramic department will make ceramists, but all of them go through our department in spite of us, if they meet certain requirements, and we cannot prevent them from getting through. We have some boys going through and we tell them we cannot and will not recommend them for positions. Right now we have four fellows that I can recall working for \$45 a month out in the wilderness, waiting for the time when we can recommend them for a better job.

Mr. de Rosay: What are they doing with all that money? (Laughter.)

Mr. Purdy: I don't know. We have a man in St. Louis, in a very inferior position now, because he was always depending on the instructor. We told him when he could prove he could do things, we would recommend him for a good job. Now, gentlemen, we are trying our best to produce good men, and the records will show you that we have a larger percentage of successes in what we are doing than any other sort of an enterprise. Our success in ceramic engineering is far above that of mechanical engineering or electric engineering, because we are trying to put the boy down to rock bottom. That request referred to in the paper came to us at an inopportune time; our boys leave us the second week in June, and most of the boys had good positions. The only men left for them were boys we did not recommend and who had to secure positions through their own efforts. However, they took one of these boys and put him in their terra cotta department. He was put some several months ahead of their schedule. He did not ask it. He was advanced in the terra cotta factory, and a little after the holidays I met the man who had charge of the terra cotta factory and he said: "If you have any more men like Walter, let us have him, for I never had a man who could think for himself and figure his own way out of difficulties like that man can. He is not all the time bothering me about little questions or about things he doesn't know; he thinks them out for himself." However, poor Walter came back to Columbus three weeks from that time, sick with a rupture, but before he could have that rupture operated on he had tonsillitis to such an extent that he lay practically dead for five weeks from poison of the tonsils. Then it took two months to recover from that, and to-day he is in the employ of a very large firm in the East; has had his salary advanced since he has been there, and that is in the last six months' time.

Mr. Eisenhart: To what extent was his salary advanced?

Mr. Purdy: He was started at \$60 and has been advanced to \$75. The other fellow we sent there was a fellow who was one of those I-know-it-all, you-don't-have-to-tell-me boys, one of those cock-sure fellows, and, so far as I can learn, his reason for coming back home was his mother's severe illness. He was with his mother all the time she was sick, and she begged of him, on account of his being her only child, not to go West. I have written West to confirm that statement, but I have not been able to get any response from Mr. Farnham. I did not expect this paper to be on the program and did not write Mr. Farnham for that purpose. That young man is now

in Marion, Ohio, in the employ of a gentleman who is here and can testify that he has been advanced by the American Sewer Pipe Company, and is making good. So we have confidence in the boy, even if he is one of the cock-sure sort. I think these are the only two boys we have had to take the apprenticeship course, and both of these boys had good reasons for coming home. The question was asked here regarding salary, and that brings up another point. These boys here will tell you that we insist that the boys go out and work for bare living wages until they learn something about the plant. Isn't that right, Mr. Smith?

Mr. P. A. Smith: Yes, sir, that is right.

Mr. Purdy: Mr. Smith has had our boys, and knows that we don't want them to receive more for their services than they can give. They let their employer raise them as they deserve it. We have one fellow who refused a \$3,500 job because he did not think he was equal to it. These are the facts in the case. We are in perfect accord with the facts set forth in the paper, except we are not trying to meet the conditions as he describes them. (Applause.)

Mr. de Rosay: Until the reading of that paper of Mr. Farnham's I thought I was endowed with common intelligence, and I realize how dumb I am; after trying all these years to teach a burner how to burn a kiln of brick, Mr. Farnham has told me how to do it in thirty days. (Laughter.)

Vice-President Rogers: The next on the program is a paper on "Strain Measurements of Brick Pavements," by Major J. E. Howard, of Washington, D. C. This paper is to be illustrated by lantern slides.

STRAIN MEASUREMENTS OF BRICK PAVEMENTS.

BY JAMES E. HOWARD, ENGINEER-PHYSICIST, BUREAU OF STANDARDS, WASHINGTON, D. C.

Mr. President and Gentlemen of the Convention:

A material of superior properties for street pavements is present in the vitrified paving brick of current manufacture. Such excellent qualities have been reached that attention is necessarily attracted by this valuable clay product. The manufacturers of paving brick have done their part in a commendable manner and produced a paving material which has a crushing strength comparing well with strong natural stone, and which exceeds that of many varieties.

A well made paving brick possesses high resistance against abrasion, it is nearly impervious to moisture, in which respect it presents an important sanitary advantage, and, furthermore, it is attractive in appearance and beautifies a city where it is used.

The mechanical features of manufacture are under such control that regularity of form is secured, and with that follows the opportunity of securing a pavement with an even surface, a feature of decided economic importance considering its bearing on the tractive force required for transportation purposes. The necessary material for manufacture seems favorably distributed in many States. From the manufacturing end the problem of producing a satisfactory paving material has been well solved.

The question now appears to be an engineering one to ascertain the manner in which the useful properties of paving brick can best be availed of. The engineering side of the question, however, is a broad one directly concerning the welfare of many communities.

The Bureau of Standards, in the performance of its regular functions pertaining to investigative tests of structural materials, has inaugurated tests on paving brick in place in the pavements. Laboratory tests on the properties of brick have been carefully made many times and in many places, the results of which are familiar to all. The present tests are intended to extend information to the behavior of the brick as found under service conditions, measuring the strains which are developed in the pavements themselves and from the deformations judge of the stresses or loads which are involved.

Conditions in a pavement are complicated, and in approaching the subject it is essential to make a careful analysis of the case, ascertain and define what the elementary features consist of and so shape the work that one feature after another may be taken up and investigated. Notwithstanding the apparent complexity of the subject, it nevertheless admits of being resolved into elementary factors and each in sequence made the object of experimental inquiry.

Some preliminary work was done a year ago at Indianapolis. It has since been extended at Cleveland, during which the bureau has had the co-operation and aid of Mr. Will P. Blair, secretary,

and other members of the National Paving Brick Manufacturers' Association, also officials of the cities of Cleveland, East Cleveland and Lakewood.

The work in these cities has been directed toward acquiring data upon the relations of the street car tracks to the pavement, and upon the effects of variations in temperature in stressing the pavement. These questions are quite distinct from those which relate to the supporting capacity of pavements against heavy wheel loads, or durability in the matter of wear or surface abrasion. So many streets furnish successful examples of pavements which have carried heavy traffic for a term of years that it was not thought necessary to include such observations at this time.

The tests on the relations of the street car tracks to the pavements consisted of measuring the elastic depression of the track under the weights of cars and acquiring information on its influence on the adjacent pavement. The elastic depressions of the rails were measured on different types of track, selecting, among the number, places where maximum rigidity was likely to prevail.

In general, it was found that the vertical elastic movement of street car tracks, that is, the difference in level of the rails between a loaded and unloaded state, is greater than can be followed by a monolithic pavement without the formation of cracks alongside the track. Occasionally track in the very best condition may not display excessive depression, but the uncertainty of maintaining such a state renders it hazardous to make a bond between the pavement and the track.

There is, in addition to the momentary elastic depression, a bodily settlement of the track resulting from insufficient support of the roadbed. Such settlement, when it occurs, involves a permanent depression altogether too great to consider in connection with those lesser movements which we are now describing. The bodily settlement of the car track, however, is a feature which

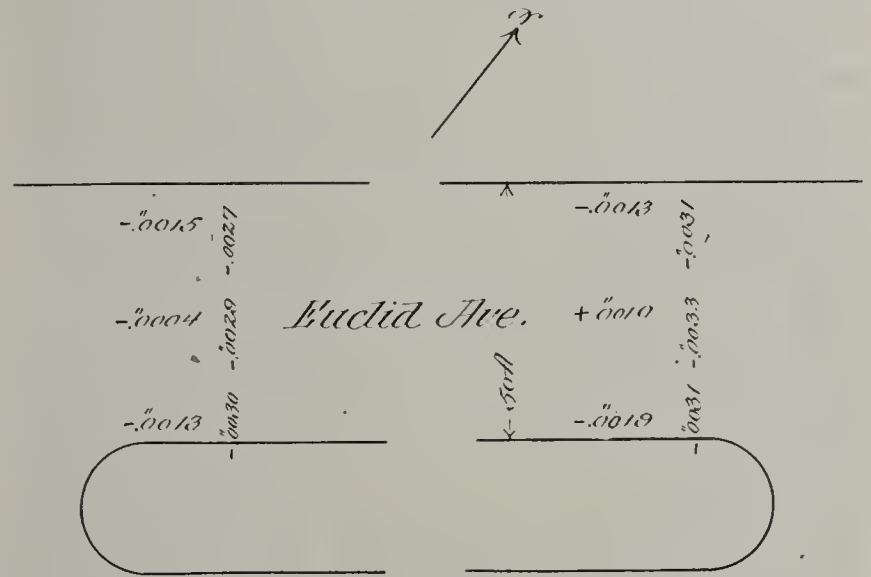


Fig. No. 1.

can not be left unmentioned. Cases are so flagrant, at times, that a good pavement can hardly be made use of by reason of the ruts of the trolley tracks.

In these tests the means employed in the observations, that is, sensitive levelling apparatus, were such that the presence of a trolley car could be detected by the depression which it caused even in the pavement at a distance of ten feet from the track in the direction of the sidewalk. Such an observation was made on a relaid pavement in which a tar filler had been used, and substantially at that distance with a cement filler, or from ten to twelve feet away.

At the intersection of two streets, where no trolley tracks were present, the depression caused by the weight of a man was detected at a distance of twelve feet. This observation was made at a place where the hollow rumbling sounds of passing vehicles indicated the pavement did not rest upon the sand cushion or foundation. It was noticed that the pavement at the crown of the street responded more promptly in respect to change of level to a load coming upon it from the other side rather than along the center line of the street.

Pavements are elastic, as the properties of the individual brick and cement filler would indicate, but the amount of transverse bending which a brick or a cement grouted pavement will endure without cracking is very limited in its extent. This is particularly the case when the material is strained in tension. A wider elastic range prevails for compression loads, substantially in the ratio of the compressive to the tensile strengths, or from ten to one or more.

Concerning the effects of changes in temperature on the integrity of pavements, data was acquired by the method of strain measurements, a description of which method was presented at



Measuring Depression of Trolley Tracks Caused by Weight of Trolley Cars, Cleveland, Ohio.

your last annual meeting. Gauged lengths of 20 inches were established in the pavement, in number exceeding 300. It has been found feasible to measure these gauged lengths with an accuracy, commonly, to the nearest ten thousandth of an inch. In this manner thermal changes may be followed very closely.

Gauged lengths were located at the sides and at the middle of the street, in both crosswise and longitudinal directions. During the time in which these strain measurements have been in progress a range of pavement temperatures of 66 degrees F. has been experienced. Figure No. 1 illustrates some of the results which have been obtained, those here entered referring to measurements

on Euclid avenue, on a section of the pavement just east of University Circle, Cleveland.

In general the expansions or contractions of the crosswise gauged lengths proceeded with greater regularity than the longitudinal movements. Modifying conditions influenced the longitudinal movements and a drop in temperature yielded results which showed normal contraction on some gauged lengths, on others a very slight change, while certain of the measured lengths, those spanning cracks in the pavement, were longer at the lower temperatures.

It was found that transverse cracks which open with a drop



Brick Paved Plaza In Front of National Theatre, Panama.

in temperature do not always entirely close again, but displayed a tendency to progressively increase in width. Probably that result was due to fine particles of sand and abraded material of the pavement lodging in the open fissures. A repetition of the process caused a progressive lengthening of the pavement. During a period of 52 days, one set of measurements showed the combined effect of decrease in temperature and progressive increase in width of crack amounted to .0395, practically four hundredths of an inch. This occurred on a pavement which had been laid about four months. The crosswise gauged lengths on the same street, and during the same period of time, contracted regularly with lowering of temperature, the maximum amount observed being .0039.

A number of earlier determinations on the co-efficient of expansion of building brick gave a value in the vicinity of .0000040 per degree F. This value seems to fit the present tests fairly well. The observed changes were somewhat less than called for by the above value of the co-efficient, but the actual range in temperature of the brick was not ascertained with precision. Surface temperatures of the brick work were used, and not unlikely the range in mean temperature was less than the recorded amount.

Taking the observations as they were made, the contraction of the forty-foot roadway of Euclid avenue, for a range in temperature of 100 degrees F., was .1043 and .1101 inch, respectively, at two sections of the roadway. The contraction called for on the basis of the above mentioned value of the co-efficient would be .1920 inch. That is the total amount, one-half of which might be considered as affecting each side.

During sunny days the temperature of the pavement naturally goes considerably higher than the temperature of the air a few feet above it. Observations on this feature showed a difference of 38 degrees on one occasion. The temperature of the air was, on the day in question, 64 degrees, four feet above the pavement. On the pavement, in the shadow of the curb, it was 69 degrees. In a freshly drilled pocket for a reference pin, on the sunny side of the street, the temperature was 85 degrees, while in the sun, at the angle of the pavement and curb, the thermometer rose to 102 degrees.

In the laying of a cement grouted pavement a critical period is encountered at the very outset, during which care must be exercised just as in every cement structure, in order to avoid the formation of incipient cracks before the cement grout has had time to set and acquire strength. On account of the excess of water used in making grout the setting is much retarded, and several days may elapse before a substantial degree of hardness is acquired.

During this period the pavement should remain at a constant temperature, if it were possible, day and night. A drop of 20 degrees calls for a contraction of about one-tenth of an inch in a length of 100 feet. It is a fortunate circumstance in laying a pavement when a minimum range in temperature is experienced during the first 48 to 96 hours after grouting. Incipient cracks have been developed at a very early period following the grouting, resulting in injury to the street, even before it was opened to traffic. Hot, sunny days, followed by cool nights, are menacing to freshly grouted pavements.

Transverse cracks have been started, which ultimately extended across the street, by the influence of the end joints of the edge stones against which the pavement was laid. The usual manner of laying pavements, with joints broken in one direction only, affords favorable paths for cracks, once started, to extend from curb to curb.

Recently an opportunity was furnished for inspection of the streets of the city of Panama, where brick pavements, cement filled, have been laid from five to six years. The pavements were without expansion joints at the sides. There are no street car tracks in Panama. The pavements are in very fine condition. In one place only were cracks of any kind noticed.

At Panama the temperature is quite high throughout the year, and while the nights are cool, still the drop in temperature is not great. It is believed that equable thermal conditions have contributed toward maintaining the integrity of these pavements, and that pavements in southern climates should in general be aided by the smaller range in temperatures over those experienced in northern climates.

In conclusion, the results now available point to the undesirability of bonding the pavements with street car tracks, excepting, possibly, those of the very best construction. Cracks parallel to and adjacent to the tracks are likely to develop if the pavement is called upon to follow the usual elastic depression of the rails. Obviously there can be no lateral thrust to the pavement if the rails are left free to depress.

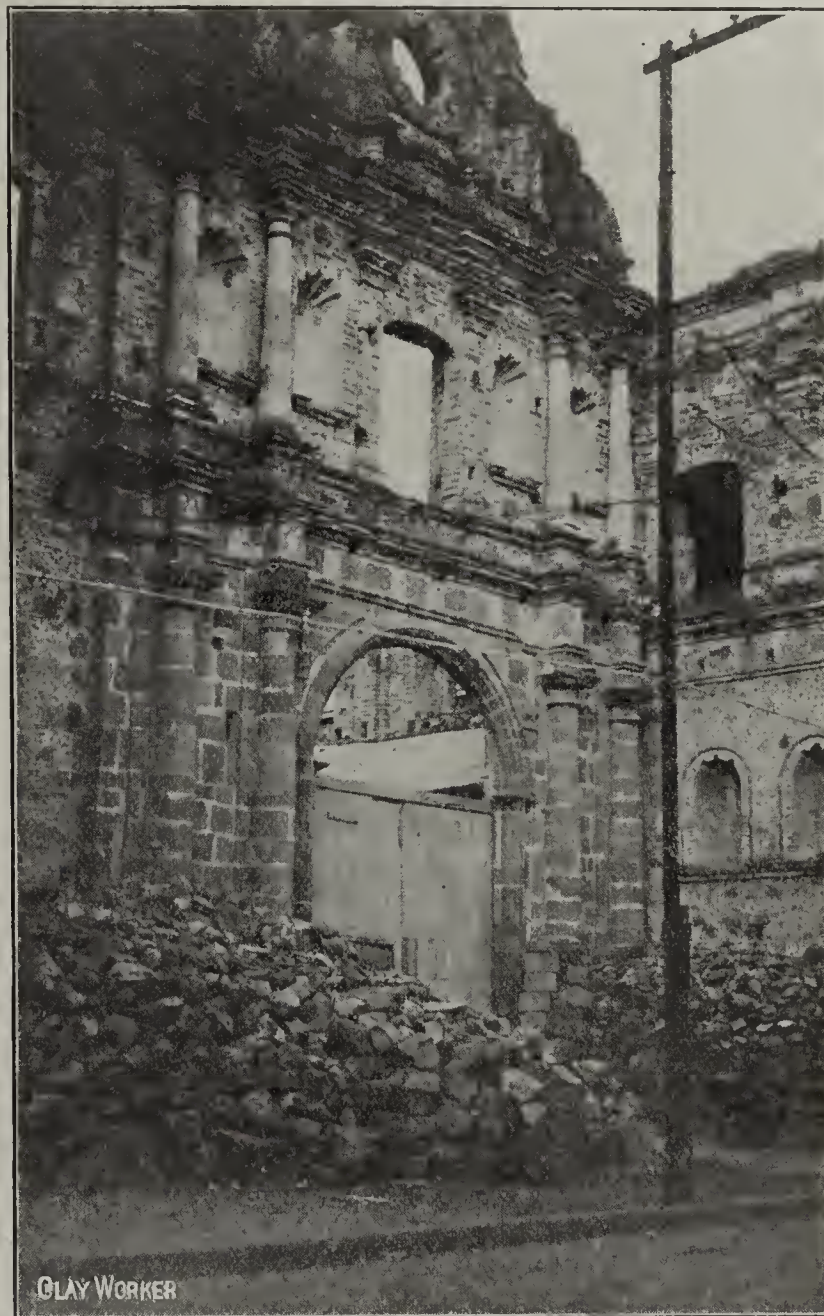
The strain measurements show that transverse expansions and contractions proceed with greater regularity than longitudinal movements. A progressive change in length or creep of a portion of the pavement is due to alternate changes of temperature, open cracks being partly filled with abraded material and prevented from closing when a rise in temperature occurs.

Cautionary warning is found in the behavior of pavements which have developed transverse cracks in the early stages after grouting. At this time exposure to a wide range in temperature is undesirable.

Pavements are probably benefited by a certain amount of compressive stress in a longitudinal direction. Transverse cracks will be kept closed so far as possible, and if the compressive stress is not excessive, spalling would not be induced. The open ends of paved streets, having no buttresses to take the thrust, may be expected to develop transverse cracks.

The minimum amount of crowning necessary to turn the water is advantageous to enable the pavement to resist compressive stresses without causing rupture during spells of sudden heating. Bends and reversed curves in streets are disadvantageous to the pavements.

A superior material is provided in paving brick of current manufacture, the use of which requires careful engineering skill, and it appears that questions pertaining to the effects of tem-



A Two-Century Old Cathedral, Panama.

perature changes are among those which require most prominent attention. (Applause.)

General Discussion.

Mr. Purdy: I have been asked twice if I could make a burner in thirty days. They charged me with that; they did not hear the criticism made here that that statement was made in the paper. We cannot do that. We can give the principles by which you can get at the faults of burning, the troubles of burning, a great deal more rapidly than if you did not have those principles in mind. (Laughter and applause.)

Vice-President Rogers: Is there any one who wishes to discuss Major Howard's paper?

Mr. Crook: The secretary asked me to say a word on this paper of Major Howard's, as one who has been very intensely interested in paving brick and brick paving for several years.

Following these problems, which seemed almost inexplicable to the ordinary man, this last collection of slides was of absorbing interest, for it shows the reason for some inexplicable conditions. It is a matter of thankfulness to me that these experiments are being conducted under the auspices of the United States Government. It puts us nearer and nearer solid footing. I have known of this work going on, and we are under great obligations to Major Howard. I would also say right here that we are, as brick manufacturers, under great obligations to Will P. Blair. He has untiring energy and has been instrumental in bringing these investigations to the front. This paper has been of great interest to those of us interested in brick paving, believing, as we do, that it is the only durable pavement yet discovered. I hope the investigations will be continued. (Applause.)

Vice-President Rogers: The secretary will read the next in order.

Secretary Randall: The next is No. 4 on the program, "Relative Economy and Efficiency of Power Trucks and Horse Haulage," by Mr. A. R. Warner, Cleveland, Ohio.

THE RELATIVE ECONOMY AND EFFICIENCY OF POWER TRUCKS AND HORSE HAULAGE.

BY A. R. WARNER, CLEVELAND, OHIO.

Mr. President and Gentlemen of the Convention:

I believe it a safe assertion that at this time no old established department of any business is undergoing such a metamorphosis as the delivery or local transportation department.

Like all unproductive departments, it has been looked upon as



A. R. Warner, Cleveland, Ohio.

a necessary evil, but until the recent introduction of motor service there has been no alternative to the horse. Progressive concerns, through the use of attractive equipment, properly lettered, and in some cases with superior horseflesh, have made their delivery systems of advertising value, but in the main the problem has been one of delivery service only, by the universal use of horses.

The introduction of the motor pleasure car started many of the more progressive concerns to thinking regarding its application to their delivery service, but the use of the light and speedy pleasure car chassis equipped with a delivery body resulted almost universally in failure, as such equipment was no more suited to such purposes than would have been thoroughbred horses to heavy hauling, and the disappointments resulting from the use of such hybrid equipment resulted in a prejudice against motor service, which undoubtedly retarded its introduction for a number of years.

The automobile industry has grown to its present immense proportions practically within the last ten years, and the demand upon the older, better established and equipped factories for pleasure cars has been so great that up to about two years ago none of them had been able to develop the commercial end of the industry.

The earlier heavy trucks were mostly assembled by small concerns that built in their own factories but little of the equipment that they turned out, and that had no competent engineering force, testing laboratories or manufacturing experience that is so necessary to the proper development of a piece of mechanism of any kind, whether it be a lathe, screw machine, drill press or motor truck. The unreliability of such early improperly de-

signed and poorly manufactured heavy trucks still further prejudiced the public mind against motor delivery service and delayed its introduction.

While a few of the larger automobile concerns had for years been experimenting with trucks with a view to putting them on the market at some future date, it was not until the business depression of the fall of 1909 resulted in apparent probable decrease in the demand for pleasure vehicles (which, to the surprise of the entire business world, did not develop during the coming spring), that a few of them began making their plans to place on the market the trucks they had developed.

In the case of the White Company, the first truck exhibited for sale was the 3-ton size, which was shown at the New York Automobile Show in January 1910, this being followed a short time after by the 1½-ton, then by the ¾-ton and finally by the 5-ton heavy service truck.

In a general way it may be stated that three points are to be considered in contemplating changing a delivery system from horse-drawn to motor-drawn: relative economy, extension and betterment of service, and advertising value.

First and most important is the relative economy. The conditions under which a motor truck shows the most economy as compared with horse delivery is, as nearly as possible, continuous operation with a continuous load. Where it is possible to load a truck with its normal load, drive it to a distant destination and return to the starting point again with a normal load, the economy of truck over horses is remarkable, due to the fact that its speed is greater, its endurance is unlimited and that it does not have to be given time to eat, sleep and rest. The nearer such ideal conditions can be approached, the greater will be the relative economy.

There are undoubtedly conditions where horse delivery is more economical than motor truck delivery—when hauls are short,



Five-Ton White Truck Loaded With Coal.

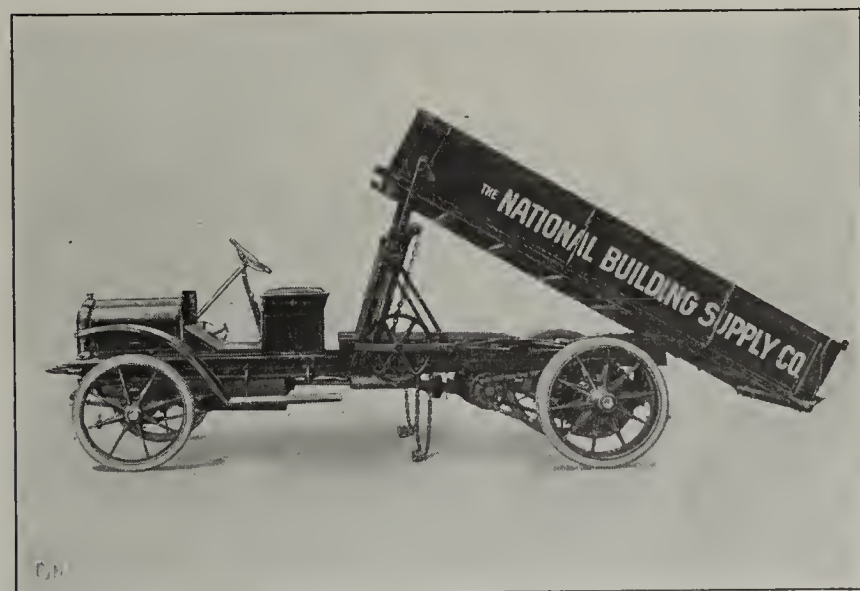
stops are frequent, loads are light or varied and waits are long. Under these conditions, the superior speed, endurance and carrying capacity of the truck are more than counterbalanced by its greater cost and larger operating expense.

Almost universally the introduction of motor trucks results in a reorganization of the entire delivery system, in a more strict supervision of drivers and helpers, closer adherence to schedules and better and quicker methods of loading and unloading.

The fact that motor trucks do not require intervals for rest and recuperation, and that while they are idle they are a source of expense rather than profit, renders it particularly desirable that loads should be taken on and put off in the shortest possible space of time. Where the character of the loads lend themselves to such dispatch in handling, much attention has been given the matter of labor-saving devices by the designers and engineers of the best-equipped factories.

Often the efficiency of motor truck delivery is only limited by the endurance of the driver or helper. A good illustration of this has recently come to my attention. The manager of a large Cleveland dry goods concern, using a number of White delivery wagons, has been compelled to cut down the number of packages handled by each wagon on account of not being able to keep jumpers, as the boys are called who deliver packages from the wagons to the doors of residences. Upon investigating the matter he found that the work was so hard that the boys could not stand it, although the motor delivery wagons were capable of keeping up their part of the work indefinitely.

It is surprising how little most concerns know about the cost of their delivery, and frequently an entire reorganization of the



Auto Trucks Used in Hauling Brick and Other Building Materials Ranging from Half Ton to Five Tons Capacity.

delivery department will result in a saving not directly attributable to the use of a different method of delivery. The introduction of motor trucks in a delivery system seems to have the same effect upon the business in general that the introduction into the accounting department of up-to-date methods by the means of such accurate and labor-saving devices as adding machines, billing typewriters and multigraphs has, in a general systematization of the entire business, the stopping of leaks and a more central control of the various departments.

The second point to be considered in contemplating a change in delivery systems is the extension and improvement in service that can

be given by the use of motor trucks, which naturally results in an extension of business. If economy and extension of service, resulting in an increase of business, can both be obtained, the arguments in favor of motor delivery are, of course, increased; but if economy can not be effected, it then becomes a matter of judgment as to whether the additional business to be obtained through the extended service would warrant the use of motor delivery. There is no question but that in many lines business can be increased and new territory added which could not be accomplished by the old system of horse deliveries. Special deliveries, accommodating the late purchaser, are always expensive and undesirable, but if a good account



Various Types of Dumping Auto Trucks, Designed for Handling Brick, Sand, Cement, etc.

can be taken care of by motor, where it can not by horses, especially if such an account could be accommodated by a competing concern, the expense of special delivery is a negligible matter.

In most cities the building, paving and improvement operations are in the outskirts, and suburban development is of great importance. In Cleveland, at least, the builders' supply concerns have for some time realized the desirability of motor truck service, and all of the larger ones are now using it. Here in Chicago, and in

many of the larger cities, dry goods concerns located in the center of the city using motor service are making daily deliveries within a radius of twenty miles, and many of them are considering largely extending that radius. One large lumber concern in New York, using heavy service White trucks, has notified all of its customers within a radius of fifty miles that it will deliver lumber ordered from them directly to the job in one day. By this method they save three or four days for their outlying customers, to which points lumber would

have to be delivered by railroad, with the advantage of but one loading and unloading, instead of three loadings and three unloadings. This concern makes the statement that unless their competitors wake up very soon to what they are doing, they will have all the desirable business within fifty miles of New York.

The third point to be considered in the introduction of motor truck delivery service is its advertising value. I must admit that I believe that within a very few years a horse-drawn truck or delivery wagon will be more of a novelty on our city streets than a motor truck or delivery wagon, but when that time comes the owner of horse-drawn vehicles will be most undesirably advertising his unprogressiveness, providing his business is of a nature to admit of the use of motor delivery and his competitors are using the up-to-date method.

The motor truck naturally lends itself to a wide variety of designs of bodies, and the adoption of a distinctive type of body, attractively painted and lettered, is a continuous moving advertisement.

Provided your business is such that you can effect economics by the use of motor trucks, or extend your business profitably through the enlargement or betterment of your service, or through their advertising value, the next question to be considered is the selection of the proper size and make.

As you have doubtless found with other machinery you are using that the best is always the cheapest, you will at once eliminate from your consideration the cheap truck. It is not my province at this time to go into a discussion of the details of designs of trucks, which are innumerable, and all of which have their advocates. There are motors under the hood, motors under the driver's seat; water-cooled motors and air-cooled motors; long stroke motors and square motors; four-cylinder motors, two-cylinder motors; motors cast in one piece, in separate pieces and in pairs; cone clutches, disc clutches, friction drives, three-speed transmissions, four-speed transmissions, selective transmissions, progressive transmissions, shaft drive, chain drive, wood wheels, steel wheels, pressed steel frames or one-beam frames.

Before you get through with your investigations, if you go into these different points of design thoroughly, you will be so confused and harassed that you will either buy a truck from the most persistent salesman to get rid of him, or you will put the whole matter off in disgust. My own advice would be to consider but few makes, eliminate all assembled propositions and select only the manufacturers who have a stable business standing, who have well-equipped factories with competent engineering forces and suitable laboratories, investigate trucks that are now in operation, through the owners themselves, and after having settled upon a few standard makes, visit their factories and select which seems to have the best designed chassis and most careful manufacturing methods.

If you purchase a good truck, it should last you for years and you should assure yourself that the company manufacturing your truck will be in business during the life of the truck and of those that you may add to your equipment. The make that you start with should be the make that you add to your equipment, as drivers should be as interchangeable as are the parts of the trucks themselves, and you will find many advantages in dealing with but one concern and standardizing your equipment. It may be that your particular business will require more than one or two sizes of trucks. While most manufacturers have confined themselves to one size of truck, or at most two, the White Company has developed four sizes, the 5-ton, 3-ton, 1½-ton and ¾-ton, which in their range are practicable for every field and are so standardized as to the essential parts of the motive mechanism that parts of trucks of one capacity are interchangeable with those of any other size. If your equipment is to consist of different sizes of trucks; you will find this standardization of parts of great convenience and economy.

The initial investment in truck equipment is necessarily a large one, but when it is made it is over and done with; but the daily operating and maintenance expense continues and can not be avoided. For this reason the matters of gasoline and oil consumption, the little details which may affect your tire mileage, such as the distribution of load, the proper size of the tires, etc., can not be too carefully considered. These expenses will keep ticking on daily long after the original expenditure for your equipment has been charged off your books.

It is true that, comparatively speaking, the motor truck industry is in its infancy, but it is already a lusty and well-developed infant, and while improvements will undoubtedly be made, I consider the best motor trucks already highly developed and by no means offering the possibilities for improvement that the pleasure car offered at a similar stage of development. (Applause.)

General Discussion.

J. M. Blair, Cincinnati: I have listened to this very interesting paper, but I came here to-day expecting to have demonstrated to me the possibility or advisability and efficiency of the motor car over horse hauling for brick. I failed to see from that paper that such is the case. Perhaps I am a little dull, but it seems to me that there has been no motor car yet developed that will properly take care of brick haulage. You have to have a car to start with not over three feet or three and a half feet high, or unload by hand. We all know that in most of the markets it is out of the question to dump brick;

you have got to pile them at the works, and to do that you want your car not to exceed three and a half or four feet high at the platform. Another thing: it has not been demonstrated yet that the interest on the investment, taking the time of loading and unloading, will justify the use of a motor car in preference to horse hauling. I had thought that would be brought out in the paper, but I failed to get it, and have been wondering if this thing is feasible for hauling brick. You can haul stone and gravel and cement and clay, where you can dump it or pitch it off in large quantities, but when it comes to brick you cannot take the time for loading and unloading and do it as economically. We are all looking forward to the time when we can use motor cars. There is always a great deal of trouble to take care of horses, the feeding and loss from overwork, death, etc., and I thought possibly the time would come, but I begin to think the time is not yet ripe for motor hauling.

Motor Cars for Hauling Brick.

Mr. Warner: I am not a brick man; I am an automobile man. I fear I worked in too much "White," but I did not come from Cleveland to Chicago for the purpose of reading this paper alone, but because there was a little advertising in it, as Mr. Randall said when he suggested this paper. I said in my paper that I felt there would be a great improvement in loading and unloading, and I believe motor trucks would bring that about more than anything else. I am not familiar with the brick proposition; it may be that the gentleman who made



J. M. Blair, Cincinnati, Ohio.

the remarks has a proposition such as I referred to, where motor truck delivery is not as economical as horse delivery, but if he will leave his address with the secretary, I will see that one of our representatives goes after him.

J. M. Blair: One firm, the Packard Company, sent an engineer to go over the business of showing the cost of the time consumed in loading, the time consumed in unloading, and the time returning, and also of starting, how many loads they can deliver a day, and compared that with our cost of hauling with horses, and they made a very nice statement. They will only deliver 1,500 brick at a time—that is, about four tons. When you sift it down, they don't show the economy, although they figure they can save 50 cents a thousand, but practically it will not work out.

Mr. Warner: The Packard Company is very reliable and very careful, and know what they are doing.

H. C. Kleymeyer, Evansville, Ind.: Is it feasible to use trailers on motor cars?

Mr. Warner: To a certain extent. It is a great temptation to use trailers, and to overload them. That is one of the problems the manufacturers are up against more than anything else. If the truck itself does not carry a full load, it is all right. Like the lumber company I referred to in New York. Their chief product is timber 25 and 30 feet long. They need a trailer to carry that load.

Mr. P. A. Smith: The idea of a trailer is to have some extra vehicle that can be ready loaded, and do away with the

time of waiting, in that way keeping the heavy car going all the time.

Mr. Warner: In that case you need not load your truck to capacity, but load the heavy load on the trailer.

Mr. Eisenhart: What is the practical speed of a five-ton truck?

Mr. Warner: Not over ten or twelve miles an hour with a load. No motor truck of heavy capacity, running on solid tires, should be run over twelve miles an hour.

Mr. Crook: It seems to me you have not struck the right point yet to make this a success: that it is absolutely necessary to have a first-class brick pavement for the truck. I am very familiar with the streets of Cleveland, and they have magnificent streets all over the town, and I fancy that is a part of the secret of the success of these trucks. Cuyahoga county is known all over the country as having first-class pavements, and the truck may be an economy in Cleveland, that it would not be in Cincinnati, Mr. Blair, over the dirt roads and inferior pavements.

Mr. Conway: In regard to this hauling proposition, it is a thing I have had put up to me pretty strong lately. The automobile men seem to look in on me about once a week. Mr. Blair seems to think he wants a truck to unload by hand, and in our business we want a dumping car and dump our brick. Most of these trucks are built so high that they dump the brick too far. The ordinary brick wagon goes down and the



H. C. Kleymeyer, Evansville, Ind.

brick go with the wagon and don't get the blow. Another question I would like to ask Mr. Warner. I noticed most of the pictures seemed to put the load on the rear wheels. Have you found that the proper thing? If so, why?

Mr. Warner: That is our engineers' practice. Where the three or four-ton load is distributed between the front and the rear, the starting of the truck is very hard. It is almost impossible to start the truck, as you may imagine. A five-ton truck will weigh 6,500 pounds; add five tons to that and distribute that load, and the starting is a great proposition. Then the traction is another thing you have got to have with a truck, and you get better traction. As I have said, there are all kinds of theories, but our belief is that the distribution of most of the load over the rear axle and rear wheels, and building the rear construction to stand it, is the proper solution. We have not made, as yet, a great study of the brick business by itself. We have done a great deal of business with the building supply people, but they handle tile, and cement in bags, and bricks, and our standard platform body seems to suit them. The chassis adapts itself to almost any kind of a body, and it is possible that the brick men will have to make their suggestions to our engineers and we will have to work it out. That is just what we want. I believe there will be great improvements along the lines of loading and unloading in the truck business. So far as the streets of Cleveland are concerned, we have a great many brick pavements, but our streets haven't the reputation of being so fine, and if you stop to think of it, your horses and wagons suffer about as much

over a bad street as a truck would. I do not know any city that has worse streets than Baltimore, and the truck is successful there, and I am sure you will agree with me that the motor truck shows superiority over the horse.

Mr. Conway: I noticed all the trucks seemed to have a chain drive. Have you ever tried the shaft drive?

Mr. Warner: As I said in my paper about that, in the three-quarter-ton truck used by grocers and the one-and-a-half-ton we use the shaft drive. On the three-ton and five-ton we use the chain drive.

Mr. M. P. Mayer: What do you figure the maintenance of the three-ton truck?

Mr. Warner: Every business furnishes its own proposition, and I would rather not make any general statement regarding that. We would have to figure out your business and give you details.

Mr. Mayer: You stated a truck would go where a horse would. Does that apply to clay roads?

Mr. Warner: If you get traction you can go anywhere that you can with a horse, and by means of chains and such, which I admit are not particularly desirable, on rear wheels, you can get there, but there are places, we are willing to admit, where horses still have the advantage over trucks.

Mr. Mayer: You put in an "if"—if you can get traction, and I would like to know how you can get traction.

Mr. Warner: By means of chains around your tires.

Mr. Mayer: We have had this under consideration. I understand these blamed things don't get tired like horses, and when you are out until 10 o'clock at night, the driver doesn't have to clean his horse, and we are favorably impressed, but since we don't have improved roads over where we are, and since we know three tons of brick would go down to the axle the minute we get off the paved road, we are skeptical about the truck. When you will prove to me that they can be used on the mud roads, then I am a candidate for the truck.

Mr. Warner: When you come to that you had better have a few horses.

Mr. B. M. Hood: We have tried both motor car and mule, and we have found that the farther we get away from the negro and the mule, the more we lose in the transportation of brick. As a test case, the transfer company, at my request, tried the loading of three cars of fine brick; by having trained negro hackers to quickly load and quickly unload the truck, we did better than with the wagon and the mule. In our common brick, where it is customary to dump from the wagon, the truck could not compete with the negro and the mule. Then we find that in most cases of residence construction, the contractor will insist on your delivering the brick, not on the sidewalk, but on the rear of the lot, so they can move them from the rear, and we found the truck could not move the loads over the soft dirt and debris, and we found we had to take the mules off the second wagon and haul in the first truck. However, in big office buildings, where we can make delivery in the front, and they shoot the brick from the basement to the top with elevators, the truck can compete. There has been so much claimed for the motor truck by virtue of its speed, which is not the question with an imperishable product like brick, where the manufacturer does not have to reach the market or lose his product. In this progressive day, with progressive Americans, and some of the best talent in the country being engaged in the automobile industry, I believe they will tackle the brick question and solve it, and we will abandon the negro and the mule.

Vice-President Rogers: We are very much obliged to Mr. Warner for this paper. It is very interesting and has thrown considerable light on the question. If he or his company gets a little free advertising out of it, he is more than welcome. If there is no further discussion we will pass on to the next number on the program, "The Pros and Cons of the Soft Mud Brick Business," the general discussion of which is to be led by Mr. Charles H. Bryan, of Detroit, Mich.

The Pros and Cons of the Soft Mud Brick Business.

Mr. Charles H. Bryan, Detroit, Mich.: Quite a discussion has been had on motors. The only one I am interested in is the one without a crank (holding up his right arm in splints). I had expected to speak extemporaneously—you know I am an orator—but owing to the severe pain I have been subjected to

on account of this broken arm, I have committed my thoughts to paper.

PROS AND CONS OF SOFT MUD PROCESS.

CHARLES H. BRYAN, DETROIT, MICH.

Mr. Chairmen and Gentlemen:

It seems to me that an unfair advantage has been taken of me by our ever zealous secretary through a suggestion I made to him on his recent visit to Detroit. While he was there, and in conversation with Mr. Clippert and myself, I ventured the opinion that soft mud brick manufacturers did not derive much benefit by attending the brick manufacturers' convention, drawing my conclusions from the last convention, which was held in Louisville, Ky., as during the whole of that session I did not hear one word spoken relative to the pros and cons, for or against, good, bad or indifferent, as to the soft mud process of brick making. While I understand and do not underestimate the relative good derived from these conventions by the manufacturers mingling with one another in a friendly manner, receiving and giving information which is of great value to one another, I still believe that attention should be given to all sorts and kinds of brick, both soft mud and other processes.

The suggestion that I made at the time above referred to, was that the soft mud brick manufacturers should be given a short time for the general discussion of the manufacturing of brick by this soft mud process, and that this session should be presided over by one who understands this process. Our up-to-date secretary and live wire at once said that he believed this was a good suggestion and, turning to Mr. Clippert, asked, "Whom have you in Detroit who could preside over this session?" adding, "You know it would not be fair to call on our friend Bryan, as he pulled down one of the plums at our last convention." And I therefore did not know that I was to lead in any discussion or be called upon for anything in this convention until I picked up the official program a few days ago and discovered my name as leading the discussion on "The Pros and Cons of the Soft Mud Process."

In my opinion, it would have been a great deal better if this discussion had been given to some one in this convention who has a larger acquaintance among the membership than I have. However, as I have been called upon to take charge of this matter, I will not shirk, as I have no doubt that there are many others here who are interested in this matter the same as I am. It is with considerable pride that we note the evolution of this soft mud brick process in Detroit. The rapid advancement made by the manufacturers of the soft mud brick has been wonderful in the past ten or twelve years, graduating from the open or sun-drying yards to the present up-to-date enclosed steam dryer, working their plants 300 days a year instead of working them but 100 days a year as formerly. I do not wish to be misunderstood, as we still have many open yards running in Detroit, and the company which I represent has three at the present time, with one large dryer having a capacity of 100,000 brick per day, and it is particularly of this plant that I wish to speak. Our clay is taken from a bank by a steam shovel, going to a depth of sixteen feet, and then carried on a hoist to the pugmills. We are using in this plant an extra pug mill, and in this particular point is perhaps the only point wherein we differ from similar dryers which may have come under your observation. Upon testing this clay before building our plant, we discovered that we had a very strong clay which would require and would make a considerably better brick with additional pugging. We therefore had placed in this plant one pug mill into which we first dump our clay, running it from there to a crusher or disintegrator, then to a second pug mill, and from there into the machine proper. This manner of working the clay has demonstrated to us conclusively that the extra pugging has made a marked improvement upon the brick at this plant. I might add that our steam dryer was equipped for us by the Bartlett-Snow Company, of Cleveland, Ohio, and it is very similar to the Martin process, which many of you know. I presume you are all familiar with the fact that the brick are conveyed to the dry room on cables and set off on the pipes to dry, which takes in the neighborhood of twelve hours. We have found this system very satisfactory and we are making a first-class brick. Our burning is done with oil in the old-fashioned way, that is, by kilns scooped and daubed with mud, commonly called Dutch kilns.

I now want to leave the practical end of the brick business at this point and refer to another matter, and I wish to impress upon you, also, that I am not the practical man of our company, my part of the business being what we call "the down-town end," that is, looking after sales and finances. And in this connection I want to present to you a matter which to me seems to be one part of the brick business or manufacturing that is apparently very often overlooked. It is this: In a city where three or more brick manufacturers are located, it does seem to me that we should get along in a more friendly spirit, helping each other by maintaining a uniform wage scale and a uniform price at a reasonable profit. We have found in Detroit, where we have some twenty-odd brick manufacturers, that we have had considerable labor trouble

in that men are continually being taken from one plant by another by a small inducement of from five to ten cents per day additional wage; and, very often, in fact quite often, we find that laborers tell us untruths as to the wages paid by our competitors, merely to induce us to advance their wages. We have the disease, now what is the remedy? I am a firm believer in the co-operative relations of the brick manufacturers, by meeting with each other in a friendly manner and talking over the situation in a business-like way. Now do not misunderstand me, gentlemen; I am not an advocate of organizations to boost the price of our material nor to exact from the public more than a reasonable profit which we are entitled to, but I do advocate organization for our own protection, especially in the labor end of it, and I maintain that we should at least have a local organization and work in harmony with one another. I hope the day is not far distant when a good-fellowship will spread among the brick manufacturers, not only nationally, but in our own locality, and that we will mingle with each other in such a manner that upon close observation each will find that the other is not possessed with hoofs and horns such as we are informed a certain being who reigns below is possessed of. This everlasting strife for riches has caused a great many men to lose their self-respect and their good-fellowship toward their fellow-men. What are great riches going to avail us in the end? With the money at our command, will we be able to bribe the oarsman who will convey us o'er the sobbing waves to undiscovered shores, while friends will be standing near, some cheering and some wailing, and some saying, "Now, look pleasant, please." I thoroughly believe that our hearts will find no comfort in our riches, but will find comfort that now and then in our journey through life we have helped some struggling pilgrim from the ditches and that we have always loved our fellow-men.



Charles H. Bryan, Detroit, Mich.

It may be that I have digressed in a small degree from the original text, but these matters have always appealed to me strongly and I felt that I could not lose this opportunity to express myself on them. While the original discussion is as to the pros and cons of the soft mud process, I will trust that these other matters which I have mentioned will also be given some consideration. Gentlemen, I thank you. (Applause.)

General Discussion.

Vice-President Rogers: We are indebted to Mr. Bryan for this paper. I am sure it has been very interesting. Inasmuch as Mr. George Clippert is among the successful manufacturers of soft mud brick, we would like to hear from him on this subject.

Mr. George H. Clippert, Detroit, Mich.: Mr. Chairman and Gentlemen of the Convention—Seeing that my name has been connected with that paper, I only get up to say a word. I knew the minute Mr. Bryan opened his mouth, when our secretary was in Detroit, that he was slated for a paper at this convention. If you want to keep out of trouble you don't want to talk too much to Secretary Randall. I do not know what I can say to add to this paper only this: I know it costs considerably more to install a brickmaking plant at this time than it did fifteen or twenty years ago, and unless you equip that plant right up to date with dryers and tracks and cars, and get the clay direct to the machine, you are not keeping up with the procession, and your competitor will get the best of you. Our way of making improvements is to have a man

travel around through the other States among the brickmakers and see what they are doing, and profit by their experiences. Of course, that costs a great deal of money, but we see what others are doing, and we go home and do the same thing, and sometimes find we are up against a stiff proposition. We have done that and spent considerable money, and then given our neighbors in Detroit the benefit of allowing them to come in and copy after our plant, and I want to invite every brickmaker in this room to come and visit our plant at any time. We will be glad to see him. (Applause.)

Maintaining Prices.

Mr. Wm. Conway: One of the most important features mentioned in the paper was where he spoke about prices. I think when brickmakers in a certain city or section organize and maintain a steady market price for their product, it is one of the best things to do. It is something we have quite a little trouble with in Philadelphia. I have taken quite an active part in it myself, and a number of the manufacturers there are thoroughly in accord with what we have done, but there are some of the price-cutters there. This spring they say the market is going to be dull, and about the first thing they do is to cut prices. Why a man should cut prices because he is going to sell less, I cannot understand. I think a steady price for any commodity in a community, especially brick, is a benefit, not only to the brickmaker, but to the builder. I have talked to the largest contractors in our city, and without exception they all say they want a steady price.



George H. Clippert, Detroit, Mich.

"What we want to know," he said, "is that we are buying our brick as cheap as the other fellow, and we don't care what the price is." I think a whole lot of work can be done along this line. Take people in other lines. They have sense enough to get a profit out of their business. You don't have to get prohibitive prices, but you should get enough that you can pay fair wages to your men and carry on your business in a proper way. (Applause.)

Mr. C. P. Mayer: I want to answer Mr. Conway. If he goes to fixing prices he will be indicted under the Sherman anti-trust law. (Laughter.) I know that, because I have had an experience. (Laughter.) I happen to be interested in the lumber business. We have fourteen secretaries, and our secretary—that is, the secretary of the association to which I belong—was indicted for operating in restraint of trade. Now, with your permission, I will give you a little incident, and it will only take me a few minutes. We were indicted for restraint of trade simply because we had, some years ago, an understanding with the wholesalers and manufacturers by which we adopted a rule of ethics. This rule of ethics provided that the wholesaler could sell to a railroad company or factory using lumber for manufacturing purposes or for crating purposes, or under the rule almost any concern whatsoever, that was accustomed to buy lumber in carload lots. But we also had an understanding that they should not sell to a contractor or for ordinary house or construction lines about the neighborhood. The wholesalers finally withdrew from

that, but the retailers maintained that rule of ethics. However, a complaint went in that we were in restraint of trade because we said that the wholesalers were violating that rule of ethics, and we would refrain from buying of them. Some of them wanted to sell to us a lot of lumber which we could lay on the yard and rot while they sold to our customers. So we withdrew the last of the year and we adopted a new rule, by which we issued an honorable list, as we called it, and on that list we only put the names of such wholesalers and contractors as treated us honorably, and they construed it under the Sherman anti-trust law as restraint of trade. Suppose a man comes along and sells that gentleman ten boxes of soap, and then he goes along and sells everybody else this soap at the same price. There is no sensible man and there is no law that says that man shall recognize or purchase from that concern, but when a community or three men get together and say we will not purchase this or that, it is restraint of trade, and that is the Sherman anti-trust law, and it doesn't catch the big fellow; it catches the little fellow, and if you go to fixing prices you will be up against it. I saw an opinion written by Ellis, the trust buster, and it came with authority that he was paid \$5,000 for the opinion, and he said a lot of things, because he had to write something for \$5,000, but when it was boiled down it meant this, that no three or more men can get together for the purpose of regulating or anything that advances the price or prevents one from selling where he pleases without being subject to indictment under that blame fool law. (Laughter.) It catches the little fellow, but the big fellow corrals a market and puts up the price where he pleases, and there are about 348 of them in this country and not a man in this convention can name fifty of them. What I want to say is this, that the fellow who can control either one of these commodities can hold up the price and does hold up the price and makes additional money for the purpose of fighting the government until doomsday. It took eight years to bring the beef men to book, but they would have had the little fellows in eight days. Now I am careful about these things, and I am not going to join any of the combinations to fix prices. (Laughter and applause.)

Mr. Conway: I have listened with a great deal of interest to what our friend Mayer has said, but I think it is wrong. We are not, so far as our city is concerned, going to restrain trade. When it comes to regulating prices, one of the best instances I know of is in the price of milk. Milk is 8 cents a quart and you cannot get milk for less, and the Milk Dealers' Association set the price, and they pay so much to farmers, and they all pay it. Take a loaf of bread. It is 5 cents a loaf everywhere. The price of hard coal is regulated by the miner. In September hard coal sells for a certain price, and the first day of November it sells for a quarter higher, and the first day of December for a quarter higher. It is regulated by the miners, the fellows who mine the coal, the operators. These are things that are going on all the time, and they are not done in restraint of trade; it is done to bring in a fair price. The miners themselves profit by it. When the price of coal is raised a quarter of a cent, the wages go up a little more. It is simply keeping the miner from starving to death. (Applause.)

Mr. Mayer: You are correct in what you say. I presume you have a combination in your city that fixes the price of milk and of bread; that's why the bread wagon comes around so often. (Laughter.) I assure you, Mr. Conway, that if the report gets to Attorney-General Wickersham—and when you say Wickersham you have to hold your mouth to one side to get it off right—if the reports go to him that you are going to fix prices, you can rest assured there will be an indictment.

Carroll Connett, St. Joseph, Mo.: It seems to me that Mr. Mayer did not get into trouble for fixing the price, but because of the dishonorable list or the blacklisting of certain parties.

Mr. Anthony Ittner, St. Louis, Mo.: He had an unfair list like Mr. Gompers. (Laughter.)

Mr. B. M. Hood: It seems to me that the age of monopoly has passed, so long as Mr. Wickersham is in the chair, especially. Brickmakers can organize and fix prices until they become influential enough to attract Mr. Wickersham's attention, and then there will be an indictment. The day of monopoly has passed until it becomes so big, and the day of cut-throat competition should also pass. The thing that should

be is co-operation. I heard Mr. Perkins elucidate that question before the Chamber of Commerce in Atlanta. He said the day of co-operation was already at hand. It seems to me that the brickmaker who has got his brick set up in the kiln—the necessity of payrolls staring him in the face—in order to create a demand for his burned brick can always find in the market a number of contractors who are the most experienced students of human nature, and they seem to be able to read the very mind of the manufacturer as to what balance he has in bank, and can tell him the price he must put on the brick in the kiln to be delivered on the contract which he has already signed by virtue of the fact that no other brick manufacturer has quoted a certain price. The brick manufacturer says, "I met competition." Human nature begins to be played upon, and the first thing out of that very trade grows an animosity. One brickmaker thinks he is being played upon by another until they become as wide apart as the pole that Mr. Cook was supposed to have discovered in the north is from the one the gentleman from England is supposed to have discovered in the south. The brickmakers get as far apart as the poles are apart. It seems that if there is anything in the teaching "love one another," not "do others before the others have an opportunity to do you," but "do unto others as you would have them do unto you," should be the practical foundation on which the whole brickmaking industry should rest, and we should not in our own local territory have such an animosity or such a desire to meet that payroll and begin to cut throats by virtue of necessity and cause this friction between brick manufacturers. There is something about the industry that it seems to me that every brick manufacturer should get together, shoulder to shoulder, and determine that the brick should not be sold below cost of manufacture and a reasonable profit for the amount of capital invested, etc. We ought to get together and stand together. Let us just build a pyramid out of cement and reinforce it with the railroad track. That was something the engineer said was staple and sufficiently satisfactory reinforcing. Let us determine here today that we will just build a pyramid of determination of the National Brick Manufacturers' Association to recognize each brother in the association as a brother, and when a proposition comes up before the city council that calls for building brick, the face brick people and the building brick people will boost for common brick, and when something comes up calling for paving brick, and the common brick manufacturer and the face brick manufacturer will boost for paving brick, and when there is a proposition for face brick, instead of talking for some other product, let the common brick manufacturer and the paving brick manufacturer boost for the face brick. (Applause.)

Vice-President Rogers: I was going to reply to Mr. Bryan, but I have **changed my** mind since Mr. Mayer spoke, and I will talk with Mr. Bryan down in the lobby. (Laughter.) If there is no further discussion on this subject we will pass on to the next.

Mr. Conway: I have a little resolution I would like to present: "In view of the valiant services rendered to the clay industry by THE CLAY-WORKER, Brick and Clay Record, the Dealers' Record and the Brick Builder, that the proceedings of this convention be given to these papers at the same time after they have been approved by the Executive Committee."

Vice-President Rogers: This resolution will go to the Committee on Resolutions, which President Bloomfield has appointed as follows. He has named a large committee of members from different parts of the country:

COMMITTEE ON RESOLUTIONS.

Warren D. deRosay, Corry, Pa.
Warren W. Ittner, Belleville, Ill.
Jay Terry, Kingston, N. Y.
S. R. Busey, Baltimore, Md.
Howard Frost, Los Angeles, Cal.
Spencer Duty, Cleveland, Ohio.
J. P. Cahoon, Salt Lake City, Utah.
C. A. Phillips, St. Paul, Minn.
L. A. Culver, Veedersburg, Ind.
Thos. Harwood, Gonzales, Texas.

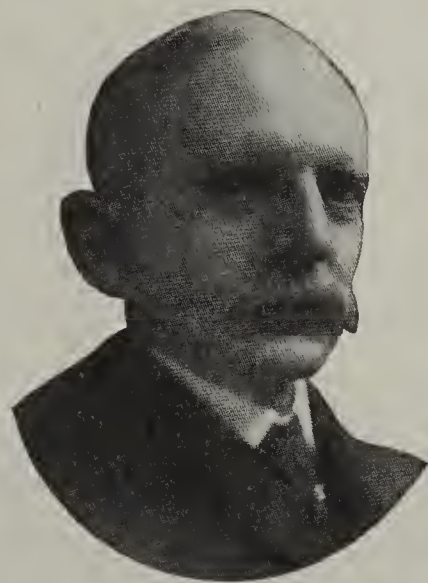
Secretary Randall: Those who are present can meet together this evening and formulate their plans. I think this

would be wise, as tomorrow is the last day, and there is usually quite a little work for the Resolutions Committee. If anyone has a resolution to go before the committee it would be well to send it in at this session. If the members of the committee desire they can get together at headquarters rooms any time they see fit.

A Suggestion for Local Publicity.

John Andres, Evansville, Ind.: The officers of the Building Brick Association had a meeting after the publicity meeting this morning and requested me to bring to your attention a proposition made at that time by Mr. McMichael, a newspaper man from Cleveland, Ohio, in which he recommended that each member present at this convention ought to, on his a good big time we have had here at the clay show and what a good big time we have had there at the clay show and what it means to the public. At the conclusion of his address a motion was made that we get up a little purse and get Mr. McMichael to write up such an interview and take it home with us and submit it to our newspapers, and those of us who are doing some advertising and realize the value of this publicity work said we would make up a purse and pay Mr. McMichael for this work. We put in \$1.00 each, and if any of you want to get in on this and will come up here after the session and put your name on this list you will secure one of these printed interviews to be given to your home paper.

Mr. M. E. Gregory: I have a resolution I would like to introduce.



Wm. Conway, Philadelphia, Pa.

"Whereas, Our rules of procedure are carefully laid out and fairly well understood; and,

"Whereas, Sudden or frequent changes would likely cause confusion and should have mature deliberation before being acted upon; therefore, be it

"Resolved, That any motion or resolution having for its purport the changing of our rules of procedure or altering our methods of procedure be not acted upon until at least one full day has elapsed after its introduction, and then only by a two-thirds vote."

I move the adoption of this resolution and would like to have immediate action on this resolution.

Mr. Bloomfield: I second the adoption of that resolution.

Mr. E. J. Kane: I would like to ask the mover of the resolution whether under that resolution if we made a motion, as we did yesterday, to suspend the rules and for the Secretary to cast the ballot for the unanimous choice of the convention, whether such a motion as that would have to lay on the table for a day?

Mr. Gregory: Not at all.

Mr. B. M. Hood: I would suggest that the resolution is so sweeping and carries out a proposition which would request anything contrary to that to require a day's consideration, that I suggest that this resolution require a day's consideration. I make a motion to amend the motion to adopt the resolution.

Mr. H. C. Penfield, Chicago, Ill.: Second the motion.

Vice-President Eben Rodgers: The question is now on the amendment.

Mr. C. Connett: Do our rules require all resolutions to go to the Committee on Resolutions?

Vice-President Rodgers: Unless otherwise requested.

Mr. C. P. Mayer: While I would support the original resolution, I would not support the amendment for the reason that the resolution, if I understand it right, is to just avoid a recurrence of what occurred yesterday. Now, if you are going to delay passing this resolution until it has laid over for twenty-four hours you will have a recurrence of what occurred yesterday, and I do not see any good reason for that. We have no rule at the present time that it shall lay over, and for that reason this amendment does not apply. Really it is immaterial whether it should be passed, only I would like to provide against snap judgment, which it seemed might have been taken. I believe we should vote down the amendment and pass the original resolution. Then after that any one that wanted to take snap judgment would have to give notice to the convention.

Mr. Gregory: This is simply a matter which I believe would be good judgment on the part of this convention. We cannot afford to be a party to or to do anything that would bring reproach on us as an association. Neither can we afford to have things done here quickly or hastily, and for that reason I have offered this resolution, for if anything comes up at any time in the way of changing the rules of procedure of this association, which has lived and grown for twenty-five



J. Fred Smith, Omaha, Neb.

years, and of which we are proud, we may have time for deliberation. Some one may come in here introducing a resolution that we, not giving it proper consideration, should vote for and afterward find we had made a great mistake. Let us go slow.

Mr. John T. Hummert: Wouldn't that bar a resolution the last day of the convention? We would have to set a time for all resolutions to be handed in.

Mr. W. H. H. Rogers: It seems to me the resolution is a good one and a just one for this association. It certainly protects its interests. No one is able to get snap judgment against it, and I should by all means like to see the resolution passed.

Vice-President Eben Rodgers then put the question on the amendment to the convention and the motion was lost. The motion on the adoption of the resolution was put to the convention by the Chairman and the motion carried.

Vice-President Rodgers: The resolution has been adopted. We will now take up the next on the program, the "Questions for General Discussion," and I will ask the Secretary to read the first.

Questions for General Discussion.

Secretary Randall: The first question reads, "What is the relative economy and efficiency compared with first cost of a soft mud, stiff mud and dry press brick plant of 50,000 per day capacity?" This question came to me from a gentleman

who has been in the business, but is thinking of building a new plant, and he wants to know what process to adopt for his new plant. He wants to know by which process he can make brick the cheapest.

Mr. J. H. Mead, Warners, N. Y.: I do not know of any person in the room more competent to speak on that question than Mr. Eisenhart, who has used both and is now using both ways of making brick, and it seems to me he could give the gentleman the information he wants.

Mr. J. Fred Smith: I would suggest that the gentleman take a three years' schooling in each of the plants—soft mud, stiff mud and dry press—and then go into the business. That is my experience. (Laughter and applause.)

Mr. A. J. Kautz, Chicago, Ill.: I would suggest before the gentleman goes into the brick business that he find what process his clay is best adapted for, if he wants to make a success.

Mr. R. G. Eisenhart: If I understand the gentleman's question, he wants to know the cost of the plant. I should say the first important thing for him to do is to find out what his material is best suited for, just as the gentleman has said; whether for the soft mud, stiff mud or the dry press; and until he has solved that problem he had better keep out of the brick business.

Comparative Cost of Soft Mud, Stiff Mud and Dry Press Brick Plants.

Mr. John T. Hummert: It seems to me that the gentleman wants a little more information than has been given him, otherwise he would not ask the question. I think he ought to be given all the knowledge we have in this respect. I have made under the different processes, started to make by hand, have made soft mud, stiff mud, dry press, and it depends first upon the market that he has. If he has a limited market and a small plant, why it don't pay him to put in any expensive machinery, and therefore a soft mud machine would be the cheapest; with a capital invested of about \$3,000 he can put up a soft mud plant that will make a million brick a year. The next question is in regard to the clay. If he has a surface clay it is better for the soft mud machine, as it is better adapted to that than to the stiff mud machine. If he has a gummy clay, then a stiff mud machine would be the most profitable, although it would take a larger investment. A small stiff mud plant would require a capital of \$25,000. That is the minimum for a small yard. If he wants to go into the dry press brick business he must also have a suitable clay in order to do that, and if his market is only good for 5,000,000 brick a year, it would require a capital of about \$40,000. That is what I have invested in different plants, and I think that is the point the man wants to get at. It depends on the clay and the market. One clay is adapted for the soft mud process, and I know of plants where they have put in stiff mud machinery and the machine man guaranteed to make stiff mud brick out of that clay shipped to the factory, and the sample of brick they sent back to him was fine, and when they put the machine in the clay would not work by the stiff mud process. Now, about the dry press process. I have often made this remark, if you have got it in for a fellow and want to get even with him, and he has got any money, just put it into his mind to go into the dry press brick business, and you will get even. (Applause.)

James B. Oberly, Wilmington, Del.: The gentleman who sent in that question is before you. (Applause.) He is not an infant in the business. I have been in the business twenty-seven years, and I have been fairly successful, manufacturing with the soft mud process. I am starting a new plant in our city of Wilmington, Del., and I have been thinking of adopting another system. I have had my clays tested and I have not received it yet. I just got out of a railroad wreck on my way back from the Pacific coast. I would like to know the difference of the cost and relative difference in the business in the different methods of making brick. I understand from my son, who has just come from home, that the clay is best adapted to the soft mud system. We have had our clays tested by the soft mud process and we find that is best, though I thought we might be able to use the stiff mud process. But I am going to use the soft mud. I have been in business, as I have said, twenty-seven years, making 20,000 brick a day on a Martin machine. We make the brick in the afternoon and set them the next morning. We have made about 5,000,000 brick this season. We have a Martin dryer and I would like to put in another brickmaking outfit of about 12,000,000 to 15,000,000 capacity. As to burning, I am using an old Dutch

kiln and get a certain per cent. of hard brick. I would like to get some smokeless kiln where I can burn a large per cent. of good brick. I have been very successful, but we would like to adopt some other system of burning. We have decided, however, to stay with the soft mud system.

Mr. Eisenhart: Inasmuch as our friend has been in the business twenty-seven years and has made a success of it, I would advise him to stay with it. (Laughter and applause.)

Mr. Anthony Ittner: This carries me back in the history of the association some years. When the convention met in Philadelphia some twenty years or more ago, the question was in regard to material, and it was suggested that any material you intended to operate with should be thoroughly investigated. This was before the vitrified paving brick manufacturers had an association of their own, and I warned them specially that the most important thing for them to take into consideration in that connection was to be sure they had the proper kind of shale, and that they should not be satisfied with one test, that they wanted both a practical and a scientific test, and they wanted them from half a dozen different firms. On that occasion there was a man from our own city, a man who had not been in the business very long, and he made the assertion that by certain manipulations of certain building brick clays he could make a vitrified street paving brick that would be equal to the best vitrified shale paving brick made out of shale. Of course, he being from my city, I felt it was incumbent upon me to get up and say something on that subject, for remaining silent I might be considered as giving consent. And I told the convention that I had to differ with my colleague, and I think the language I used was about this: that I thought it would be as impossible to make a vitrified street paving brick by any manipulation of common building brick clays as it would be to make a silk purse out of a sow's ear." (Applause.)

Sand-Lime Brick.

Vice-President Rodgers: If there is no further discussion on this question, we will pass to the next, No. 7 on the program, "Have sand-lime brick proven a success in the United States?"

Mr. Ittner: So far as our city is concerned, they have not.

Mr. Mayer: A friend of mine in Washington put about \$28,000 in one as a part of the capital and never got a cent out of it, and the plant is not running either.

Mr. Ittner: I might say still further that this same discussion came up some ten or twelve years ago, and there was a man selling the system for making those brick, and he said they were going to run us clay brickmakers out of business, they could make sand-lime brick for \$2.50 a thousand, or something like that, and I answered that party that if his prediction proved true I did not see any rule that would prevent us all from dropping our line of business and going into the sand-lime brick business.

Mr. Bloomfield: They built a plant in New Jersey costing \$150,000, and the plant is now out of commission, and the poor devils who put their money in it lost every cent.

Mr. L. E. Stephenson, Birmingham, Ala.: There are people in the same fix in Birmingham, where they built a big plant and never made a cent.

Vice-President Rodgers: The whole country is dotted with plants like that, although there are some few successful plants in the country. We will pass on to No. 8, "A cost system for common brick plants." I think the records of our clay journals and of the proceedings of our previous conventions will give the gentleman who is looking for a cost system a lot of good information. The next is No. 9, "Does the selling end of the business receive the attention it should?" Mr. Hood, of Atlanta, will lead the discussion on that.

The Selling End of the Brick Business.

Mr. B. M. Hood, Atlanta, Ga.: In the last three years there has been a very keen awakening or a renaissance in the sales department, and every manufacturer who has been in the business twenty-five years will agree with me. There are two sides to the brick business—the manufacturing side and the sales side. That manufacturer who, with one manager or superintendent, expects that superintendent to make a success of the sales side and the manufacturing side makes a mistake. The superintendent of the manufacturing side must devote all of his time to the manufacturing of the daily out-

put. The manager of the sales side must devote his time to the sales of the brick. Not only do we ship nowadays to a radius of fifty miles, but to thousands of miles, so the sales end of the business is as important as the manufacturing. Then comes the side of publicity and advertising brick, for after you have attracted the attention or created the desire for the brick, then there must come in the man who must directly consummate the sale. The person selling these brick, or the person putting brick in the pavement is just occupying an opposite position to the anarchist, who is destructive in everything he does, because every brick that goes into a building or a street is building up, is constructive. Every man in the manufacturing and sales side of the brick business can feel he is in a business that is constructive, and he must feel proud of the fact that he is a producer, for he is taking ten cents' worth of dirt and by means of proper machinery and proper methods of drying and burning, creating a constructive material worth many times that. Gentlemen, the brick business of today is just reaching a new plane. If I did not believe that I would not have entered it four years ago. I have tried to apply to the brick business all of the ideals that I abandoned when my professor told me by virtue of loss of my health that I could not pursue scholastic work. I have tried to apply to the brick business these basic principles of success such as you would apply in a professional career. I believe there is a glorious future for the brick business. We must put the same enthusiasm behind brick as has been put behind concrete construction, for we know they



Anthony Ittner, St. Louis, Mo.

overstepped the mark and got into types of construction they were not justified to enter, and it will take them years to overcome their mistakes. We need have no fear in putting up our good, impervious brick that will push its face to the forefront and say, "There is nature's best building product." We need not be ashamed of our business; we need not be ashamed of our work. When you can take ten cents' worth of clay and convert it into \$20.00 worth of product, that is genius. In our Southland that eclipses anything we have done in the last century. Harness up the best enterprising young salesman you can get hold of and put him to work. (Applause.)

Vice-President Rodgers: We will be glad to hear from any one else who desires to discuss this question.

Mr. John J. Andres: It seems to me, Mr. President, that in view of the fact that the National Brick Manufacturers' Association has now an auxiliary association termed the Building Brick Association, which has been organized especially for the purpose of giving publicity and promoting the sale of brick, that this is a department that we ought to give our support to, and our enthusiastic support, in order to push forward the selling end of our business. I was surprised when I heard this morning that only a fraction of the members of the N. B. M. A. belong to this auxiliary association, created for the purpose of boosting the selling end of our business. I do not see how any member can afford to stay out. If you cannot see where you are going to get your

money back, join anyway; you throw away twice the price of the dues on many another proposition. I have just this to say, try it and find out. I would recommend that you give the Building Brick Association your support and thereby boost the selling end of your business. (Applause.)

Vice-President Rodgers: I want to add a word to what Mr. Andres has said. The proposition he has put up to you is a very worthy one, and every possible bit of publicity that you can get before the people is going to help the brick market, and whatever helps the brick market helps every one of you. I hope you will support the B. B. A. in every way you can in what it is trying to do.

Secretary Randall: Before we adjourn I want to say that tomorrow is our closing day. The banquet occurs tomorrow night. Quite a number of the members have said that they wanted banquet tickets, but would get them later, and you will save confusion and trouble if you will get them now. Very frequently after I get into my "glad rags" and get my family headed toward the banquet hall, some one comes rushing up for banquet tickets. The price will be just the same tomorrow as now. There is no reduction at all. (Laughter.) The seating capacity of the hall is limited, and you had better get your tickets now.

Mr. R. C. Penfield: I wanted to speak of the banquet and also of the opening of the Clay Products Show tonight. A good many of you may be gone tomorrow and I wish before you depart you would see the clay show.



L. E. Stephenson, Birmingham, Ala.

Secretary Randall: I do not suppose there is a single delegate or visitor but appreciates the benefits that will accrue from a visit to the Clay Products Show, and I presume every member who has come to attend this convention will be at the clay show tonight, and those of you who have not been out to the Coliseum will see what you never expected to see in burnt clay. You cannot imagine how beautiful it is. President Taft will not open the exposition, but he will be there as a guest Saturday morning. I presume they have a program for tonight. We will see such an exhibition of brick as none of us have ever seen before, and I doubt if it is surpassed in the future.

Mr. Bloomfield: I move we adjourn until tomorrow morning.

Seconded and carried.

THIRD SESSION.

Friday Morning, March 8, 1912.

Chairman Bloomfield: The convention will please come to order. The secretary has something he wants to say to you.

Secretary Randall: We have with us this morning, Mr. Long, of St. Louis, who desires a moment or two on a proposition which he thinks is of interest to the brickmaking fraternity. He has a paper, but we have not time to hear it, but I thought while we were waiting for one of the men who

is to appear on the program this morning that we could put in the time listening to Mr. Long.

Insurance for Brickmakers.

Mr. Breckenridge Long, St. Louis: Mr. President and gentlemen of the convention, the proposition that I had desired to take up with you is the question of reciprocal or inter-insurance. The idea is to get a number of the members of your organization and have them pay their premiums to one man whom you will select, and let that man carry on the business for you, and whatever profit there accrues from the underwriting will be paid back to you in dividends. It is not a new idea, it has been tried a number of years; in fact, started as long ago as 1881, when there was formed one of these organizations in the city of New York, and has been operating ever since. Since then a number of these organizations have been formed among concerns in the general kind of business that have no outside writing of insurance at all. The idea seems to be feasible among your members, and with the idea of getting some general statistics on the subject, some circulars and letters were sent out requesting information from some of your members. About fifty-five replies have been received, but only about thirty-five were pertinent, because thirty-five carried insurance, or filled in the replies sufficiently to permit of accurate deductions. Of that number these gentlemen have paid out in the last few years the sum of \$179,000.00 in premiums and have received from that sum in losses by fire only \$26,000.00, so there has been a profit accruing to the insurance companies in the neighborhood of \$150,000.00. The idea of this organization is to keep that profit amongst your members, pay the cost of your carrying insurance into this general insurance organization. Thirty-five per cent. of your premium would probably cover all the cost of carrying the insurance. The idea is that this will cover all the expense, about 20 per cent. for the losses, making not over 50 per cent. or 60 per cent. all told, and the balance would be returned to you. It is really a very practical and very feasible proposition. It is a coming question which assures to you a satisfactory indemnity against loss by fire at actual cost. I haven't time, I am sorry to say, to go further into this paper, but I have promised a number that I would present it personally by letter after you have returned to your homes, and our firm will take great pleasure in aiding you. I trust the matter will receive considerate attention. (Applause.)

President Bloomfield: There is a gentleman here from North Carolina who would like to address the convention for a few moments, and we have limited his time to five minutes, and if he will come forward now we will listen to him.

Mr. J. Hampton Rich, Winston-Salem, N. C.: I am glad to have this opportunity to talk to you about a little matter in which I am interested and about which I talked to the Wisconsin people yesterday. When I was in the Canal Zone for about seven weeks doing newspaper duty I found out some things that the casual observer would not find out. I found out that there would be incident with the opening of the canal an opportunity for a permanent exhibit of American goods. I came back and spoke to Mr. J. Barrett, Commissioner, about it and he gave it his approval, in just a few words, which will be published later on. You will wonder how in the world a clay products man can be interested in this matter. We heard yesterday in this room a paper on how the press agent can be of use to the brick-makers. The Panama canal has been a great opportunity for the cement users. Now if we can fill a great hall full of exhibits of clay products all of the newspapers will comment on it and carry the news all over the world. I have here a little resolution I have written in regard to this which I would like to have referred to your committee on resolutions.

"Resolved, That we as the National Brick Manufacturers' Association favor the placing of an exhibit hall and permanent exhibit on the Panama canal, to be opened at the opening of the canal to the nations of the world. The object of the exhibit hall to be the exploitation of the merchandise and manufactures of the United States to South America and the world."



General View of the International Clay Products Exposition, at the Coliseum, Chicago, March 7 to 12, 1912
The Display of the Chicago Face Brick Association in the Foreground



CLAY PRODUCTS SHOW
COLISEUM CHICAGO
MARCH 7-12-1912

MACOMB
SEWER PIPE CO.

W.S. DICKEY

BLACK & POST PIPE CO.

Kentmoss Werner & Paddy
Chicago
12-618-5

CLAY WORKER

General View of the International Clay Products Exposition, Coliseum, March 7 to 12, 1912
The Brick Bungalow in the Background

President Bloomfield: This resolution will be referred to the committee on resolutions. Gentlemen, the regular order of business will be carried out for the rest of the day without any deviation whatever. No member will be allowed to speak more than five minutes without the unanimous consent of the convention, agreeable to the usual rule of the convention. I will ask the secretary to announce the first thing on the program.

Secretary Randall: The first number of the program this morning is No. 13, "Back to Brick," by John B. Rose, of Roseton, N. Y. He was supposed to get in this morning with a large New York delegation, but he has not yet reported. Mr. Stull, whose paper is next in order, is not quite ready, so we will take up the next, "Steam and Electric Power for the Operation of Brick Yards," by Mr. Louis Campbell, of Grand Forks, N. D. Mr. Campbell is not here, but he has sent his paper to be read for him.

STEAM AND ELECTRIC POWER FOR THE OPERATION OF BRICK YARDS.

BY LOUIS CAMPBELL, GRAND FORKS, N. D.

Mr. President and Gentlemen of the Convention:

The item of power is something that must be considered by every brick manufacturer, and is one of the first things to receive his attention in the construction of his plant.

In many of the brick plants of our country there is no choice between steam and electricity, due to the fact that electricity is not available, but a large majority of them can have either, and for the majority so situated they must consider the following items before they can intelligently decide which is the better power for them to install:

First. If a steam dryer is to be operated it would seem that steam power should be used to operate the machine.

Second. If the steam dryer is not to be operated, what will be the cost of fuel per cord of wood or per ton of coal, and what kind?

Third. If electric power is used, what will the current cost per kilowatt delivered at the motor, and is the motor a direct or alternating current?

Fourth. What is the average life of the steam plant compared with that of the electric motor, or what is the comparative rate of depreciation to be charged off each year on the two plants?

Fifth. Is there to be more than one machine operated with the one power plant?

I will answer these questions in the same rotation, eliminating the first, as it would certainly seem wise to install the steam power if a steam dryer is to be used, considering the plant to have a capacity of fifty to one hundred thousand per day.

Second. The cost of fuel. One cord of poplar wood at \$2.60 per cord that has not been cut over one year is equal to one ton of Eastern soft coal at \$5.50 per ton delivered at the plant, and from tests we have made the Eastern soft coal, figuring from a cost per thousand basis, is cheaper than the North Dakota, Iowa or Illinois coal, so it is not always the cheapest coal per ton that is the cheapest per thousand brick.

Third. If electric power is used, etc. The company I represent has used both direct and alternating current motors and our experience has been that the direct current motor did not give as good service as the alternating, due to the loss in the transmission of the current and the burning of the brushes and requiring more attention and repairs than the alternating. The only objection we have found with the alternating current motor is the regulating of the speed. The motors are built to run a certain speed and the only way you can regulate the speed on your brick machine is to change the size of your pulley.

The cost of the current, not taking into consideration the item of depreciation, and to operate a single machine having a capacity of forty to fifty thousand per day, and figuring fuel at the above basis and your engineer at \$3.00 per day, water, oil and waste at 60c, electric current at 3 1-2c per kilowatt would equal the steam plant in cost per thousand brick.

Fourth. A comparative rate of depreciation to be charged off each year on steam and electric power is practically the same. We have a Buckeye engine at our plant that has been in use for twenty-four years and is practically as good today as it was twenty years ago. The rate to be charged off on a good engine that has good care should not be over 3 per cent. so long as it has the capacity to do your work, but the rate on a boiler should be from 10 per cent. to 15 per cent., while for the electric motor prominent engineers advise 10 per cent. on electric machines. One of the reasons being the rapid changes and improvements in all lines of electric machinery.

The cost to install the two plants, from our experience, has been \$20.00 per horse power for electricity and \$25.00 to \$27.00 per horse power for steam.

Fifth. Is there to be more than one machine operated with the one power plant?

If there is I can best answer this by quoting the figures from our own plant, and which are as follows:

Cost of power: Yard No. 3, operated with a 35-horse power alternating current motor:

Average horse power, 33.

No. hours run, 607, at 3 cents per kilowatt, \$627.80.

Average cost per hour for power, \$1.03 1-10.

Average cost per thousand for power, 21 37-100c.

Cost per hour per horse power, 3 13-100c.

No. brick made per day, 48,466.

I would call attention to the item of cost, there being only one item, the cost of the current—50 cents worth of oil will run an alternating current motor for two or three years. There have been no repairs on this motor and it has given us absolutely no trouble.

Cost of power: Yards Nos. 1 and 2, operated by a 75-horse power Buckeye engine and high pressure boiler:

Water consumed for season, 190,483 gallons.....\$ 28.05

Wood, 12 5-18 cords..... 47.97

Coal, 161,706 pounds..... 456.82

Engineer, 74 days at \$3.96 per day..... 293.04

Oil and waste 19.80

Total cost\$845.68

Average cost per hour for power, \$1.23 5-10.

Average cost per thousand for power, 12 7-10c, against 21 37-100c for electric power.

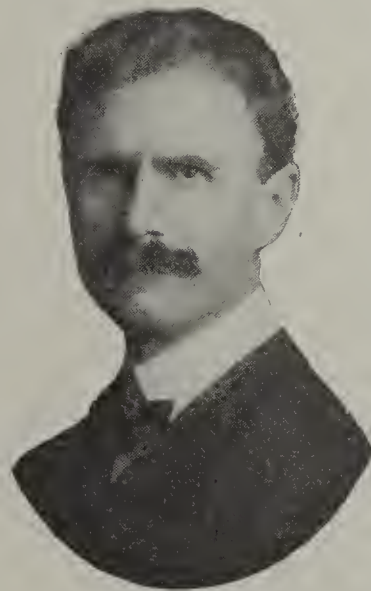
Coal, per horse power per hour, 3 8-10 pounds.

Water, per pound of coal, 1 6-100 gallons.

Cost per hour per horse power, 1 8-10c.

Average brick made per day of ten hours on two machines, 97,685, or 48,843 on each machine.

In conclusion I would say that there is no set rule that can be applied to all brick plants. The principal question to decide is



John Andres, Evansville, Ind.

what the cost of the current will be compared with the cost of fuel for the steam plant. Personally, if I were going to operate only one machine I would use a motor, but if I could operate two machines with the one power plant, steam, in my judgment, is very much the cheaper. (Applause.)

General Discussion.

Secretary Randall: Mr. Fergus is present and wishes to talk on this paper.

Mr. Fergus: I notice that the gentleman states in the paper that with a flat rate of three and one-half cents it is cheaper to buy power than to make it. I am in the power business more than the brick business and I have never found any price per kilowatt hour to apply to plants of all kinds. You have to take the price of operating the entire plant. Perhaps in a steam plant the power costs less because you use the exhaust from the boiler. I had occasion in the last month to go over a certain plant in this state making brick and find out whether they had better buy power or fix up their plant and make it, and I found two cents was the figure at which the central station would have to sell power. This large plant would probably figure up three and a half cents. The gentleman also states that the alternating current motor was much more satisfactory than the direct current. I do not see how he figures that out. There would not be brush trouble if he has back motors. I think his figures a little high, and probably apply only to one plant, and is not as general as the paper indicated.

Mr. R. G. Eisenhart: Is it not a fact that none of the electric companies make a flat rate.

Mr. Fergus: Some of them do and others do not. Brick plants are not always near the big central stations and some of the little stations are so hungry for day loads that they make a rate that the big stations would not.

Mr. Eisenhart: I would like to hear from my friend, Cahoon, from Salt Lake City, in regard to this electric proposition.

Mr. John P. Cahoon, Salt Lake City: We have had experience in steam power and with electric power. We find that the electric power is much cheaper and far easier handled and better for us in every way. We are operating a plant probably more favorably with electricity than most anyone here. We pay one cent per kilowatt hour for our power and I do not think it costs to exceed possibly more than one-half or one-third what the steam used to cost us. We are operating our entire plant with individual motors. We have a motor for all of the different presses, and our pug mill for the stiff mud brick is operated by a motor and another motor for the auger machine. Then we run our disintegrator by individual motor. We find it far superior to the steam power, both in convenience to handle and economy.

Mr. Eisenhart: How do you get your power so cheap?

Mr. Cahoon: We have water power coming down from the mountains. (Laughter.)

Mr. Fergus: One thing in that paper I do not believe



W. C. Denison, Cleveland, Ohio.

is right, the depreciation figures are not high enough. Because he has an engine for twenty-five years it does not justify such a depreciation.

Mr. Eben Rodgers: One point in favor of electric power is its flexibility, being able to carry your power, set your machines at any place most convenient and carry the power to any part of the plant. We have extended our plant in all directions, and were carrying rope drives and all kinds of transmission, and the load loss from shafting and idle pulleys, and such as that, was tremendous. All of that is saved in electric power, and in a modern plant with continuous kilns and fans it is not practical to carry the steam so far to run the engines and drive the fans, and you can carry the electricity with much less loss. We use the direct current entirely, although they have made tremendous improvement in the alternating current in the last few years. Our power, as near as we can figure, costs us about three-fourths of a cent at the switchboard. We make our own power.

Secretary Randall: I would like to interrupt this discussion for a moment to introduce the worthy secretary of the Illinois Clayworkers' Association, Mr. A. E. Huckins, who desires to make an announcement in regard to their convention this afternoon.

Mr. A. E. Huckins, Champaign, Ill.: Gentlemen—The Illinois clayworkers will start their convention this afternoon at 2:30 o'clock: The secretary's office is open now

and we will be glad to have any of you register and pay your dues or become members of the association. (Applause.)

Mr. R. T. Stull, of Champaign, Ill., read a very instructive paper entitled, "Points on the Construction and Operation of the Lubricating Die," which was illustrated by stereopticon views. The latter were not furnished us in time for reproduction in this issue, so the paper will be held for subsequent issue, when the illustrations can be included.

Secretary Randall: As the lantern operator is here, and as Mr. W. C. Denison, of Cleveland, who is to present a paper at the afternoon session, entitled "Let Go That Which Is Good When You Find Something Better," which is to be illustrated, is present now and has appointments which may prevent him being with us, I would suggest that we hear his paper now.

Mr. W. C. Denison, Cleveland, Ohio: Mr. President—I think it is always wise to follow precedent and it seems to be precedent here to tell how hard our dear Randall had to work to get us to write a paper, therefore I will follow suit, and will say that when I applied to Mr. Randall to let me write a paper and read it he told me he had received applications ahead of me from nearly all of the other members of the association to read papers, and he did not know whether he could get me on or not, so I desire to thank him for his successful efforts on my behalf. (Laughter.)

LET GO THAT WHICH IS GOOD WHEN YOU FIND SOMETHING BETTER.

W. C. DENISON CLEVELAND.

Mr. President and Gentlemen of the Convention:

I appreciate the fact that if the paper I am about to read on the subject of the use of hollow tiles in load-bearing wall construction were intended to be discouraging to the manufacturer of solid brick, it should have no hearing in this convention. My intention, however, is the very opposite. And even though I shall attempt to show that the use of hollow tile as a building material is just in its infancy, and that on account of its merits, on account of the facts as I believe them to be, that the interests of the building public is going to be best served by the substitution of hollow tile in place of a very large percentage of common brick, I want to advocate the manufacture of these hollow tile *by the brickmaker*. These are the very best reasons in the world why he should get into the game and make good money along with the tilemakers.

I have been making tile for about twenty-five years; load-bearing tiles for about three years. I have built the walls and loaded them with pig-iron; built buildings of tile and tried to destroy them with fire; then loaded them with pig-iron after the fire; tested hundreds of tiles for compressive strength; watched the construction of tile buildings in many cities; consulted hundreds of architects and builders in the United States and Canada, and I want to say to you that as sure as day follows night, just as soon as the manufacturers of clay products supply a sufficient quantity of properly made tile, and the public finds out their advantages, they will displace fifty per cent or more of common brick construction, and practically all frame construction. Fifty millions of common brick have been displaced in Cleveland by tile during the past year, and the load-bearing tile industry only about three years old. The brickmakers are beginning to see the signs of the times.

One concern in Cleveland has been making common brick for thirty years, selling about twenty millions a year. Two years ago they built a tile plant, and now, in addition to selling their twenty millions of common brick, are selling almost the same equivalent in hollow tile, and their tile business is the lucrative end of their industry.

Before proceeding with the real matter of my paper, "The Use of Hollow Tile in Load-bearing Wall Construction," I desire to highly commend and compliment the efforts of the Building Brick Association of America in their warfare against wood construction. It goes without saying with this audience, posted upon this subject as it is, that wood construction is not only a waste of money but also dangerous to life on account of its inflammable nature. It also lacks the very fundamental elements of beauty in building construction, owing to its lack of stability and endurance.

In order to wage the best warfare against wood construction, we should have the very best and latest weapons, and I believe hollow tile associated with common brick are those weapons. The brickmaker and the tilemaker must work shoulder to shoulder against the common enemy, the tens of thousands of frame buildings that are being erected annually, to the end that each may greatly increase his business and profits.

I desire now to make as strong an argument as I am able, in this brief paper, in behalf of tile construction, in order, if possible, to induce the brickmaker to add tile to his output and that all those of the burned clay building material industry work hand in hand.

Timber is becoming scarce, but there is clay enough to cover the entire earth's surface with skyscrapers. The manufacture of

load-bearing wall tile is, you might say, a brand new industry, but one that has come to stay.

We will show a few buildings in which load-bearing tile are used in their exterior walls.

PICTURES.

I wish to call attention to the architects of these buildings, all of them master builders: Barnum, of Cleveland, the great school architect; W. P. Ginther, of Akron, Ohio; Clinton & Russell, New York; Murphy Brothers, Louisville, Ky.; Edward Pearce Casey, New York; Charles S. Palmer, Connecticut; George B. Post & Sons, New York, some of the best and most favorably known architects in America. Why did these architects adopt tile construction for these buildings? To my certain knowledge they most thoroughly investigated this subject. Why do the several contracting firms who built these buildings heartily approve this use of tile? Why in these buildings were over seven millions of common brick displaced by tile? Were good common brick, at reasonable prices, scarce? The answer is better walls for less money.

The laying-up cost of the tile wall is only about half that of the common brick wall. It requires scarcely one-fifth as much mortar and, on account of its being honey-combed with dead air spaces, is nonconductive of heat, sound and moisture. Non-conductivity is the biggest word in the hollow tile vocabulary. It means a dry building, warm in winter and cool in summer. But

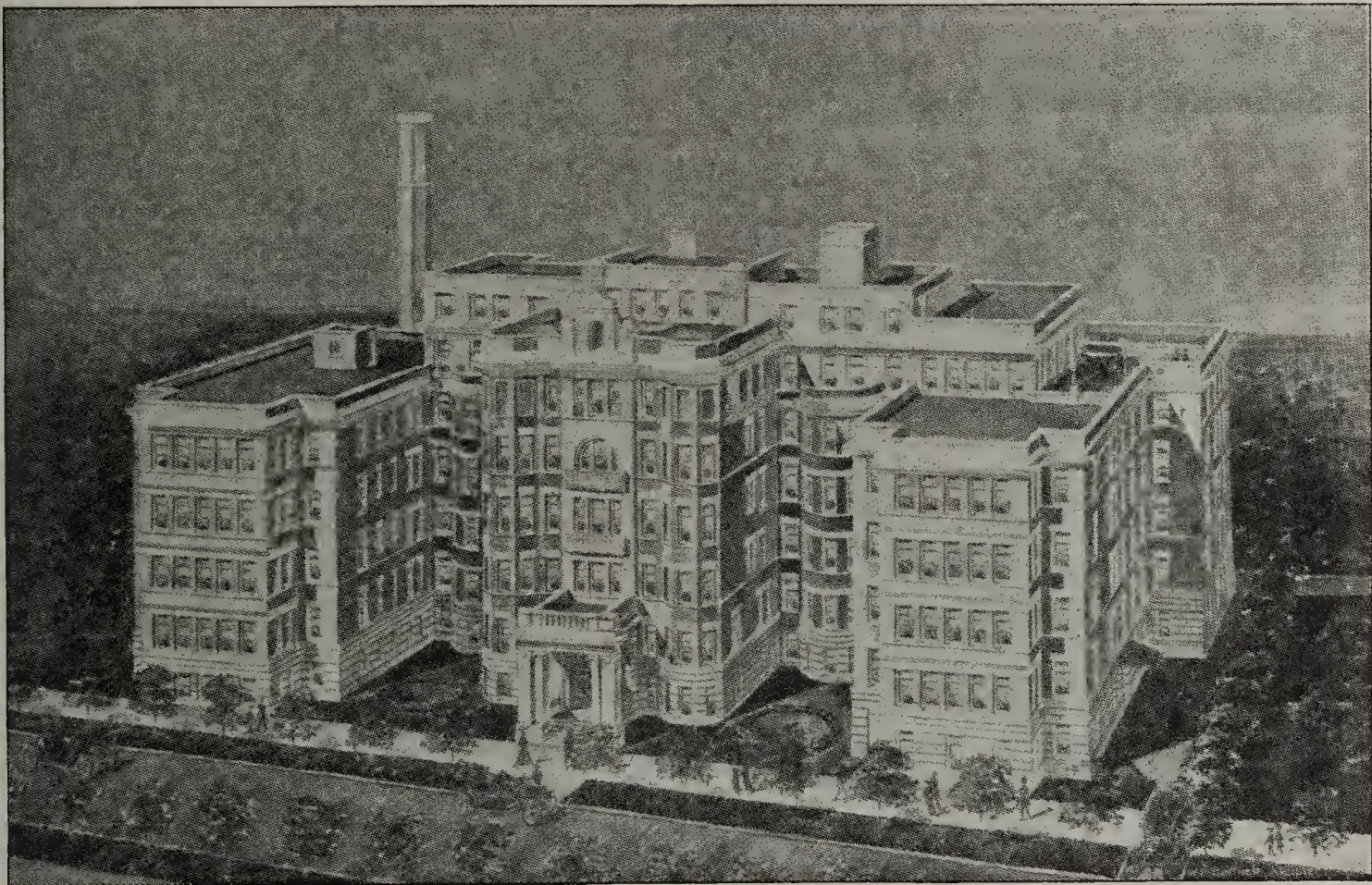
The cost in Cleveland of good frame construction is practically the same as tile; hardly ever \$100 difference in a residence.

Is there money in manufacturing tile? Their cost varies, of course, in different parts of the country, owing to variation in cost of fuel, labor, etc., but take, for instance, the middle west; the cost of tile, manufacturing and selling, ranges from \$2.00 to \$3.50 per ton. (One of Ohio's largest tile plants sells tile at its plant at \$2.75 per ton.) But take \$2.75 per ton as an average cost in the middle west—I am very sure that is high—and reduce that to a common brick basis; according to wall measurement it would put the cost of tile, as compared with common brick, at about \$3.60 per thousand. I leave it to brickmakers to say what common brick cost. The tile need not be sold lower than common brick nor, in fact, as low, since the laying-up cost is only about one-half, beside the non-conductive advantages. The manufacturers of tile are already becoming alive to this bearing wall tile proposition, and also some of the common brick manufacturers.

Let the brickmakers add tile plants to their equipment.

For low cost of production, however, tile plants should be well and carefully built, and much care should be given to the shape of the tile manufactured.

I desire to call attention to a very valuable article upon the subject of load-bearing wall tile contributed to the "Engineering News" by Mr. Virgil Marani, building inspector for the city of Cleveland.



Mount Saint Mary's Hospital, Niagara Falls, N. Y. 400,000 Denison Tile Required for this Building.

I am asked as to strength. Three years ago we tested a tile. It was equivalent to six common brick, but only weighed one-half as much. It was an ordinary medium burned tile. Webs and shells, five-eighths to three-fourths inch thick; voids running horizontally; area of top surface, two-thirds of a foot. It withstood, without fracture, a load of 8.8 tons, or 132 tons per square foot. Other more recent tests have been up in that neighborhood. Perhaps all tile will not stand so much, but if they will stand one-twenty-sixth part of that amount you can use them to build a twelve-story wall bearing building. Tile are strong enough.

I want to speak of the saving effected by the use of tile in the cost of one of the buildings shown, the Statler Hotel building. A saving of fifty pounds per foot in wall loads permitted a saving of 150 tons of steel at \$45 per ton, or \$6,750; 122,683 square feet of furring saved, because hollow tile walls require no furring, \$13,495; saving in mortar and laying-up cost, \$4,875, making a total saving by use of tile of \$25,120.

I have not time to go into the tile residence proposition, great as that field is. I will simply say, however, that residences built of hollow tile, either stuccoed on their exterior or faced with brick, are being built by the hundreds throughout the east, not only of the modest type but also those that are elaborate and expensive. The home builder easily sees the advantages. Where he had intended to build of frame, we advise him to take bids on both frame and tile, and in every such instance, so far, he has built of tile.

This article I understand will also appear in the clay journals.

In conclusion I want to leave this statement with you, that a given amount of clay made into hollow tile will build as much wall, of better quality, as double that amount of clay made into common brick. (Applause.)

General Discussion.

President Bloomfield: We have heard a very interesting address and if I may be permitted I would like to say a few words on this subject myself. It is not every brick clay that will make tile. To make a tile with a great deal of tensile strength you have got to have a strong clay. I know one gentleman who erected a plant to make tile, and the trouble he had was in his dryer. About 90 per cent. of all the block came out of the dryers cracked, and he had to put in dry pans and grind them over, or let them go to waste. He went to work and cut little pieces of the tile and put them underneath the hollow tile, so as it shrunk in the drying the cracking came on these small sections instead of on the tile, but that is an expense and his competitors did not have that expense. He found the same trouble in his kilns and he had to adopt the same

system, so I say you have got to have a good strong clay, and it is not every clay that will make good hollow tile.

Mr. M. E. Gregory: Did I understand Mr. Denison to say that the walls on those buildings were four inches of brick and eight inches of tile? In other words, I would like to know how thick the walls are?

Mr. Denison: The walls were four inches brick, backed with eight inches of tile in the tall buildings. The steel carried the loads.

Mr. Gregory: I understood that they were not steel constructed buildings and I wondered if it were possible to carry a twelve-story building on these twelve-inch walls, and if you fill the tile with cement or anything else?

Mr. Denison: We do not fill them.

F. T. Harvard, Madison, Wis.: Mr. Chairman—I would like to take issue with Mr. Denison on the non-conductivity of hollow tile. As I understand the physics of the matter, the non-conductivity of the hollow tile may be questioned. This quality might be improved if we should have instead dead air spaces, the moving air passing through the hollow tiles. As soon as the inside of the wall becomes heated currents of convection are set up in dead air spaces and the currents of air seem to be efficient as a conductor. I may bring to your minds the fact that hot air begins to be a conductor and ceases to be an insular. Some experiments have shown that hot air will conduct better than hot sifted brick dust, but



W. E. Hull, Richlands, Va.

will not conduct as well as solid brick. If we cut off the flow through the hollow tile we would not realize the non-conductivity of these air spaces, and it seems to me a question whether we might change the use of hollow tile and have flowing air through the tile instead of dead air spaces.

Mr. Denison: Of course this is too big a subject to thrash out here. I have been thrashing it out for a number of years. I want to say that in building non-conducting walls where they desire the acme of non-conductivity, as for instance in cold storage construction, they use cork or similar material which is made up of dead air cells. I venture to say that no cold storage engineer would construct his walls in such a way as to permit circulation of air within his walls.

In tile construction you at least very much reduce circulation by laying the tile with voids horizontal. The building department of the city of Cleveland made a fire test of which they made a public record, in which they built a building having twelve-inch walls with four dead air spaces (voids horizontal). In this test they obtained 2,000 degrees of heat within the building and they said in their report that the outside of the wall remained cool. The 2,000 degrees of heat did not even warm through the wall.

Mr. R. T. Stull: In the summer time we wish to have our houses cool and in the winter time warm. Would the

gentleman think we should take the air from the inside or the outside of the house.

Prof. Harvard: I would suggest the possibility of experimenting or research being done in this matter. I am not a builder. I am really seeking information, which I thought would be valuable to others beside myself. I think it is an engineering fact that in order to effect insulation the cooler the air to be passed through the hollow tile the better. Did the Cleveland people make comparative tests with flowing air as well as with dead air? I should think that would be a valuable test to make.

President Bloomfield: It is a well known fact that you can heat up a room that has just been filled with fresh air more quickly than you can a room that is full of dead air.

Prof. Harvard: That is on account of the large proportion of fresh air or oxygen.

Mr. Stull: Theoretically that is all right, but if we wish to keep our houses cool in summer we should have a lot of canned winter air to circulate through the wall, and in the winter time a lot of canned summer air. (Laughter.) If we have a free circulation in these spaces and wish to keep the house cool in the summer we will take air on the outside, which on the summer day is 100 degrees, it is going to heat up all the more. If in the winter time we take the air from the outside, where it is down around the zero mark, you are going to have a colder house.

Mr. J. H. Mead: In the comparison of costs that Mr. Denison spoke of in his paper I would like to know whether the material was the same that he used in the tile as he used in the brick, and also what the material was, whether shale or clay?

Mr. Denison: I was speaking of different plants. Sometimes these plants make their tile of shale, other times of fire clay and other times of an alluvial clay or soft clay—a brick clay. Now, I do not say that all clays will make tile, but a vastly larger per cent. will if properly worked than you may think. I want to say also that tile won't make themselves. There are difficulties, but the manufacturers can overcome these difficulties.

President Bloomfield: As I understand it, Mr. Denison is the patentee of the Denison block and has factories making these block for him all over the country.

Mr. O. N. Townsend, Zanesville, Ohio: I want to confirm Mr. Denison's statement regarding the cost of making these hollow tile. We have been making a common brick as a by-product along with our paving brick and for the past three or four years we have been making hollow block. These hollow block will weigh three pounds and are delivered that much cheaper over the country and possess the great advantage of not having to be laid by mechanics who are getting higher prices on account of unions, etc., and that decreased expense is carried on all over the building. Even when you make the brick the same size as the standard brick, that will apply if you make the larger size with twice as much volume and half as much weight.

President Bloomfield: We are skipping around a little bit on the program and I will ask the secretary to announce the next.

Secretary Randall: We have on the program a paper by Mr. John R. Dawkins on "Electricity as Applied to Clay." Mr. Dawkins is not present, but has sent his paper to be read for him.

ELECTRICITY AS APPLIED TO CLAYS.

BY JNO. R. DAWKINS.

Mr. President and Gentlemen of the Convention:

Since the advent of man upon this earth he has always inhabited the well-drained areas of the section he chose to make his home, and the most eminent students on the subject point as one of the primary reasons why he has sought the well-drained sections and not the lowlands, his chief aversion to the lowlands being the fact that he had to contend in his daily life with more or less mud and sticky soils.

The modern man, as well as his primitive brother, know and knew almost by instinct that the sticky mud must necessarily be a great impediment to his progress and a barrier in his path when he tried to get results—whether in the chase for game or the modern tilling of the soil, as well as the working of clays into manufactured products. It probably means more to the manu-

facturer of clay products than most of us have ever stopped to consider. On account of the adhesive nature of clay it has cost the clay products manufacturer great power, trouble, expense, large equipments of machinery and a constant wear on all his resources.

It has always seemed a foregone conclusion in the past that clayey soils when moist must be sticky—a condition of nature that in the centuries gone has had to be met and all modern conditions to the present day have naturally adjusted themselves to this peculiar nature of clays and surrendered to the fact that it must be so. Thousands have spent years and years of the better part of their lives trying to solve the problem of preventing clayey soils from adhering to metallic surfaces; hundreds upon hundreds of devices, machines and apparatus were and have been designed to overcome this natural quality of clay, yet, as we all know, the best modern science and ingenuity has been able to do up to almost the immediate present has been to resort to the use of oils, heat and steam, any of which means money—money taken every day from the manufacturer of clay products. A simple, cheap and effective method of overcoming the sticking qualities of clays seemed futile; the clay worker using the present known agent to lubricate dies, platens, etc., and gets along as best he can, while in the line of agriculture the solution still seemed far off.

The hopelessness of the agriculturist seemed apparent. The farmer could not plow his furrow many yards until he was compelled to stop and with a very substantial paddle scrape the mud or sticky soil from the moldboard; the ground was improperly tilled; he was losing valuable time, but he, as well as the manufacturer of his plow, was helpless. In the grain fields when the farmer went to gather his crop if the ground was slightly damp the wheels on his reaper would soon become clogged with the soil until his machine was rendered practically useless for the time being. These are only instances, but there are millions of people who are in many ways and with many kinds of machinery and implements hindered to a very great extent by the fact that damp clay will stick.

So imperative became the demand that more than one of the world's largest machinery and implement manufacturers offered immense sums in cash to anyone who could accomplish the desired results in a practical manner. The patent office of every nation on the civilized globe will show the great numbers who have tried, only to fail. Immense sums, taken as a whole, have been spent, not only by individuals but by great corporations, in trying to overcome this one force of nature. It seemed for generations that money and brains were trying for the impossible.

In the manufacture of clay products, the clayworker accepted the inevitable, and in producing his products he was at very little better advantage than the agriculturist and other arts of man. However, the use of oil, steam and heat in the manufacture of his products overcame to a slight extent some of the objections.

After fifty years one great manufacturer, with money and skill at his command, abandoned the problem as an impossibility.

In all the modern arts it has been accepted, as we have learned from the early dawn of man, that damp or wet clays were going to stick and our progress has been planned with this one force of nature still in our path; that it was sticky and would stick to whatever came in contact with it or whatever it came in contact with, to the expense, detriment and impediment of the progress of man. It was but to accept the inevitable. We had for ages been facing a great wall. The course of mankind has been diverted from its natural path. He has had to turn and face the force of nature and struggle with plastic clays at more or less expense and loss wherever it was met.

In the application of electricity as applied to clays, volumes could be written of the many years of struggle and hard work by the inventor in trying to overcome the sticking of clay to metallic substances.

Though wonderful it may seem, yet it is now a concrete fact that by a very simple use of that mysterious power we call electricity the most adhesive clays will shed off metallic surfaces like water off a duck's back; the metallic substance will work as easily as a hot knife in butter.

This new and wonderful invention is now in a commercial form; has been used commercially and the world is now anxiously waiting the announcement of a great clay machinery manufacturer of the many ways electricity is to be applied throughout the plant of the manufacturer of clay products.

As a simple illustration: a die of an auger mud machine or platen of a cutting table charged with the electric current will allow the clay to pass more freely than were both swimming in oil.

At every point where oil is used to assist the manufacturer of clay products in handling clays the oil magnates at last have a real aggressive competitor in our great new power, electricity.

I might state here that before I arranged for the initial experiment with electricity to prevent the clay from sticking to metallic surfaces (and this was after every other conceivable form

of matter known to the greatest laboratories had been tested thoroughly) I took it up with the world's greatest electrical scientists. In some cases the question seemed so absurd that I was forcibly ejected from their offices and in every case seemed to draw a feeling of pity from the "expert" consulted, as many seemed to think I was unbalanced mentally for trying to harness electricity up to such use. It was so absolutely new they would not even discuss the matter. To prove their opinion of its newness a thorough search of all the patent offices of the civilized world, as well as famous laboratories and libraries of both continents, failed to reveal the fact that the idea was ever before conceived by man.

The application of the electric current to the manufacture of clay products means and will mean in a very short time the elimination of uncounted manufacturing troubles for the clay worker, will save large sums of money, dispense with a vast amount of machinery and consequently great saving of power.

More clay products of all kinds with the same outlay of labor, power and machinery will easily be made and, of course, much greater profits to the clay products manufacturer.

It will mean brick of much higher quality and of better appearance than are able to be made now, both the dry press and stiff mud varieties. Each brick will be a more homogeneous mass, therefore, much stronger and more durable than can be made at present.

It will mean added efficiency to numerous machines throughout any clayworking plant.

The repress, big cumbersome cutting tables, complicated dies for auger machines, oil, steam and heat to assist in their work, all of these and numerous other troublesome and expensive machines will soon become obsolete.



John R. Dawkins, St. Louis, Mo.

The application of electricity to the cutting mechanism as an ideal method for the manufacture of an ideal lug-cut brick will be easily obtained.

The different places throughout the plant of the clayworker where electricity can be applied directly to the clays to facilitate and cheapen his cost of production are too numerous to enumerate here.

The application of electricity at any desired point in the clayworking plant is exceedingly simple—in fact, as simple as turning on an electric light, yet it is very effective.

Like all the great practical electrical inventions of the past forty years, it is of great magnitude, it is exciting great and far-reaching attention among the clayworkers and is predicted by the most conservative that in the manufacture of clay products great and profitable changes are soon to be made. (Applause.)

General Discussion.

Secretary Randall: We will now go back to No. 13 on the morning program, "Dryer Problems," the general discussion of which is to be led by Mr. W. E. Dunwody, of Macon, Ga.

Dryer Problems.

Mr. W. E. Dunwody, Macon, Ga.: Mr. President and Gentlemen of the Convention—I feel that I am on the wrong side of this subject. I happen to be on the program by reason of the fact that a month or so ago I was in Chicago and met Mr. Randall and happened to tell him that I was having dryer troubles and wanted to double my drying capacity; that I was a pilgrim seeking light; therefore, Mr.

Randall has me on the program. I have prepared no paper. What I want to do is to incite a general discussion on the drying problems. I would not pretend to advise the gentlemen here, most of whom have had more experience with the subject than I have. Last year we marketed about seven million brick. Figuring these brick to cost about 40 cents a thousand to dry is quite a little item, and it is a matter which we can afford to give some considerable attention to. When we spend \$28,000 to dry our brick it is about time we cut that bill somewhere. I think some of us are spending almost as much money to dry our brick as we are to burn them, and I think the vast majority of brick-makers know very little of what it does cost to dry their brick. I am speaking from my personal experience, and perhaps I am putting the other man in my place, but I would like to know the consensus of opinion in the matter. I would like to ask how many men here are drying with steam or natural draft. I would like to ask them to raise their hands. That is all those who are drying with radiated steam heat.

(A number of the members raised their hands.)

Now, I would like to know how many are drying with waste heat?

(Many hands were raised in response to this question.)

That seems to be the majority. I would like to say that it is a question of the percentage of the brick manufactured that we burn that we reasonably expect to dry with the



W. E. Dunwody, Macon, Ga.

product of waste heat of these same brick. If we are making a hundred thousand brick a day, how many could we dry with the waste heat made by burning?

A Member: All of them.

Mr. Dunwody: I have not had such an experience. I am using a waste heat dryer and burning with both up and down draft kilns. Is there anyone in the audience using a combination dryer? One gentleman, I see, is using that dryer. This drying proposition is a problem I am considering, and I would like to say if any of the gentlemen present have any information they would like to impart to me I would like to have them address W. E. Dunwody, Macon, Ga.

A Member: What are you drying?

Mr. Dunwody: Common brick and face brick, using steam radiators with forced draft, but I want to increase my drying capacity to about double.

Mr. W. D. Richardson: What is your trouble? Haven't you dryer enough?

Mr. Dunwody: It is a question of knowing just what to do at this stage of the game. I am using exhaust steam in the day time and live steam at night, when we have no waste heat, but I only have waste heat half the time.

A Member: Do you want to build more dryer or increase the trackage?

Mr. Dunwody: I would like to increase my capacity.

How many are using direct heat furnaces? I see there are quite a number. I want to ask if you have any trouble with efflorescence on the face of the brick.

Mr. Grant Dibert, Pittsburg: I can give you information from the Pittsburg district. Six or seven years ago we were all drying by steam, and I venture to say that today there is not 20 per cent. of them using steam. They are all using direct heat. It is by far the cheapest. We have our furnaces right under our dryers; our clays dry easily and without cracking. We just simply took our pipes out and put tunnels underneath and turn the gas in there. We all dry with gas, which enters the tunnels underneath the grates. We use no fans at all; just simple natural draft.

Mr. Eisenhart: Do you use natural gas or coal?

Mr. Dibert: Natural gas.

Mr. Dunwody: Well, we are using coal at \$3.00 per ton.

Mr. Dibert: I don't think that would make any difference.

Mr. O. N. Townsend: In the Zanesville district we have torn out our steam pipes and are drying with direct heat, using coal at \$1.20 a ton.

Mr. Dunwody: Do you make arches of brick over your tunnels?

Mr. Townsend: The tunnels are of ordinary brick.

Mr. Dunwody: A great many are using iron arches. Is that what they are using in the Pittsburg district?

Mr. Dibert: Several of them use brick a certain distance and then have iron, but most of them have brick.

Mr. W. A. Hull, Richlands, Va.: As I understand it, you have a tunnel dryer, using what waste heat you have and supplementing that with steam heat from steam coils. We have in a similar plant practically the same conditions you say you have. Inasmuch as we have about one-half our capacity down draft and one-half up draft we are using waste heat, getting practically all of it from the down draft kilns. When we are burning brick that we only want to burn red, but in working for color, we have to throw away some of the heat from the down draft kilns in order to get enough to get our color. We take what heat we can from the up draft kilns, but we don't get much of it, and so far I don't see how we are going to do it without spending more money at the kilns than we would have to spend to produce the heat, but in order to supplement and get heat enough for drying we simply built another kiln—a little one—so we can burn that kiln and take the heat direct into our dryer. We don't get very much smoke, in fact, the smoke doesn't bother us at all. We do not keep it going all the time. As long as we keep our auxiliary heater tolerably hot we do not get any smoke, but, of course, in firing it up in the beginning, after it has been out of use for a while, the first fire before we get it hot enough to get the combustion perfect, then we get a little smoke, but do not get very dirty brick. The thing most people would have to look out for would be the scum. Our material naturally does not scum very much. Until we built that other kiln none of the men around the plant knew what scum was. They never had heard of such a thing, but since we built this little kiln and used the heat direct we get a little, but not enough to cut much figure on the common brick, and not much on the face brick. Of course, on our flash face brick, burning for colors, we don't see any scum after the brick are burning. We get that heat pretty cheap, because in firing the kilns there is a great deal of combustible material in the ashes from the kiln, therefore when they get through with the big kiln, instead of hauling the ashes to the dump, we haul it around to our little kiln and burn it again.

Mr. Dunwody: I am certainly very much obliged for the information I have received.

President Bloomfield: If the gentlemen present who have any information they desire to give Mr. Dunwody on this drying question will hunt him up in Section Q and talk these matters over I am sure they will all be mutually benefited.

Secretary Randall: This brings us to questions for general discussion, but Mr. J. W. Anderson, Jr., of Woodland, Ill., who is on this afternoon's program, finds that he is also on the program for the Illinois convention. He is

General Discussion.

present now and would like to present his paper, "The Need of Organization Among Drain Tile Manufacturers."

THE NEED OF ORGANIZATION AMONG DRAIN TILE MANUFACTURERS.

J. W. ANDERSON, JR., WOODLAND, ILL.

Mr. President and Gentlemen of the Convention:

One might infer from the proceedings of this and previous conventions that the brick manufacturers are practically alone in loss of business and prestige from the increasingly aggressive advertising campaign carried on by the cement and allied interests.

This is not the case. Manufacturers of drain tile have also felt the effect of this competition more keenly, perhaps, as it comes at a time when the normal demand for tile, because of large and comparatively recent investments in new drain tile plants, would offer, without this outside competition, no more than a satisfactory market.

It was suggested by Mr. Sunderland, in his able paper before last year's convention, that the brick manufacturers had been "asleep at the switch." The remarkable forward step they have taken along the lines of publicity since that date and the date of the opening of the great Clay Products Exposition, together with the unusual demonstration of interest at the first session of this convention, amounts to an admission that Mr. Sunderland's charges were not altogether groundless, and offers abundant evidence that the brickmakers are now thoroughly awakened and traveling in high gear.

We drain tile manufacturers wish to enter a formal plea of "guilty" to the same charge. Not that we do not have among us many who have done very good work in advancing their individual interests as manufacturers, but in the sense that we have too long overlooked the urgency of a national organization, and have in a great measure failed in our appreciation of the benefits to be derived from organized and intelligently directed effort along educational and other lines.

Work of this kind has been attempted with a measure of success by our Iowa brothers. Their labors have already carried them far enough to demonstrate the impracticability of a state organization attempting, alone and unaided, a general campaign of this kind, and to disclose, in part, the wonderful possibilities of a national organization.

This organization should not have been delayed until forced by a common and dangerous enemy. Much good could have been derived in past years from a national drain tile manufacturers' association, and had we the carefully developed machinery of such an organization, we would not now find ourselves without adequate means to meet a trying emergency. On the contrary, we in all probability would have anticipated and forestalled that emergency.

Our competitors advanced for their product a claim of saving in first cost, the only claim they can support with any shadow of reason.

A selling argument based on first cost alone is not sound. Assuming a fixed standard of prices for burned drain tile, which standard we recognize as undesirable and impossible, the greater the saving offered by cement tile the greater the land owners' need for a little reliable information. Cheapening cement tile means reducing quality where there has never been any room for reduction.

In this country we are nearing the time when every acre of fertile soil must be called upon to contribute as freely as conservative agricultural practice will permit, to the support of our rapidly increasing population.

Drainage has been and will continue to be an essential factor in the development of our country. That we manufacturers of burned tile have by far the best available product for this work is our own good fortune, and not the fault of our competitors. Good fortune brings responsibilities, and we today are face to face with the responsibility of bringing about, on the part of the land owners and users of tile, full appreciation of the necessity for permanence and efficiency in drainage improvements. We should be ready, wherever necessary, to show clearly and convincingly the benefits to be derived from drainage, and to follow up promptly and vigorously with dependable information as to methods of installation and proper materials.

We should maintain a bureau for compiling statistics and disseminating information among prospective users of tile.

We should establish such standards as will meet actual requirements and be fair to our manufacturers. It may be decided that some trademark should be adopted as a guarantee to the trade that the product bearing it meets the association standards. However, these are subjects perhaps properly to be discussed at our first meeting, which all those interested in the success of the movement are invited to attend. (Applause.)

Mr. Anderson: I would like to ask if there is any member present who is a member of the executive committee of the Illinois Association? I want to ask them on behalf of a number of their members to give us a little time on their program this afternoon. The drain tile manufacturers of the United States are trying to make some arrangements to hold a meeting sometime this afternoon, and unless the officers of the Illinois Association advise to the contrary we would like to have those interested in this movement come over to the meeting of the Illinois Association at 2:30 and some time this afternoon we will try to form a National Association.

Secretary Randall: Evidently Mr. Anderson was not in the room when Mr. Huckins, the secretary of the Illinois Association made his announcement. Following Mr. Anderson's paper there is a question on the program pertaining to the same subject, "What Is the Cause of Drain Tile Splitting or Cracking During Burning." Mr. Anderson can probably answer this question.

Mr. Anderson: It would be due to the type of machine being used in the manufacture of tile. If you used what is called a spider or auger bridge and don't have it set far enough back to give the clay ample opportunity to unite after passing the spider it naturally weakens the bond, and



J. W. Anderson, Jr., Woodland, Ill.

in some cases the tile will open up in drying and burning. There may be another reason. If your clay is inclined to shrink a great deal, and if you have uneven conditions in your kiln as to temperature, there may be a difference in shrinkage in the individual tile to cause some cracking. Other than that I cannot imagine what would cause it. It would depend some on what kind of cracks the gentleman refers to. He probably refers to the flat long cracks. That can be corrected without a great deal of trouble. We had that trouble at our plant along in the eighties, and they simply hauled the split material back out of the dryers and kilns and charged it up to profit and loss, but we have corrected it now by a very simple method. We have put an extension ring on the head of the machine. We have lengthened the auger stem in front of the spider. Of course, we had to make a washer to keep the auger in the center, but we found it entirely eliminated all trouble of that kind. It will take a little more power to pull your machine with the extension in front of the spider.

Secretary Randall: There is another gentleman present who has a paper on our afternoon session who would like to present it now, because of his connection with the Illinois Association, in which he would like to participate this afternoon—Prof. A. V. Bleininger, who has an illustrated paper on "The Relation of the Porosity of Bricks to Their Crushing Strength."

President Bloomfield: Gentlemen, it gives me pleasure

to present Prof. Bleininger. He needs no introduction to the members of this association.

RELATION BETWEEN THE POROSITY AND THE STRENGTH OF BRICKS.

A. V. BLEININGER, CHAMPAIGN, ILL.

Mr. President and Gentlemen of the Convention:

The manufacturer of structural clay wares is engaged in the making of a rock product to which he imparts as great a strength as possible. In the use of these materials, however, but a small part of the available compressive strength is required. To illustrate, in order to bring about the destruction by direct crushing of a wall built of bricks possessing a fair average compressive strength, it would be necessary to go to a height of about 4,000 feet. It is obvious that the mortar would be crumbled or squeezed out long before this imaginary height were reached.

It is a fact, however, that bricks and other clay products are more commonly subjected to transverse stresses irregularly distributed which may reach a surprising magnitude. We must deal hence with both compression and transverse stresses.

Now, with reference to the whole question, it might be asked what value there is in discussing the strength of bricks and whether the entire topic is not an academic and theoretical one. While it is true that we do not expect to make use of the entire crushing and transverse strength of bricks, there is no doubt but that there is a relation between strength and quality. Other conditions being equal, we would naturally select for any construction purpose, the material possessing the maximum strength.

There are several other considerations which enter into the case. One of the most important is the establishment of fixed



Prof. A. V. Bleininger, Champaign, Ill.

limits which might serve both the manufacturer and the user as a guide, enabling them to draw a line between good and poor bricks. This naturally has a legal bearing and would give the satisfactory brick a standing in law denied the poor quality, provided such a specification were included in a contract.

Again, since in many parts of the country sand-lime and cement brick are now being considered as a building material, it is but proper that means be sought to differentiate between these various materials.

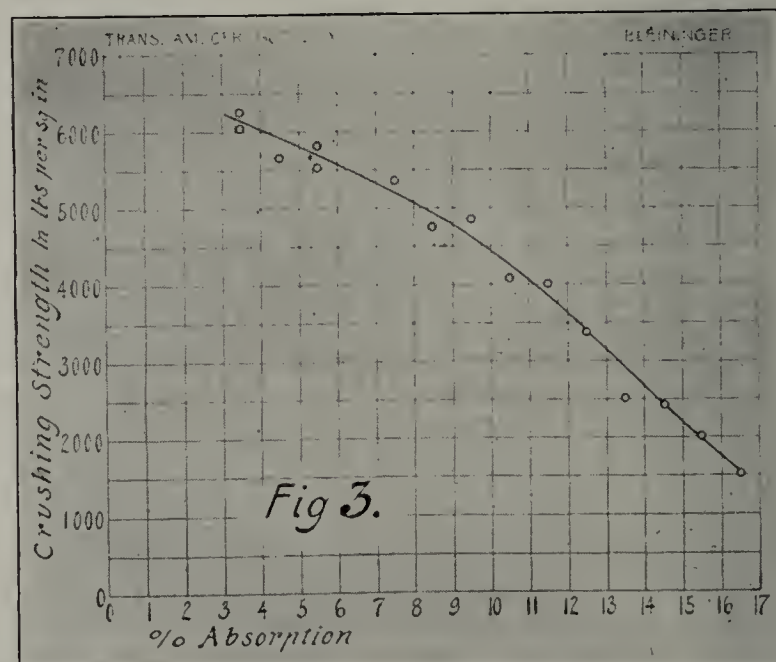
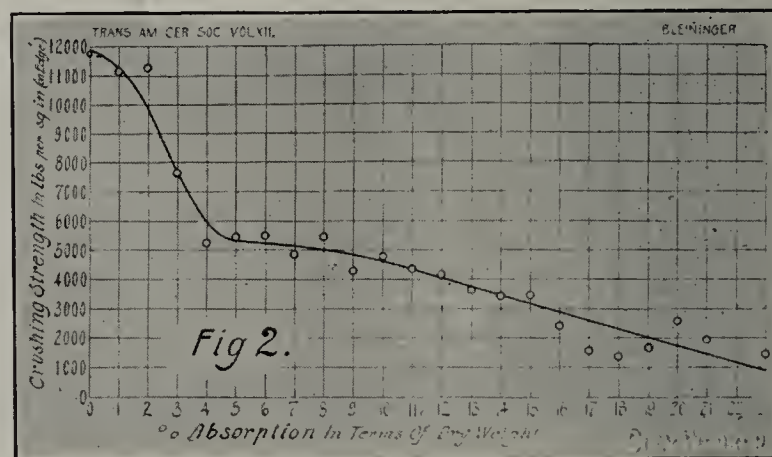
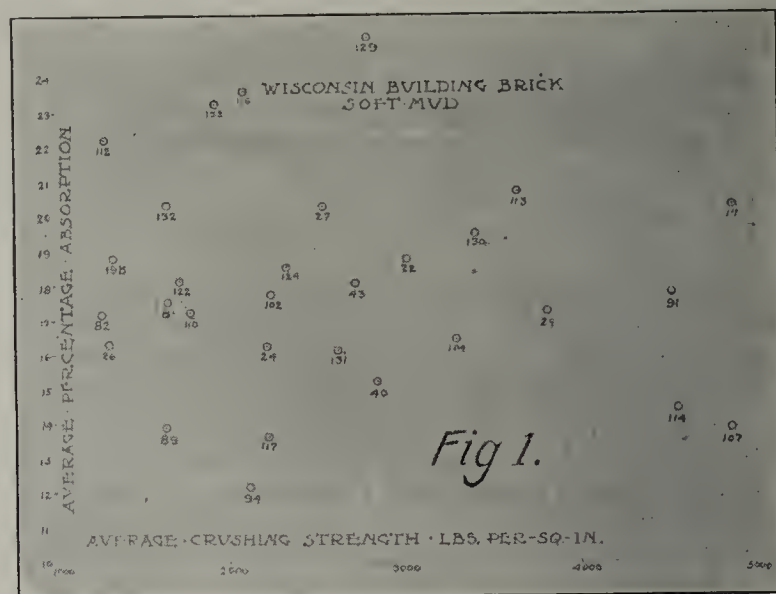
These facts have long been realized by engineers, architects and others, and a number of specifications have been written by the government, the Underwriters' Association, engineers and others. Owing to the continued demand for action along these lines, about six years ago the American Society of Testing Materials took up this question and has been considering it since. It may appear to be a simple matter to prepare such specifications, but this is not the case. Owing to the wide diversity of the character of the raw materials, the method of manufacture and resulting structure, the problem deserves close study in order that it may be solved with justice and equity to all. It would be easy to write down requirements which would insure a good quality of bricks, but might not such specification do harm to a product which serves the purpose equally well though it does not show such a high strength under test conditions? It certainly would not do to exact specifications which might be met by a vitrified shale brick but not by a soft mud brick, even though the latter be well made.

The Society for Testing Materials is not going hastily in this matter, but every effort is being made to arrive at fair conclusions.

One difficulty has been the lack of comparable statistics on this point. While numerous tests of bricks have been made, they have been made under widely differing conditions, and many results do

not inspire confidence. In some cases, whole bricks have been used, in others, half bricks resulting from the transverse test, or bricks on edge; in some instances the specimen was imbedded in plaster; in others it was tested in contact with paper or other material. In most cases, but a few samples were tested and reports based on them. Now it is evident, first of all, that uniform testing conditions must be established before we can proceed to compare results. Enough variations enter into this kind of testing without further complicating the case by introducing still more factors in the testing.

The accurate testing of bricks has had an especially active advocate in Mr. J. E. Howard, formerly of the Watertown Arsenal,



now of the Bureau of Standards, with whose addresses before the N. B. M. A. you are all familiar.

Two years ago, the committee of the above society made a provisional report as to the methods of testing and, at the same time, proposed tentative requirements. These specifications have not been offered for adoption but remain open for corrections and amendments. The text of this report is given herewith:

Transverse Test.—At least five bricks shall be tested, laid flat-wise with a span of seven inches, and with the load applied at mid-span. The knife edges shall be slightly curved in the direction of their length. Steel bearing plates about one-fourth inch thick and one and one-half inches wide, may be placed between the knife

edges and the brick. The use of a wooden base-block, slightly rounded transversely across its top, upon which to rest the lower knife edges, is recommended. The modulus of rupture shall be obtained by the following formula:

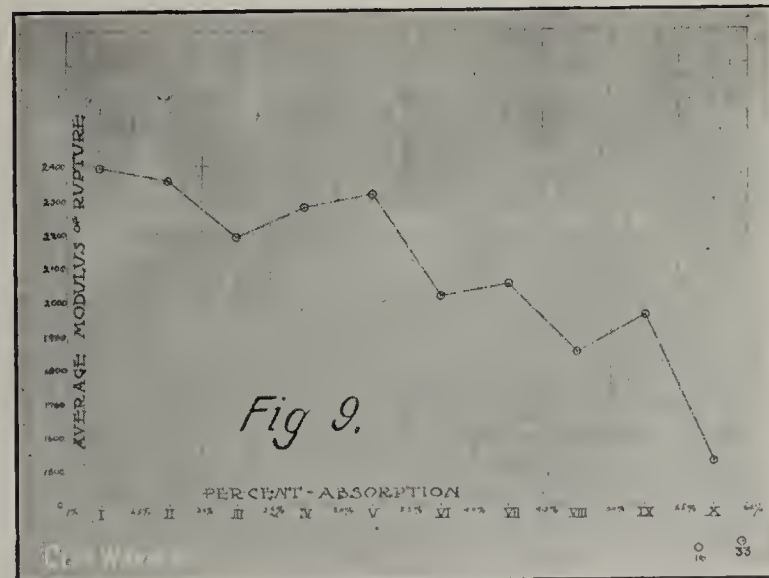
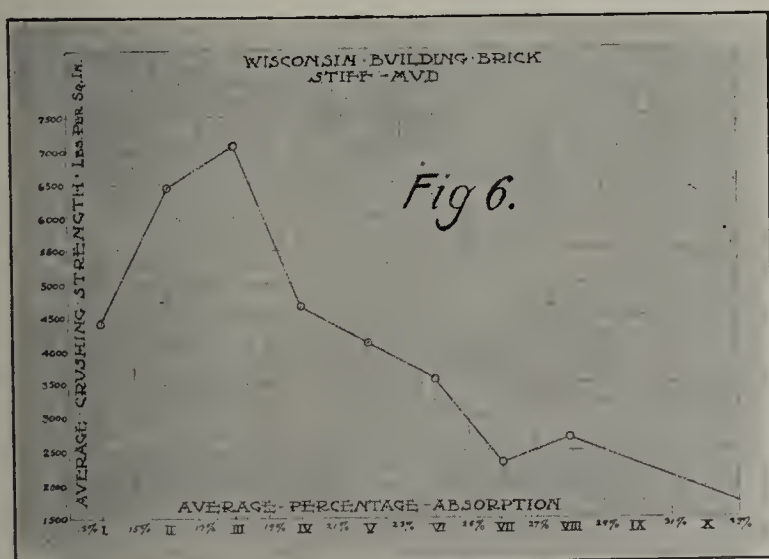
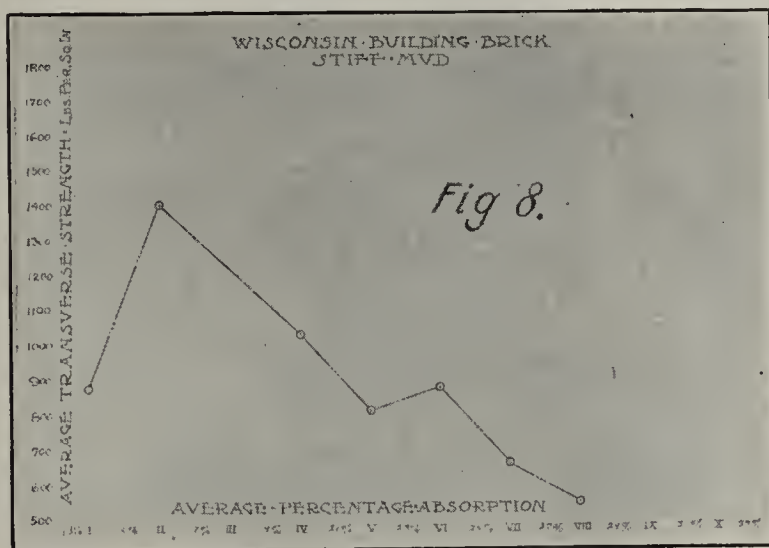
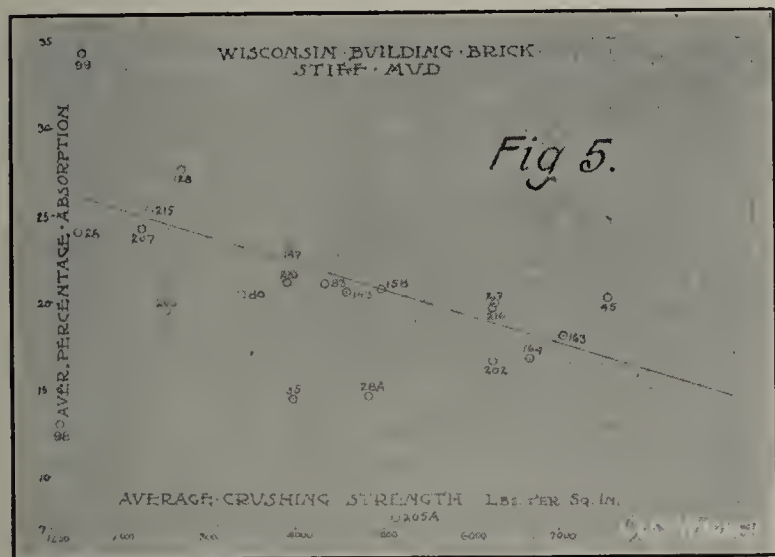
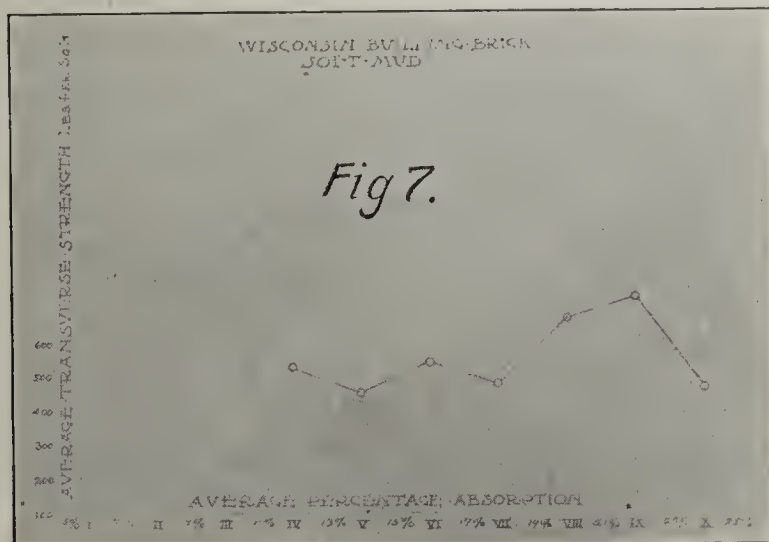
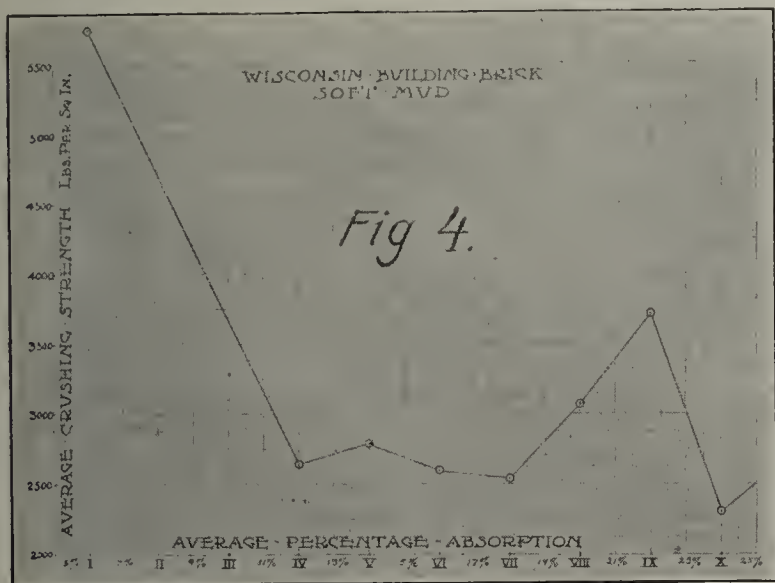
$$R = \frac{3 We}{2bd^2}$$

in which e is the distance between supports in inches, b is the breadth and d depth of the brick in inches, and W is the load in pounds at which the brick failed.

The half bricks resulting from the transverse test shall be used

ceive a coat of shellac. The machine used for compression shall be equipped with spherical bearing blocks. The breaking load shall be divided by the area in compression, and the results reported in pounds per square inch.

Absorption Test.—At least five half bricks shall be first thoroughly dried to constant weight, at a temperature of from 200 degrees to 250 degrees F., weighed, and then placed on their face in water to a depth of one inch in a covered container. The bricks shall be weighed at the following intervals, one-half hour, six hours, and forty-eight hours. Superfluous moisture shall be removed before each weighing. The absorption shall be expressed in terms of



for the compression and absorption tests. One-half shall be crushed in its dry condition; the other half shall be used for the absorption test and crushed while in its wet condition. No specimen shall be used if any part of the line of fracture is more than one inch from the center line.

Compression Test.—Compression tests shall be made on half bricks resulting from the transverse test. The bricks shall be bedded flatwise on blotting paper, heavy fibrous building paper, or heavy felt, to secure a uniform bearing in the testing machine. In case the bricks have uneven bearing surfaces, they shall be bedded in a thin coat of plaster of Paris. For the dry test, before applying the plaster of Paris, the bearing surfaces of the brick shall re-

ceive a coat of shellac. The machine used for compression shall be equipped with spherical bearing blocks. The breaking load shall be divided by the area in compression, and the results reported in pounds per square inch.

Freezing and Thawing Tests.—In case the freezing and thawing test is desired, at least five bricks shall be raised to 200 degrees F. in thirty minutes, and then allowed to cool. The specimen shall be immersed in ice water for not less than one hour, weighed, then transferred to the refrigerator and supported in such a manner that all faces will be exposed. The specimen shall be subjected to a temperature of less than 15 degrees F. for at least five hours, then removed and placed in water at a temperature of not less than 150 degrees F. nor more than 200 degrees F., for one hour. This operation shall be repeated twenty times, after which the bricks, still saturated, shall be weighed again. The character of

the bricks shall be noted before and during the test, and all visible changes recorded. Immediately on completion of this test, the samples are to be thoroughly dried and subjected to the transverse and compression tests.

Requirements.—The following requirements shall be met. The modulus of rupture shall be as follows:

	Average lbs.	Minimum lbs.
For samples thoroughly dry.....	400	325
For samples thoroughly saturated.	275	225
For samples subjected to freezing and thawing process	275	225

The ultimate compressive strength shall be as follows:

	Average lbs. per sq. in.	Minimum lbs. per sq. in.
For samples thoroughly dry.....	3,000	2,500
For samples thoroughly saturated.	2,500	2,000
For samples subjected to freezing and thawing process	2,500	2,000

The absorption shall not average higher than fifteen per cent, and in no case shall it exceed twenty per cent.

The freezing and thawing tests shall not cause cracking or serious spalling in any of the bricks tested, nor cause serious disintegration of the material.

As has been said before, these specifications are by no means final, and a number of questions are still to be settled. Of these, the most important ones deal, of course, with the permissible minimum compressive and transverse strength and the minimum absorption allowable. In this connection, the most interesting relation has been the co-ordination of the strength and the porosity as measured in every day practice by the water absorption.



J. P. Cahoon, Salt Lake City, Utah.

It is a fact, familiar to every clayworker, that as the burning proceeds towards the finishing temperature, the porosity decreases until finally the clay body has reached vitrification, at which point but little water is absorbed. Thus the absorption is at the maximum during the dehydration and at the same time the strength is at its lowest point.

It would be interesting information to know at just what rate each decrease in absorption increases the strength of a clay. To secure this data, however, it is necessary to obtain the resistance to compression of a sufficient number of samples so that the variation due to individual tests may be minimized; not less than ten and preferably fifteen or twenty tests should be made of specimens comprised in the same absorption class. It is also obvious that the pieces to be tested must have been made by the same molding process. It certainly would not do to compare stiff with soft mud or dry pressed bricks. After proceeding under such regulated conditions, it would thus seem that for the same clay we could approximate the crushing strength of a certain grade of brick quite closely by determining its absorption. This is quite true, but any effort to generalize will at once fail. Thus in Fig. 1 we have plotted the crushing strength of a large number of Wisconsin soft mud bricks against the absorption from figures published in the Wisconsin Geological Report, by Prof. Heinrich Ries. It is quite evident that there is no relation to be traced whatever by plotting these results, in spite of the fact that they are the average of several tests in each case. The necessity of having a considerable number of tests for each brand and absorption is thus made evident.

In Fig. 2 we have illustrated the results of about 176 brick tests made upon samples collected within a radius of 150 miles

from Washington, D. C., by the late Mr. Ashley. The bricks represent the highest grade of product in this district. By classifying them into different grades of absorption and plotting the latter against the compressive strength, a fairly consistent curve is obtained. It is thus observed that the crushing strength increases almost proportionately with the drop in absorption until a certain point is reached—about four per cent absorption—when the strength increases at a more rapid rate. It might thus be said that up to the point mentioned the increase in strength is due to the filling up of the pore space, thus bringing in more and more solid clay per cubic inch. From the absorption of four per cent on, the strength increases, primarily due to the change in the clay matter itself, which, during this stage, develops a more granite like and vitreous character in distinction from the earthy structure prevailing up to this point.

In Fig. 3 a series of tests are represented in which a number of bricks made from the same shale mixture, but ranging from soft to hard burned, were crushed after absorption determinations had been made. The relation between resistance to compression and the absorption is shown to be quite regular, and from a curve of this kind fixed for one clay material, it would be quite easy to calculate the approximate strength from the absorption value.

Returning to the Wisconsin brick tests mentioned above, and considering in place of individual tests all bricks within certain absorption ranges (Fig. 4), we find a better correlation of crushing strength and absorption, for the obvious reason that thus the values are averaged. But even by doing this, we are still unable to obtain a smooth curve. If we consider the many factors such as the nature of the clay itself, the method of molding, the development of structure, checks and cracks which may appear, the degree of burning, etc., this is not surprising, and we appreciate the difficulties encountered in the endeavor to formulate rules governing the strength and absorption of building bricks.

In Fig. 5 the individual tests of Wisconsin stiff mud bricks are represented, showing a similar state of affairs as that of Fig. 1. By dividing the specimens into absorption ranges as in Fig. 4, a better correlation is again obtained, which is illustrated in Fig. 6.

Similarly, Figs. 7 and 8 represent the cross-breaking strengths both for individual tests and for absorption ranges.

In Fig. 9 the transverse strengths are shown for a lot of high grade Illinois and Missouri bricks in correlations with their structure.

To summarize then, we might say that the relation between porosity as indicated by absorption and compressive as well as transverse strength, is complex, and can be gotten at only by making of numerous tests under well defined testing conditions. For the sake of accuracy in such experiments the porosity should be expressed as its proper function, namely, as per cent pore volume in terms of the total volume of the brick. At the same time, however, the absorption values might be retained in parallel, since they represent a ready means of comparison.

The writer has collected the results of numerous brick tests, but it is his opinion that we still have insufficient reliable data for the laying down of specific requirements. In his opinion, it might also be necessary to adopt a classification of building bricks as regards the different types of clays, such as the alluvial clays of the Hudson River district, the glacial clays of the Chicago region, the loess and the shale districts, since it appears almost impossible to compare the widely differing products on the same basis. One of the greatest needs, also, is information on the mutual relation of porosity, crushing strength and resistance to freezing. Our knowledge in regard to this correlation is practically nil, and the cost of work along these lines is too heavy for private or college investigations.

It is hoped that the government will assist in correlating data dealing with the crushing and transverse strength of clay products through the Bureau of Standards, which is so well equipped for this work and which has already completed some interesting researches on this subject. (Applause.)

Secretary Randall: That completes the list of regular papers on the program and brings us to the reports of committees. Mr. Warren DeRosay, chairman of the committee on resolutions, has been called out, but has left a copy of the report of the committee with Mr. Warren W. Ittner, another member of the committee, who will present it.

REPORT OF COMMITTEE ON RESOLUTIONS.

Mr. Chairman and Gentlemen of the Convention:

Your Committee on Resolutions begs leave to make the following report:

Whereas, The twenty-sixth annual convention of the National Brick Manufacturers' Association has, in accordance with expectations, proven the largest and most successful in the history of the association, due to the awakening of those engaged in the clay in-

dustries to the importance of concerted effort and the added attractions of the first International Clay Products Exposition, and of the city of Chicago; therefore, be it

Resolved, That the convention tender a rising vote of thanks to the Chicago Clay Club, which has so excellently planned and ably executed the details of caring for and entertaining the delegates, visitors and ladies, that the memory will linger with us long after the convention has passed into history.

Resolved, That the sincere thanks and congratulations of this convention be tendered the officials and active workers of and for the Clay Products Exposition for the splendid work accomplished, and express the wish and hope that material benefit may accrue to them, as it certainly will to the clayworking industry in general.

Resolved, that a formal vote of thanks be tendered through the medium of the secretary to the manager of the Congress Hotel and Annex for the most excellent service rendered and the many courtesies extended to our members during the week.

Resolved, That this convention urge the continuance of the co-operation between the National Brick Manufacturers' Association, the parent of all of the kindred and allied organizations that have developed to meet the special needs and promote the welfare of the clayworking industries, namely, the National Paving Brick Manufacturers' Association, the American Ceramic Society, the Building Brick Association, the National Clay Machinery Association, and the Western Clay Products Publicity Bureau.

Whereas, During the past year, the Angel of Death has taken from our midst a number of our members, some of whom had been identified with the association for many years, and who were ever on the alert to promote the welfare of the clayworking industry, therefore, be it

Resolved, That the Association has sustained a great loss, and we deeply deplore their death, and extend to the families of these members whose names are given herewith, the heartfelt sympathy of this convention, and that the secretary be instructed to forward to the families a copy of these resolutions. Willis Edison, Topeka, Kansas; Albert Terry, Kingston, N. Y.; Henry Hasbrouck, Olean, N. Y.; Fred S. Naugle, Bucyrus, Ohio; Cyrus Chambers, Overbrook, Pa.; Carl Cappel, Pittsburg, Pa.; John McLaren, Pittsburg, Pa., and Charles W. Raymond, Dayton, Ohio.

The following resolution, introduced by Mr. G. H. Tefft, which has been referred to your committee, is not approved:

In view of the unqualified friendship and valiant services rendered by THE CLAY-WORKER, by *Brick and Clay Record*, *Dealers' Record* and by *The Brickbuilder*, to the clay interests, that the N. B. M. A. hereby designates these journals the official organs of the organization, hereby also repealing all parts of the Constitution or By-Laws as may conflict with this act.

The following resolution, introduced by Mr. Wm. Conway, referred to your committee, has also been disapproved by the committee:

In view of the friendship and valiant services rendered to the clay industry by THE CLAY-WORKER, *Brick and Clay Record*, the *Dealers' Record* and the *Brickbuilder*, the proceedings of this convention be given to those journals at the same time, after they have been approved by the Executive Committee.

WARREN D. DEROSAY, Pennsylvania,
WARREN ITTNER, Illinois,
JAY TERRY, New York,
S. R. BUSEY, Maryland,
HOWARD FROST, Los Angeles, Cal.,
SPENCER M. DUTY, Ohio,
J. P. CAHOON, Utah,
C. A. PHILLIPS, Minnesota,
L. A. CULVER, Indiana,
T. R. HARWOOD, Texas,

Committee.

Mr. Warren Ittner: Mr. President and Gentlemen of the Convention—I move the adoption of the report as a whole.

Mr. Lemon Parker: I second the motion.

Motion carried.

Secretary Randall: Miscellaneous business is the next in order, and under this head I think we should consider a matter that was overlooked last year, namely the election of a member of the committee on technical investigation. Last year Mr. Anthony Ittner, of St. Louis, father of the young man who has just read the committee report, declined a re-election on the committee on technical investigation, which was tendered him by the association. The committee consists of five members, the term of one member expiring each year. Mr. Richardson's term expires this year. I would suggest his re-election and the election of a successor to Mr. Ittner, if he still insists on resigning.

Mr. Ittner: I do insist.

Secretary Randall: I know Mr. Ittner well enough to know that when he says he insists, he insists. I think his wishes should be respected. I think Mr. Richardson might well be re-elected, for he is a valuable member of that committee and takes an active part in their work.

Mr. Anthony Ittner: I take great pleasure in moving that Mr. Richardson be continued on this committee.

Mr. J. H. Mead: Second the motion.

Motion carried.

Secretary Randall: If the convention so desires the members of the committee can confer and select some desirable member to fill the vacancy left by Mr. Ittner's resignation. Prof. Albert Bleininger would make a very valuable member.

Prof. Bleininger Elected a Member of Committee on Technical Investigation.

Mr. Anthony Ittner: Mr. President, I desire that the reasons for my action in this matter may be known to the convention. I was satisfied that some person could be placed in my stead on this committee who would be of much more service to the committee than myself, and that was my object in declining to serve longer, and it now gives me further pleasure to place Prof. A. V. Bleininger in nomination to fill my vacancy, and move that he be elected to that place.



R. D. Lindsay, Denver, Colo.

Mr. R. G. Eisenhart: I second the nomination.

President Bloomfield: There are times in our lives when it is a great pleasure to put a question. I have known Prof. Bleininger ever since he came to this convention as a boy and went with Prof. Orton in the Ohio State University. No better equipped man lives as a ceramist in the United States, and it is with great pleasure that I put this question to the convention, and would like to ask for a standing vote.

Motion carried.

Mr. John W. Sibley: I move we adjourn sine die subject to the call of the executive committee.

Mr. Ittner: I second the motion.

Before the motion could be put Mr. Penfield came hurriedly to the platform and advised the president that Mr. John B. Rose and a delegation of New York brickmakers had just arrived, and suggested that Mr. Rose be heard.

President Bloomfield: Gentlemen of the convention, we will suspend the regular order of business temporarily and listen to Mr. Rose, whom we are glad to welcome. He was to have been the first speaker on the morning program. I know you will be glad to hear his message. His topic is "Back to Brick." (Applause.)

Mr. John B. Rose, Roseton, N. Y.: Mr. President and Gentlemen of the Convention—I should say ladies and gentlemen of the convention, because I have learned that the convention of brick manufacturers, like all other conventions, is never successful without the presence of the ladies. I came out here at the invitation of, I am frank to say, I

don't know just who, but I find that I am to speak to the brickmakers upon a subject which is very important. It is a proposition I have been at work upon for sometime, namely, the "Back to Brick Movement." I know it is late, but some of us do not control the railroads and are not able to control our own movements without depending upon them. Our train was late, and then, too, I could not resist the temptation to step just a moment into the Coliseum and see the Clay Products Show, in which we are very much interested. I have a habit of judging my audience, and when the people begin to leave I take it for granted that the subject is too dry, or the people are (laughter), or are hungry. Now, in the last year I have been in the habit of speaking on an average of two and one-half to three hours at a time, but will now try to be as brief as I can.

BACK TO BRICK.

JNO. B. ROSE, ROSETON, N. Y.

Mr. President and Gentlemen of the Convention:

When Horace Greeley offered his memorable advice, "Go west, young man; go west," he gave expression to no new thought. It was the old in new dress. Over nineteen hundred years ago the wise men of the east journeyed west in search of the Babe at Bethlehem, and from that day to this the super-conservative, if somewhat wiser men of the east have traveled west in search of inspiration. Many years ago while studying the inherent characteristics of the oriental and occidental I was struck by the



John B. Rose, Roseton, N. Y.

great inventive genius of the latter and the remarkable cleverness with which the men of the orient succeeded in imitating inventions and productions of the westerner. The Japanese especially seem to be adepts at the art of imitating. They order anything, from an old-fashioned buggy to an aeroplane, and just when the trade has been nicely developed the importer finds himself confronted with the exact counterpart of his importation—Japanese made. But the oriental has not been alone in the art of imitation. Stealth of mental wealth has been the game of the Americans for the past decade. Environment molds character. A man who has never gone beyond the confines of the town of his birth, has never seen a river or mountain, no matter how much he has read or studied, is essentially narrow. It is by travel and coming in contact with the larger world that we grow and develop. A man who has stood upon the steamer's deck and gazing about him sees nothing but the horizon, who has ascended a mountain height and looked far off into the valley below, or at the foot of Niagara has stood aghast at this masterpiece of the Creator, is a larger man than he who has not had the advantages of these opportunities. The eyes are the windows of the soul, and until we have opened our eyes wide in wonder and amazement at some stupendous operation or have been thrilled by the spectacle of some creation of the Master Hand we have not expanded into that fullness which makes of us broad men.

The character of the Western country, with its broad, rolling plains, its great lakes and rivers, its high mountain peaks and its abundance of mineral and agricultural wealth, the whole topped off by an occasional cyclone and earthquake which have shaken the conservatives to their very foundations; have stirred the shallow, all these have broadened your vision and have made big,

broadgauged, breezy, enthusiastic men who hesitate at nothing; who know no peril and who rush in where wiser men might fear to tread. The latter may come to your assistance after you have opened up the way, but it is through association with you, that have imbibed the accelerating atoms of ozone which have acted like a counter irritant and has driven them to their limit. Those of us who have become interested in political affairs have watched with great interest and some apprehension the development of your progressive ideas, and to us government by commission and initiative, the referendum and recall are familiar terms.

One of the great men of the West noted for his eloquence and a sixty thousand horse power constitution delivered an address in this city which turned topsy-turvy the political plans of the times, and in fact, stirred the depths of the national thought as it was never stirred before. He had many strings to his instrument, but he harped on the 16 to 1 until all others were forgotten. The man on horseback of the East, coming along, although of a different political faith, seeing the opportunity seized upon and developed many of the ideas of the Westerner and was applauded by his countrymen. Again we find the same aggressive opportunity appropriating all the progressiveness of the West out-Folletting La Follette. So, my friends, it is nothing new for men of the East to delve into the very depths of your Western wealth and then in somewhat different form to present for your approbation a product not familiar to your eyes, yet in origin yours, though differently clothed.

About a year ago a gentleman called at my office and introducing himself stated that he desired me to meet some brick manufacturers from Chicago who were his guests in the city. I acceded to his request. We were brought together and since that time we have frequently met and at each meeting I have been drinking deep from the fountains of knowledge and imbibing some of their Western progressiveness and enthusiasm. Although I have been a member of the National Brick Manufacturers' Association for many years, like most of the brick manufacturers of the Hudson valley, I have never felt that I could spare the time to leave that which seemed to me to be the more important duties at home to attend your annual conventions. Glowing accounts of your work and the hospitality of your hosts have been brought to us, and stories of great benefits which have been derived from your meetings by those who attended, but not until we really came in contact with your enthusiastic Western manufacturers did we catch the spirit and become interested in investigating your methods and that which you sought to accomplish. The cry of the Eastern man has always been: "Oh, that may do for the Western manufacturer, but it will not work with me."

"Nothing is permanent but change." A paradoxical statement, but one which is strikingly true.

"Power passes from country to country as from man to man. We move in a zig-zag course and where proud Carthage once stood now the jackals prowl and solitary travelers pitch their tents."

Progress is the mainspring of man's existence; it is the vitalizing spark. We never stand still; we must either advance or retreat. After fighting through the heat of the day in the Shenandoah valley the Northern army, discouraged, disorganized and beaten, were retreating from the field of battle; their lines broken, companies detached from their battalions and stragglers seen everywhere through the fields and the old camp grounds abandoned. Phil Sheridan, riding up from Winchester to the relief of the army, at an instant appreciated conditions. He ordered the lines re-formed; men sprung to their places; companies attached themselves to their battalions and Sheridan shouted: "We tent on the old camp grounds tonight, boys." Through the enthusiasm which he engendered and the patriotism which he awakened within their breasts he took this army—fleeing before the enemy and almost routed—and with yells of defiance and paeons of victory upon their lips they faced about, charged the enemy and turned a rout into one of the memorable victories of that war. And it is because of the disorganized and panic-stricken retreat of the manufacturers of clay products of the United States which has almost amounted to a rout, and even that by an inferior force, that I feel constrained to present to you today a line of thought, a suggestion, which I trust will be an incentive for organized effort.

Since the time we first heard of little Johnny Jones we have learned that advertising pays, and yet, like Rip Van Winkle, who slept in the clay-covered hills of the beautiful Hudson, we rest, calmly facing the fact that slowly, irresistibly a new material has been driving us out of the market, and that this inferior substitute has been taking the place once so firmly held by us. It is because we know the value of the material we manufacture that I believe it is time we should raise aloft our standard and under wise leadership charge the citadels of the enemy; lead back this defeated, straggling, disorganized army, and turning a rout into a victory rally 'round the standard, "Back to brick."

I care not what the slogan may be; what the inscription on our banners; to whose care the work of organizing may be entrusted; who the standard bearers may be, I am only interested in this:

that we arouse ourselves from the state of lethargy which has developed into a sleeping sickness.

"Co-operation, not competition, is the life of trade." We can no more accomplish anything individually than we can exist without the aid of other members of society. Life is based upon co-operation. We have no better illustration of what may be accomplished by a union of hands and brains than the striking illustration offered by our own product. Brick piled ever so closely together in stacks without any bond of union will offer very little resistance to attack; but laid into a wall, bonded together in a homogeneous whole, presents such a defense as has been so graphically told in picture and story that "neither by fire nor flood nor frost nor even time could be destroyed."

What we need, as clay producers, is a world-wide organized campaign which will interest the people of the world; convincingly bring to them the glad tidings of the indestructibility of the only fireproof material known to man. A building material, the only building material for which no apology or explanation is needed. Applying the test of a combination of fire and water, all other building materials will disintegrate or twist; shrivel up or fall to pieces and crumble into dust.

As we journey through the country the single chimney left standing alone where a farm house once stood offers its mute appeal to us. Ordinarily people advertise a product for which some apology is due. In almost every contest there is a weak spot in the defense. The great Achilles had his heel, but Guybo, the mythological god of habitation which has been created by those who have been interested in the "back to brick" movement of the East, has an armor which cannot be pierced. It is a wonderful thing to create a monumental structure dedicated to the memory of those we love. Have we ever paused in our mad rush through life to think that the material which we are now placing upon the market today, created by our own hands, will thousands of years after we have passed into the great beyond, and our hands are forever stilled, remain as a memorial to its creator. In the East we brand every brick with the name of its maker, and I have often wondered what the world will say in the years that are to come when they find millions of these memorials which are left to testify to the skill of the producer of the twentieth century.

Publicity is the only thing which will meet present day conditions. We know that we have a material which is the best. Why not let the world know it? Millions of dollars are spent yearly in advertising destructible products, while we have thought so little of our product that we have hesitated to make known its good qualities. We have been suffering with a cancerous disease. The publicity of cement and the increasing use thereof has been slowly eating away our manufacturing bodies. There is a remedy—the organization of an international association, whose sole object should be to push the "back to brick" movement; to investigate the causes which lead to the collapse of concrete structures and then advertise to the world the superiority of brick over concrete. Do we believe, yea, do we know, beyond any question of a doubt, that brick and clay product construction is superior to concrete. Can we prove it? Shall we not issue a challenge to the concrete world to build a concrete house of their own design, according to their own specifications, and we will build one of brick of the same size; fill both of them with an inflammable material, set them afire until they are all aglow and then turn on the hose and let the result speak for itself. Dare they accept such a challenge? One has been publicly made in New York City for a period of six months and we have heard nothing.

Do you know that concrete construction is not indestructible? Do you know that it is not inexpensive construction? Do you know that except in small, cheap and criminally unsafe structures concrete buildings can not be built as quickly as brick? What then is there about concrete construction which has given it such an impetus through the country. Why do you see a vast amount of concrete construction in many towns through our states if it is not cheaper, if it is not indestructible, if it is not fireproof, if it takes longer to build a house of concrete, and if it is criminally unsafe, why has its use been greater day by day? Why has the cry, "Cement is king!" been taken up? Why such articles as those in the Outlook of Feb. 17th and the Spectator? There is only one answer—publicity. A liberal use of printer's ink. And think what an opportunity we have. Here are concrete dams giving way; concrete buildings falling down; concrete bridges caving in, and all around us, on all sides, life and property destroyed because of the criminal use of concrete. And what use have we made, as an industry, of this ammunition which has been placed in our hands?

Of what use do you think the concrete interests would have made of such ammunition? If through the use of an inferior quality of brick one house should fall it would be flashed from one end of the country to the other, and the world would have been terrorized into the use of concrete.

Cement is king! Yes, in the same sense that "Dodo," a well advertised comic opera king, holds sway over the people of the

play. Think of it! A king of concrete, which heated by the fires of our attack, would crack, and when the flood of newspaper criticism is turned on it would disintegrate and fall to pieces, as a useless waste. Why, concrete instead of being king is only a deuce spot in the deck, with all the tricks of the knave. (Applause.)

I have said that concrete is not indestructible. What of brick? Why, one of the chief complaints of the manufacturer has been that when buildings are wrecked in the city and whole blocks razed to give place to greater improvement the old brick, i. e., second-hand brick, are immediately placed in the market in competition with the new. It is impossible to destroy them. An amusing incident was told of one of the prominent builders of New York. He was tearing down an old building preparatory to erecting a dwelling house for himself. His superintendent was anxious to make a record for himself, so as the walls were thrown down he carefully cleaned all the old brick and piled them in the rear of the lot. The owner came around one day and seeing the pile, said to the truckman: "Say, Tom, if you have any use for these you may take them," as the owner did not care to use any second-hand material in his own house. Tom took the brick and carted them to an empty lot a few blocks away, piled them up and counted them. Some weeks later when figuring on his job the owner cursed his purchasing agent for the high price of brick. The latter informed him that there was a scarcity and that it was difficult to get good ones at any price, but, said he, "I have an opportunity of purchasing some first-class seconds, almost as good as first quality, at \$5.75 per thousand, delivered." "Why take them, you d—— fool, take them," said the boss. Whereupon the agent called up Tom and told him he would take the seconds, and Tom hauled back the 60,000 at \$5.75 which the boss had given him.



Edwin Brockway, Brockway, N. Y.

The superintendent, recognizing these as the identical brick that he had cleaned up, fearing the boss, protested to the purchasing agent. About two days later the builder came around and seeing his own seconds back on the job, a greater part of them having been used, said to the superintendent: "Where in —— did you get these brick? What in —— are you using these for?" "Why," said the superintendent, "the purchasing agent told me that you told him to take them." "Why," said the boss, "the d—— fool told me he could get some seconds, and I thought he meant new brick just a little off—not second-hand brick. Well, it is just my luck. That's one thing about brick, you never can destroy the d—— things." (Laughter.)

What about second hand concrete? Did you ever see any? Is there any difference between the indestructibility of brick and concrete?

I have said that reinforced concrete is not inexpensive construction. It is a well-known fact that only in cases where the cheapest kind of unskilled labor can be used in building frames, forms and moulds, connecting up the reinforcements, etc., is there anything so far as expense is concerned in the favor of concrete, and in most instances there is a balance on our side.

In our eastern publicity campaign, of which I shall have more to say later, we found that in sixteen fire houses, figured in concrete and brick, we saved the city of New York \$180,000 by the use of brick construction instead of concrete.

I have said you can not build as quickly, and if this is so, this, too, is a great element of cost when the rents are a severe and large item. In one instance, in the city of New York, a building was erected on a plot where the rental value was \$28,000. The concrete buildings, according to figures of the owners, took about six months longer to erect than it would to have erected a brick build-

ing, making a loss of \$140,000. To sum up in a word, an inferior form of construction, with inferior material, which does not save any money; which is, at best, only an experiment, which in most cases is criminally unsafe, is preferred over the only indestructible, fireproof material against whose use no word has been said. Why? Because we, its creators, have stood still, and not until we have allowed the concrete interest to get a start, so that now, like a glacier, though moving slowly yet carrying all before them, do we awake. If we wish to break up this glacier and destroy its effectiveness we must McNamara our way through it. Conditions such as these demand heroic treatment.

Having briefly reviewed conditions and having diagnosed our disease and found a remedy, let us see first how it may be employed to get the best results in the shortest possible time.

Public opinion is the creator of public works. Arouse the people and convince them that they are being tricked and they will turn upon those who have deceived them and rend them in twain.

Last year the manufacturers of the Hudson Valley determined that they would begin a campaign of publicity; notwithstanding the fact that they had gone through two years of hard times, they raised \$5,000 for immediate needs and pledged to the committee such other financial assistance as might be required, provided, of course, the original investment demonstrated the wisdom of the plan. We found we had a serious problem right at hand; under a proposed act of the legislature a new charter for the city of New York was authorized and a committee had been at work upon the draft in anticipation of the enactment of this law. An inspection of the proposed code revealed the fact that some one had curiously left out the word brick in the construction of piers, fortings and in certain walls—that concrete, concrete blocks and other inferior substitutes were specified; in a word, that about fifty per cent of the work



Hervey Haigh, Catskill, N. Y.

where brick had been formerly used, specified concrete or some other substitute. Rather serious, was it not? An annual demand of about 1,000,000,000 reduced to 500,000,000 annually. Up to date the code has not been put through; it would have been slipped through had it not been for the watchfulness due to the increased interest in our plan of publicity. The next proposition we faced was an advertisement by the city for the construction of twenty-one fire houses and a number of police stations of concrete—no brick. We immediately took up this task and suffice it to say that the plans were redrawn, specifications corrected and brick were called for and contracts have been awarded for brick construction—millions of brick to be used where concrete was to have been used. The next one, a much larger proposition, viz., brick construction in subways. It is true we have very little results to show for our efforts in this direction at present, but we can report progress, for already we have secured the use of brick in one section of the work where concrete had been specified.

I could tell you much of interest—of the best obstacles we have overcome—but our plan for this task is in its embryonic stage, and publicity at this time might prove expensive.

The practical way of meeting the conditions and overcoming the obstacles is, as I have suggested before, the organization of an international campaign. The collection of a publicity fund large enough to tackle any problem, no matter how great it may be. The distribution of this burden over the entire clay-producing interests of the United States would make it so light that none would feel it. I propose that we raise at once the sum of \$100,000 proportionate subscription, if possible, to be based upon gross sales. The organization of a national executive committee to take charge of the

same, with a managing member in each State; headquarters in New York and Chicago and some city to be later chosen west of this city; the employment of an aggressive, capable secretary and manager, whose duty it shall be to collect all data and prepare the same for publication and distribution, and whose duty it shall also be to immediately visit any point where the collapse of a concrete structure is reported, secure photographs of the same and such other evidence as might be obtainable from those residents of the town who might be willing to furnish valuable data; that in addition to this, a portion of the fund should be used subsidizing clay products expositions in the larger cities of the country, wherever the executive board might determine they should be held.

As the east is the stronghold of the concrete interest, an immediate invasion of that territory and the opening of a widespread campaign all along the line should be begun. No time should be lost in the organization of such a campaign. Already, bills have been introduced in the various State legislatures looking to the exclusion of brick in the various stages of fireproof construction.

An aggressive fight for the use of brick today means the saving of thousands of dollars, yes, I might safely say, millions of dollars, to the manufacturers in the future.

This matter can not be handled by the National Brick Manufacturers' Association or the Builders' Brick Association, which, by the way, I should mention here and commend for the valuable work that they have done, and which I feel ought to be encouraged by the international organization. Neither can this work be done by the International Clay Products Exposition Company. They have done a great work and are entitled to consideration, but the proposition which I stand for is one that is independent of every other movement of this kind which has yet been attempted. This money, quickly appropriated and wisely expended over a period of twelve months, will create such an interest in the "Back to Brick" campaign that anyone contemplating the erection of a building will be alive to the dangers of concrete construction, and the superiority of clay products construction over that of all inferior substitutes.

We can build a more beautiful structure; we can build more economically; we can build a house that will withstand the ravages of time and, in addition to that, we give a life insurance policy to the public—free of charge.

Why pay life insurance and at the same time build structures of concrete which are unsafe and destroy life.

A fund quickly raised, properly distributed and wisely expended will bring to each contributor a harvest, a hundred fold. (Loud applause.)

Mr. Rose Suggests a New Publicity Organization.

Mr. Rose: Before I leave the platform, and I know you will pardon me, because I am not informed as to just how your affairs are handled, I am going to ask your president to appoint a committee of three that will take up this problem that we have been working on to co-operate with us who have already undertaken this work of a publicity campaign, to the end that some time in the near future an organization will be formed which will take up this problem and before the year has rolled by raise an amount of money that will put it well on the road to success.

President Bloomfield: I trust some gentleman will offer a vote of thanks to Senator Rose for this very able paper.

Mr. J. M. Blair: I would offer such a motion, and in connection with same, if it is possible for this association to have this splendid paper printed in circular form or pamphlet form, and be distributed to the members free and also to every brickmaker in the United States.

Motion seconded by several and carried.

President Bloomfield: There is a motion to adjourn before the house. The motion has been seconded and is not debatable.

Secretary Randall: May I have a word. We are greatly indebted to Mr. Rose for this able address, and he comes today as the guest of Mr. Penfield, and Mr. Penfield, like Mr. Rose, is entitled to our thanks for this splendid address, and he desires to say a word to the convention. I would suggest we hear him.

Mr. Sibley: I will withdraw my motion. I, of course, did not know that Mr. Rose was coming when I made my motion to adjourn.

Mr. Penfield: Gentlemen of the Convention—I had expected to be called on, as I had just been talking with Mr. Randall, in order that I may make an announcement to you. We are to have President Taft with us tomorrow at the Clay Products Show, as you know, at 11:30, and tickets for admission to the galleries will be available at the secre-

tary's office. We have planned to have a moving picture of the members of the association and others who come to the Clay Products Show, and views of the exhibits, in order that we may properly perpetuate these beautiful exhibits. One gentleman said it was too bad to make such a beautiful show and have it last such a short time. It can be perpetuated and carried into all parts of the land by means of these picture films. In addition to that I want to put to this association the situation as it stands today. We have carried this Clay Products Show to its present state, and we need the support of this association and of every clay-worker in the land. I wish to say that there is a gentleman here from the Chamber of Commerce who has something to say to you, if he may have the floor for a moment, and after the gentleman has spoken I wish to complete my remarks.

President Bloomfield: Gentleman, I take great pleasure in introducing Mr. Butler of the Chamber of Commerce of the city of Chicago.

Mr. Butler: I am here today simply to extend to you in the name of Mayor Harrison of this city and through him the entire city and the Association of Commerce, representing four thousand and upward business firms of this city, a most hearty and cordial urgent invitation to hold your next Clay Products Exposition in Chicago. (Applause.) We believe we have here in Chicago an ideal convention city, ideal from every standpoint. We have here every possible attraction to give you a good time; we have plenty of theaters; we have plenty of opportunities in every possible scope, not only for amusement, but for education; we have art galleries, museums, everything you want to make your stay here pleasant as well as profitable to you. Chicago is geographically well located, and I know you believe in the very center of the clay industry of this country. From a railroad standpoint Chicago is certainly as easily accessible to the members of this association and to the average man and woman in this country. We have everything to offer for your exposition of clay products. We want you here, and we want you very much, and if you will come here next year and the next year and the next year and the year after that the Chamber of Commerce will do everything in its power to make your exposition a success and a greater success. We hope you will come. We want you, and if you do come we will make you want to come again. (Applause.)

Mr. Penfield: In order that you gentlemen may understand the position I am in, I wish to state frankly to you that I have worked as hard as I know how to make the exposition a success, to give publicity to the clay industry, and increase the demand for clay goods. The responsibility has been in a large measure on eight or nine gentlemen connected with the industry. We want the support of the N. B. M. A., and we want the support of every clayworking organization in this country. We are going to endeavor to secure it. We have secured many lines already. What I fear is if we do not get the backing and support that we should get from this association we may not be able to do as well as we should, and in that way it would hurt the industry. What we want, what the members of the exposition company want, is that this association before it adjourns should vote as the sense of the meeting that we will hold our convention in Chicago next year. Give us your support in every way you can. Come and make the exposition, if possible, still greater. We will promise you a far more beautiful show next year; we will get good results from this show, and we will do everything in our power to forward the interests of the industry. If you give us your support at this time we will be able to do so much more than if it is postponed four or six or eight months before we know it. You may think I have a personal object in this. I have none and I declare myself as such.

Mr. J. M. Blair: I would suggest as a measure of protection that we have to be governed by our constitution in all our proceedings, and all invitations for meetings must be referred to the executive committee, as they have full power to decide upon that matter. I would suggest to the

chair that no action be taken at this time in regard to this invitation.

Secretary Randall: I want to say we can follow our usual procedure with absolute safety so far as the exposition is concerned. A year ago we entertained before the convention a resolution requesting the executive committee to arrange for a meeting in Chicago, and we did so. I do not see what more need be asked for at this time.

Mr. J. L. Stevens, Boone, Iowa: I move that it is the sense of this convention that the executive should have this meeting repeated next year in the city of Chicago. I think we are all grateful to the citizens of Chicago and particularly those who have put their money and time behind this show, without very much support from any of us. I plead guilty to not having done all as a clayworker that I ought to have done, but I believe in a sense in rewarding the men who have put this through by at least repeating it here in this city another year if they desire it, and, of course, it will be left for us to determine afterward whether it shall continue. I think it would be unwise if we did not repeat this show in the city of Chicago next year, where, as stated, we have all the elements for a successful convention, geographical location, exhibitors' rooms, hotel headquarters, everything favorable. I believe Chicago has a record of making about as many brick as are made anywhere, unless it is New York.

Mr. Charles B. Ver Nooy, Chicago: I wish to second the motion. It was the motion I wanted to make myself.



J. L. Stevens, Boone, Iowa.

Mr. John B. Rose: I believe I have paid my dues. I usually try to pay my dues whether I attend the convention or not. I cannot resist the temptation to say just one word more. About twenty-two brickmakers from New York are with me today, and while I do not undertake to speak for them I know they have had in mind the same thought. I had hoped that we might be in a position to offer an invitation to the National Brick Manufacturers' Association to come to New York next year, but on account of the problems which we have had to face, some of which you have heard about, and others which I think it best not to mention, because they are somewhat legal in their entanglements, I do not feel in a position to extend such an invitation today, but I want to say that no brickmaker, no clay products producer can go to the exposition in the Coliseum without feeling, and I speak as a member of this association, without feeling that anything we can do to forward this show and encourage those who had the nerve to take up and make a success of the thing we thought would prove a failure, I say it is the least we can do to come here to Chicago next year, and I want to say that I hope to have the pleasure of being with you.

Mr. C. P. Mayer: As far as I am personally concerned, I care not where we hold our next convention. They had told me years ago, and they had told me so often, that Chicago was a wonderful city that I believed it, and when they said they were going to have here an exhibit of brick

and clay products that would command our admiration and the admiration of every industry in the country, I thought, "Oh, that wonderful city." But I want to say that they have surprised me; they have done their work well; they merit a return. So far as I am personally concerned I would prefer to go to the only and greater city in the world, New York, but take the convention where you will, I will be there with my red vest. (Laughter.) Before we adjourn this meeting I want to move that the president of this association appoint a committee of five, and I would suggest that this committee be of representative brickmen who have shown their ability, to organize a national publicity committee, to be known as such, for the purpose of advertising clay products. Now that may not be in order, for there is a motion before the house and I will surrender the floor for discussion on that motion.

President Bloomfield: Does anyone else want to talk on the motion that it is the sense of this convention that the next convention be held in Chicago? You will vote on the question before the house.

Motion carried.

President Bloomfield: I would like to say one word. There has been some talk about a committee on publicity. The gentleman who is now occupying the chair, at the convention held in Columbus, Ohio, some years ago, offered a resolution by which a committee on publicity was formed then and there, and as a result of that resolution there has grown up the organization now known as the Building Brick



Charles T. Harris, New York City.

Association of America, and they had a convention here yesterday and heard reports and papers on publicity and its advantages, and they were organized for that purpose and that alone, and represent this National Association in the field of publicity.

Mr. Rose: I wish to say one word more. I have had called to my attention from time to time the work which the Building Brick Association is doing. It is good work and I have mentioned it in my speech, but I cut out some parts of it because the hour was late and I did not want to tire you. We appreciate the work of the Building Brick Association, but I want to lift this proposition above any possibility of there being any thought that one particular interest will be advanced over another. We want an entirely new movement. I mean by that just this, a movement which will be representative of the National Brick Manufacturers' Association, of the Building Brick Association and every clay product of the United States. It would be very unseemly, and I would be lacking in courtesy, to come before this body of representative brickmakers and say I did not believe they were big enough to handle this proposition. I believe you are big enough to handle it, but we want to get the support that is absolutely necessary from all the other clay products producing interests of the United States. We have got to make it a bigger proposition than one which we could advance from this floor.

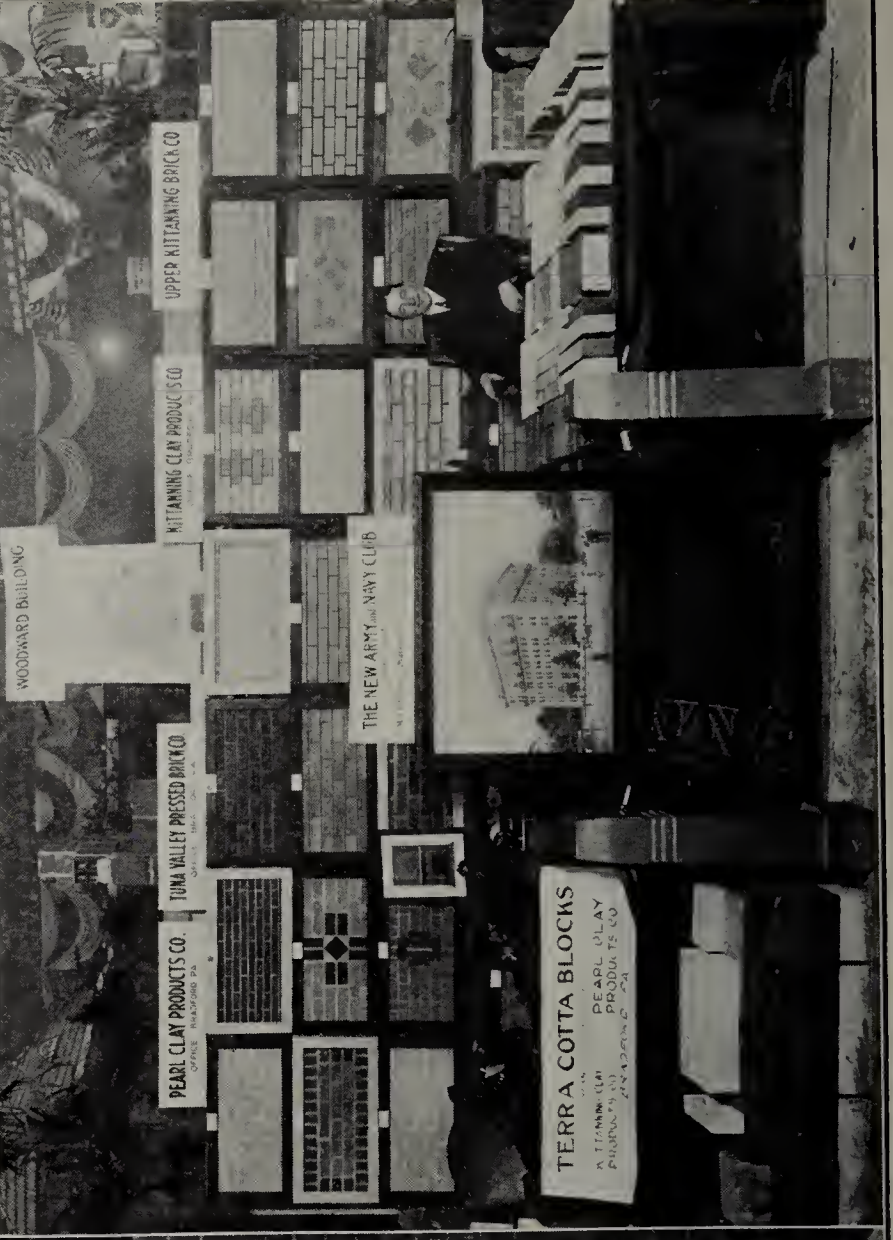
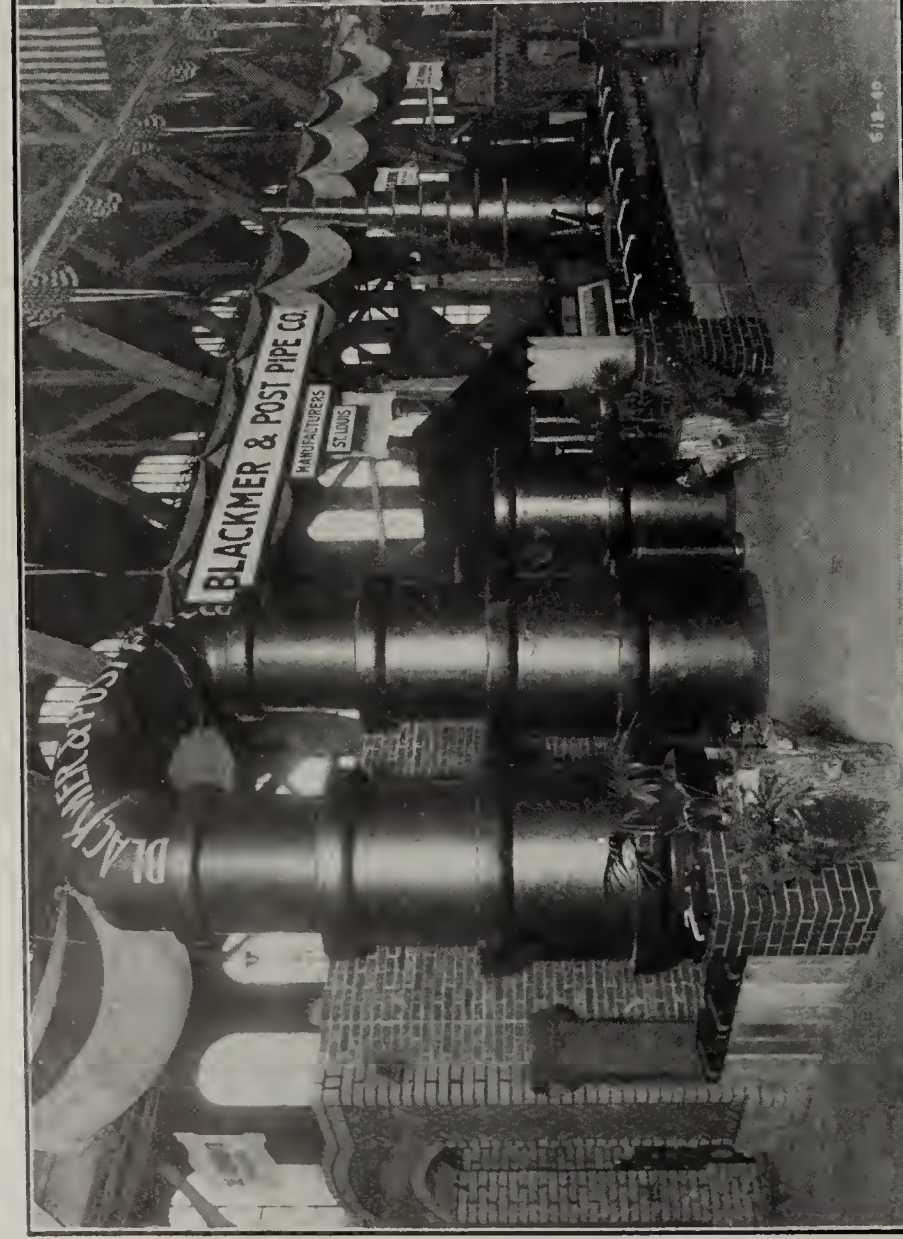
Mr. C. P. Mayer: Mr. Chairman and gentlemen of the convention—I am glad to see the spirit that has here been displayed. You know there was a time, and it was not so very long ago, that the brickmakers were very jealous of one another. They reminded me of the captain who made a remark about the colonel: that he was not fit to carry food to a bear. And the colonel heard of it, and he called the captain through the proper officer, and gave him to understand that he would face a court-martial unless he made an apology. The captain saw it was up to him to apologize, and he said: "Mr. Colonel, in a passion I made the remark that you were not fit to carry food to a bear. I apologize. You are fit." Now, I am glad to see these men here from New York. I am glad to see the brickmakers from everywhere looking into one another's faces, and through their eyes drink good fellowship from one another's souls, and say to one another, "You are fit." I want to make this motion, that the chair appoint a committee of five, and on that committee he shall place a representative of these New York men who have come all this way, that he shall put one on that committee, one member from Chicago, and that the secretary of this National Brick Manufacturers' Association shall be a member of this committee, and the committee shall consist of five or seven members as the chair may choose.

Mr. R. C. Penfield: I wish to say this before the motion is seconded. I have no doubt but that the intention is absolutely good; it could not be otherwise, as I know from a talk I have just had with Mr. Randall, and I say it is in the mind of many here today, the only reason I fear that we will not get the support for that movement we should is that it may seem to emanate entirely from the N. B. M. A. We have other great interests. We have the sewerpipe interests, the pottery interests, we have the fire-proofing interests, fire brick and many other interests that must be included in this, and the people who are behind and fully represented. In the Directory of the Clay Show Company we are going after a wider market. You have the secretary of the N. B. M. A., you have representative Chicago brickmakers, you have representative paving brick manufacturers, you have the sewerpipe interests, and others, and we are planning to spend more money and time, and all we ask of you today is to give us just one year more in which to develop the whole problem of publicity, of wider markets, and if we are not able to give an account of ourselves a year from now, with a plan broad enough and wide enough to take in every clay interest in the United States, in order that we may have the greatest convention, the greatest exhibition, then I think it would be time enough to take up the time of appointing a committee to consider this. We have made a long stride ahead already. We have put a lot of money in this thing, we want the chance of one year's trial. We have the Paving Brick Association, Mr. Blair is on our board, and we believe we can give you such an exhibition of clay products and give this whole industry such a line of publicity that will get the support of every industry from all lines. Now you know where we stand. Many of you have said we have made good, and we will go forward.

Secretary Randall: I did not intend to speak on the question at issue, but inasmuch as my name has been mentioned I feel impelled to do so. This association to a man, without exception, has stood behind and for the Clay Products Exposition. The N. B. M. A. has given that great enterprise every encouragement and support possible. It could not have done more as an organization than it has, and any intimation to the contrary is without the slightest justification. The N. B. M. A. as an organization has always favored every progressive movement; it will continue to do so, for the spirit of progress is the very source of its being. It will continue to give cordial support to the Clay Show, but there is just one thing we are going to demand in return, and that is, that this association be allowed to govern itself in its own chosen way and that the exposition company shall not repeat the attempt to swallow this association. (Loud applause.) We, of the executive committee, are going to maintain the integrity of this association. Many of us have worked for it for twenty-six years and we are not now going to submit tamely to dictation from any local contingent, a majority of whom have never attended a con-



The Twin City Brick Company's Fine Display of Face Brick and Three Other Interesting Exhibits at the International Clay Products Exposition, Chicago, March 7 to 12, 1912



Four Attractive Exhibits at the International Clay Products Exposition at the Coliseum, Chicago, March 7 to 12, 1912

vention. We are not going to permit a Chicago faction to ruthlessly put us out of business, as one indiscreet member of that local faction said on the floor of this convention they proposed to do. No such faction can dictate to us as to who our officers shall be, nor shall they make our laws. (Applause.) I speak with feeling, and I have a right to, for I feel that the very life of this association has been threatened. I appreciate fully all that Mr. Penfield and his associates have done. I take my hat off to Mr. Penfield. He is a remarkable man and has done a remarkable work for the clay industries, but that does not justify him in assuming the role of dictator to this association. We have stood solidly behind the Clay Show and will continue to do so so long as our rights are respected. (Applause.)

Mr. John B. Rose: May I say just one word more. It is a sign of health when you can have a real fight in your own organization. When you are so dead, or so much asleep that anybody can put a thing over on you without protest, I simply say, "God help you." (Applause.) There is just one phase in this whole proposition in which I am vitally interested, and I want the National Brick Manufacturers' Association to understand it, and I want Mr. Penfield to understand it, that neither the Clay Products Exposition nor the Brick Manufacturers' Association has any strings on me. (Applause.) And while I appreciate the resolution which was offered, that a committee of five be named in this association, and while I appreciate that the International



Lemon Parker, St. Louis, Mo.

Clay Products Exposition feels that they have some rights to recognition, I say to you that if you don't impress on every interest that this association seeks to aid that which the Chicago people are trying to do, it will fail. We cannot afford to have any difference at all. What I wish the gentlemen would do would be to offer a resolution that a committee of three or five would be appointed representing this association to co-operate with those of us who have already begun some work along these lines, not with the idea that

anything which we have planned will be crammed down your throats, but with the idea that all these associations and all these interests shall work to and for the good of all. (Applause.)

Secretary Randall: I want to move as a substitute for Mr. Mayer's motion, the suggestion of Mr. Rose, that we appoint a committee to co-operate with committees of other associations.

Mr. R. G. Eisenhart: I second Mr. Randall's motion.

Mr. W. P. Varney, Chicago: There is just one statement the secretary made that I wish to call attention to, and it is the fact that the National Brick Manufacturers' Association is behind the movement to have the Clay Products Show here. That is exactly what we are kicking against. They ought to be ahead of the movement. (Laughter.)

Mr. Penfield: We are about to adjourn, and I think the secretary got a little bit warm. You know they accused me of mixing in the other day, and I did, and I apologized for it and I withdrew my motion. The secretary ought not get me mixed up with the Chicago brickmakers. They certainly could not down all the other members of this association, and when he said the little Chicago contingent was trying to run things he did not mean that. There were only a few of them, and I do not think the Chicago fellows will have anything against him for what he said.

Secretary Randall: I don't want any man to intimate or think even that there is a thought in my mind unfriendly to the brickmakers of Chicago. I have no better, warmer friends anywhere than many of the representative men among the brickmakers of Chicago. The pleasantest recollections of my life center around the friendships of the brickmakers of Chicago, which I have enjoyed more than a quarter of a century. There is no reflection on them. The beautiful bouquet on the assistant secretary's table is a reminder of the abiding friendship of D. V. Purington, one of Chicago's best known brickmakers, and one of the founders of this organization, and attests his unfailing interest in it and its work no less than his affection for me and the assistant secretary. If he were here at this time his voice would be raised against the attempt that was made to wreck this association or divert it to purposes for which in the nature of things it is not intended. I do not think Mr. Varney, I do not think Mr. Matz or any of the Chicago brickmakers really intended anything of the sort, but there was an influence which led them in that direction. We are going to mend our fences, and you will find you cannot run us in the future. We may come back here, but if we do we will come with an organization that no antagonistic faction can break into with a stick of dynamite. We are with you in reason, but you must play fair with us. (Applause.)

Mr. Schlake: Is that a challenge, Randall?

Secretary Randall: Take it that way if you like. I think we should vote on the question before the house.

The motion of appointing a committee of five to co-operate with other associations in regard to publicity work was put to the convention and carried.

Mr. Sibley: I now repeat my motion to adjourn, subject to the call of the executive committee.

Motion seconded and carried.



THE ANNUAL BANQUET.

A Delightful Evening's Entertainment in Which the Ladies Participated.

A FITTING finale to the great convention was the banquet Friday evening, given in the beautiful gold room of the Annex Hotel. Plates were laid for 500, and there were few vacant chairs when the photographer asked that all present look pleasant that a picture might be taken before the table decorations were disturbed. Within the hour, before the substantials had been disposed of, the finished picture, still moist, was shown to the guests. Some could hardly believe their eyes, as the photo was handed from one to another. Music, instrumental and vocal, flowers and cigars were provided by the Chicago Clay Club, and for an hour or more, jolly rollicking songs filled the air while the guests discussed the following excellent

MENU.

	Blue Points		
	Mulligatawny Soup		
Radishes	Olives	Celery	Salted Almonds
	Whitefish,	Mornay Gratin	
	Breast of Chicken,	Kossuth	
	Sweet Potato	Croquettes	Peas
		Egg Nut Punch	
	Salade,	Chiffonade Dressing	
Neapolitan	Ice Cream		Assorted Cakes
Coffee	Cheese		Cigars

Then came the real entertainment. Gates was toastmaster, our own "Button-hole" Gates; his charming wife by his side lent an inspiration, 'twould seem. At any rate, he was at his best, and delighted the immense, splendid audience by his cheery wit, wit without a sting, just wholesome pleasantries that quickens the mental forces, yet soothes and satisfies the senses, as a mother's sweet lullaby soothes the tired child. There is no intent to suggest even that any of the banqueters slumbered at any stage of the entertainment. They did not; instead, the entire audience remained in their places and by frequent applause manifested a keen appreciation of the speeches and seemed loath to go even when Toastmaster Gates himself had said the final word.

Toastmaster Gates: A quarter of a century—a quarter century and a year—since our first meeting, and I can not help but grow retrospective as I come here tonight and meet you gentlemen, and I can not help but think of the changes that have been made in these twenty-six years since we met in Cincinnati. The frosts of time have been busy and I see the silver of your hair as I look out over this audience, and I see in some cases where you got ahead of the frosts. (Laughter.) But I note that while time has been busy with the men, that the ladies, God bless them, are just as young as they were twenty-six years ago. I could not help but think, as I came here tonight, of the old days, and of those we have grown to know and to love, of way down on Mississippi Sound, where I know tonight when the sun went down over the waters and hid the distant islands, that grand couple we have known so long and grown to love and revere, the kingly Purington and his marvelous wife, were thinking of us and in their thoughts traveling up here to be with us again on this twenty-sixth anniversary, and I thought of the countless other friends who have been with us these many, many years, until the associations and friendships have grown into the dearest friendships we have known. Among others, I see that staunch man before me who has always stood as a mile post leading to the road that was right—Anthony Ittner—a man whose acquaintance has been worth traveling annually twenty-six years all the miles to the convention. Now, I don't want to grow personal, but there are certain of these memories that come to me tonight that are overwhelming. It is useless to go on naming them all, the roster would be too long, and yet I can not resist some of them. Our good friend

Sibley comes year after year with his marvelous collection of stories, until we have grown to come, year after year, always knowing we would get the very best and latest stories, and I have often wondered why they have not got Sibley away from the brick business and on the staff of some of the leading journals or story papers. (Laughter.) I need not enumerate these friendships, they are too numerous in this association. I know of no organization of men in which there have been such close friendships, such lasting and true friendships as there have been in this association, and on that account we can not help but think of those who have passed over to the other side, and there are so many of them, and yet not so many for the many years that have gone. Think back in the twenty-six years. It was my privilege to be one of the charter members of this organization, and young as I then was, I thought there was great good to come out of the organization, but the most enthusiastic one of those at that time had no appreciation of the magnitude of the task we had undertaken, or what great good would grow out of that under-



Toastmaster W. D. Gates, Chicago, Ill.

taking. We felt at that meeting in Cincinnati twenty-six years ago that the convention papers we had there had exhausted the subject, and when we came to another meeting, there would be nothing else to tell. The mass of information that has grown out of the different organizations that have been formed has been to me a wonder and a pride. The outgrowth of this association, and the other societies which have been the outgrowth of this association, has formed a literature and established a new art. It has made it a scientific art and has made a literature in the English language that is unsurpassed in the ceramic literature of the world, I believe, today, until we have brought our business to a specific status, until we can send our children to school and educate them and start them off with advantages that none of us have ever had.

Now I am a little ill at ease tonight. I want to confide in you people. I don't want to have anything concealed, and I will have to tell you a little bit of intimate history connected with this particular convention. When the Chicago Clay Club was formed, and we got together around a large table—an empty table, by the way (laughter)—and organized, I don't know why they made me chairman. Immediately the man sitting at my right said, "The next thing we have got to do is to select a toastmaster, and what we want to avoid is getting one of those fools who will do all the talking himself," and the next man said, "That is exactly the situation, the people come to hear the speakers, and these fool toast-

masters that get up and do all the talking want to be avoided." The next man took up the same line of talk and it traveled around the table until they came to me, and then they looked at me and said, "Gates, you are to be toastmaster." (Laughter.) If any man ever got his instructions, I got them. And whatever I do tonight, I want you all to know that I am standing here knowing that this Chicago gang have all got their hammers ready. Speaking of the Chicago gang reminds me there is one thing I want to say to you people. Among the peculiar things in Chicago, you have perhaps learned there is one peculiar thing in our clay. There is no other place in the world where there are the conditions there are here. The demand has been for a large amount of brick, and while we do not claim particular advantages for Chicago brick (they may be rough but they are good), when we look at what they have built in our city we are proud of them, for they are perhaps as good brick as are made anywhere, but the particular distinction they have is that they are made in such enormous quantities, and we have with us here the largest brick manufacturer in the world. That is a rash statement for me to make, for I have just located our friend Hammerschmidt. (Laughter.) I should, perhaps, say, we have with us the manufacturer of more brick than any other man in the world. One peculiar thing is he makes brick and sells them. This man makes large quantities of brick and incidentally makes money, and I want to introduce to you Mr. William Schlake,



Wm. H. Hunt, Cleveland, Ohio.

who has been instrumental in making our show what it is down at the Coliseum. (Applause.)

THE LADY WITH THE TIN HAT.

BY WM. SCHLAKE, CHICAGO.

"I will," our city's motto reads.
Brief in words, but great in deeds."

Mr Toastmaster, Ladies and Gentlemen:

The largest manufacturer of common brick has been allotted the smallest space of time of all the speakers of the evening. Just before making the final arrangements for the program this evening, Mr. Gates called me down to his office and informed me that I should have just two minutes, and I am glad, for your sakes as well as my own, that I am not to be on my feet more than two minutes. I had hoped to get rid of my task by inviting the brickmakers to visit a modern brick plant and give them an actual demonstration of what Chicago brickmaking is, instead of attempting a lengthy dissertation upon our methods, but the weather conditions have been such here that it was utterly impossible to start a yard. This I would regret much more than I do were it not for the fact that the National Brick Manufacturers' Association has decided to hold its next convention in Chicago, and I think a year hence, when another two minutes is granted me, Mr. Toastmaster, I shall extend to the brickmakers an invitation to visit one of our yards. I thank you, Mr. Toastmaster. (Applause.)

Toastmaster Gates: Mr. Schlake was one of those fellows who put it over on me on the talk business, and circumstances sometimes arrange it so that we can get back. (Laughter.)

I was thinking tonight of a thing that may seem a little out of the line to you, but I was thinking of the time Mr. Purington told me of a remarkable instance of ability that many of the politicians possess of placing faces and names. He told me of meeting James G. Blaine years before, incidentally meeting him where a large number of people were meeting him, and years afterward how he met Mr. Blaine again and Mr. Blaine immediately called him Mr. Purington. Mr. Purington was rather surprised and thought it a wonderful case of a man placing faces and names. It has always seemed a remarkable faculty to be able to do this. Some years ago when I had the honor of being on the advisory board at Washington at one of the gatherings there, I met the speaker of the evening at a reception at his home and was introduced to him. I had not seen him from that time until tonight, and tonight, when I was introduced to him, he said "Oh, yes, Mr. Gates." Mr. Garfield remembered me perfectly, I am sure (how could he do otherwise?) and remembered not only that he had met me, but that he met me in Washington. He remembered, but he thought I might be sensitive about having been seen in Washington. I think that touch of delicacy, coupled with the remarkable faculty of placing me, so instantly, is a very, very touching thing. We all have more or less regret for being caught where we ought not be, and his care in not giving me away has impressed me very deeply. It is my privilege to introduce to you, whom I know so well—well enough, I might say, in fact I was going to say, so well that I could borrow money from you, or possibly I know you too well for that (laughter)—but knowing you as well as I do, and knowing Mr. Garfield as well as I do, I take great pleasure in introducing to you the honored son of an illustrious and worthy sire, the Honorable James R. Garfield, of Cleveland. (Loud applause.)

CONSERVATION AND BUSINESS.

BY HON. JAS. R. GARFIELD, CLEVELAND, OHIO.

"Woodman, spare that tree, I pray,
And use instead, the better thing, just common clay."

Mr. Toastmaster, Ladies and Gentlemen:

From what Mr. Gates has just said to you, I am led to believe that I must take with a great many grains of salt, all the other statements that he and the other brickmakers and those of like trade have said to me today, because certainly he has drawn in a most marvelous way upon his imagination. Instead of really remembering him, as I should have done, I had to confess to him that I could not fix it altogether in my mind. The fact was he tried to impose himself upon me as an old friend. (Laughter.) Now whether he was trying to negotiate a forced loan, I do not know, but at any rate I was immediately upon my guard and simply told him I remembered his face but could not fix his name. And he said, "You can not get me away from my face;" and on the other hand I did not need to, but I may have had some hesitation in acknowledging about where we have met before, because there are some gentlemen in the country today who do not like to remember the time or the fact that they ever were associated with an ex-administration. (Laughter.) I see here on the toast list there is a little couplet of

"Woodman, spare that tree, I pray,
And use instead, the better thing, just common clay."

May I add another line to that?

"If we believe all things you say,
The parson soon would have to say,
Not dust to dust, but clay to clay." (Laughter.)

Certainly this character of entertainment for a meeting such as this is unusual to those of us who have not engaged in any active business, but in addition to our regular vocation, that side line which your toastmaster referred to in rather slighting terms a moment ago, because when he used the word politicians a while ago, there was a distinct sneer on his lips, as though a politician was not a man to be recognized in polite society; being an ex-politician, I suppose I may be allowed to get into polite society. It is a pleasure to see the men and women meet together, not only enjoy the exercises of your convention, but to take part in the social features of the meeting such as this. It is one of the best signs of the times, and I think will have much to do to break down the cause of militant suffrage, because I am sure no woman here, after this evening's entertainment, would think of throwing brick bats through the windows. (Laughter and applause.)

When Mr. Matz asked me to speak before you, I was very glad to accept the opportunity, because it gave me the chance to talk about a subject which has interested me very, very greatly for a

number of years past, and that is the topic assigned of "Conservation and Business." Some of you may think it rather a far cry to try to tie up business with conservation, yet I hope you will agree with me that there is a very close connection between the two. This afternoon I had the pleasure of going out to the exposition and had the pleasure of seeing what was being done there. It more than ever gave me the impression that there was a very direct connection between conservation and the business you are engaged in. I was gratified to find that that business had been under the management of an Ohio man, Mr. Penfield, and those with him who have been able to present to the average man and woman of this city an opportunity to see what was being done in clay work. Of course, we Ohio men are very modest, and Mr. Penfield would not admit that he had had anything to do with it. In fact, he denied that he had had anything at all to do with it. It is an admirable example of what can be done by the wise, intelligent use of clay. It seemed to me that if you people could take that exposition elsewhere you would do much to increase the knowledge and use of burned clay—of course, you don't care anything about the latter, all you want is the knowledge, but the knowledge and use of the materials of which these wares are made is the reason I am interested in this meeting from a conservation standpoint. Those of us who have been studying conservation and working for it, continue doing so because there is a great underlying principle involved in the conservation of our natural resources. It is not a question of one material or another, but it goes far deeper than that. It is a long look forward—a man must have an imagination if he is to be a conservationist. He must be willing to look beyond the present generation to better things for this country, not ten or twenty or one hundred, but two hundred years



Hon. James R. Garfield, Cleveland, Ohio.

from now. There are many who have said that conservation means the unwarranted tying up of the resources of our country, that conservationists are seeking to prevent development. The very opposite is true. Conservation means this: The minimum use in accordance with the needs of this generation, such use as will prevent ordinary waste, such use as will prevent monopoly of the great resources in the hands of a very few people, and be of benefit to all the people of this country, and not to the pecuniary benefit of a very few people of the country. Conservation means this, that when we develop and when we use these natural resources we shall attempt to use them in the most beneficial way; we shall strive to do exactly what you business men are doing in your business affairs—promote efficiency in all departments and adopt methods to develop the highest efficiency in that particular business. We would not be interested in conservation if it simply had to do with the saving of the forests, for instance. Gifford Pinchot was interested in the saving of the forests for the purpose of keeping more wood or timber in the country. He was interested because forestry is only one of the elements of the great resources, but he had a great idea beyond all this. Not that the forests of the country should not be used, but that they should be handed down to the future generations better because of our use, instead of worse, as if we had permitted the continued selling of the timber and the waste and misuse of timber.

That is one of the prime reasons why the clay business directly touches conservation. It is not for me to say to you who know the advantages of your product so much better than I, but it is true that whenever you use the product of clay, substituting that for timber, for wood, you are thereby preserving and conserving the interests of this country. That does not mean that timber

should be driven out; that should not cause the retirement of the lumbermen, because there is ample space for these building materials, but it means that you who have been and are developing to a great degree the marvelous uses of clay have been aiding conservation; so while we are doing this for ourselves, we are likewise doing something that is worth while for the timber interests of the country, we are preventing the unnecessary waste of the timber resources of the country. The conservationist is not interested in preserving the timber for the timber man, nor the coal for the coal man, nor the water power sites for the water power company, but he is interested in preserving every one of these resources for the people of this and future generations of the people of this country who are to come here when we are long dead and gone.

Why is it that an effort was made to save the coal of Alaska and the Pacific coast and the timber interests of the West. It was not for the purpose of attacking any single great interest, but for the purpose of bringing to the people of this country the opportunity to wisely use the great resources of Alaska and the main land. It was not an attempt in any particular to prevent the development of these resources, but it was a wise patriotic attempt to require that that development be in accordance with the needs of our people and be under such regulation and control as to prevent a repetition in Alaska of the conditions which have existed in Pennsylvania and other portions of our country, where a comparatively few have controlled the resources.

Now, let us pass to the other side of my topic, namely, business. Why is it that business is concerned with conservation? Why is it that you men should be concerned with conservation and with the business problems of today? There is certainly no need to conserve clay, coal, timber or any of these resources if we are simply to tie them up in some other way and not use them. Now, the only way to use them is to use them in a big way to profit business methods, business systems by which these resources can be developed in the best, most efficient, most advantageous and most profitable way, and that brings us face to face with the great issues, the great problems of today, namely, how is big business to be continued? How are we to make the greatest use of these resources? How are those of you who have put your fortunes into the business enterprises, how are you to make the greatest profit consistent with fair dealing? How are you to promote in the best way the business which you are conducting? We have long passed the stage of doing business in a little way; of doing business in one locality. Trade has overstepped all the boundaries of the States of the country, and we are dealing as a great people, striving to develop all the interests of a great people instead of any particular group. That is why the question of business regulation and business control is one of the perplexing problems we are facing today. If we are to develop in any of these industries, it must be developed along right lines, and to develop interest and efficiency there must be a just profit to the man who puts his money in, a profit to the laborer who puts in his muscle against the capital. If we are to work out the great problem of commonwealth government, we can not permit any monopoly.

There must be the restraining hand of the government over these greater interests that are developing in a most marvelous way in our country, and the restraining hand is not a destroying hand. It is not taking away a fair and reasonable profit, but it is so we will have a reasonable profit and just profit, which means that those making the profit must recognize their obligations to the people who are consumers of the product they perchance are making. It is a recognition of the new social obligations that we as a people assume toward one another as we are growing strong and great in manufacturing and business. Do not misunderstand me. It is not an attack upon legitimate business. It is simply an effort to bring the big business interests of the country in conformity with the best business standpoints and the best legal standpoint, to the newer standpoint of social obligations we recognize. Why is it that business the last few years has been lagging behind? Why is it that men are afraid? It is because the Federal Government has failed to do that which it ought to have done, namely, have provided a method for the big business interests of the country to be done in such a fashion that they may know how they may lawfully aid great business enterprises. The mistake is they have too long refrained from intelligently taking up the right kind of constructive legislation. We have been dealing the wrong way with business. We have been bringing prosecutions instead of affording relief through wise legislation, and I think that what we need today is constructive legislation instead of destructive litigation. (Applause.)

We have tried this method of dealing with business. The national banks under the stringent regulations of the Controller of the Currency are today stronger, safer, more profitable than ever before in their history. The railroads, under the control of the Interstate Commerce Commission, are better off than they have ever been, all because they have submitted to and favored a State regulation. In a similar way, the big industrial enterprises of the country should be placed under such executive control and regula-

tion that they, too, can be sure of a legal method of transacting the business of this country, and we insist that that must be done if we are to return to that kind of business confidence that we have not enjoyed the past few years. You gentlemen, and those in other great business enterprises, are the ones who must decide this question. You have before you now the opportunity of deciding between these two methods of procedure, the one constructive legislation, the other destructive litigation. We know what litigation means. There must be both a criminal and a civil law. There must be a way to punish both the evildoer and the wrongdoer in business, and in both cases we must use prosecution, indictment as a last, not as a first, means. In criminal law today we are studying constantly, not how to impose a penalty, but how to correct the evil and prevent a recurrence of the evil. It is not enough to prosecute the man gone wrong under the law, we must provide a method by which we can reach the heart of the difficulty and find how we can provide a safe, honest, legal method for the transaction of business. That is for the business men to take up, and it must not be discussed not in the spirit of antagonism, not in a spirit of hostility, but in a spirit of justice, fairness and a willingness to recognize that thousands upon thousands of business men, great and small, in this great land, who are earnestly striving to do the right thing. They want to know how they can conduct their business legally, and these men ought not be relegated to the long, tedious process of litigation to know whether they can conduct their business under the law.

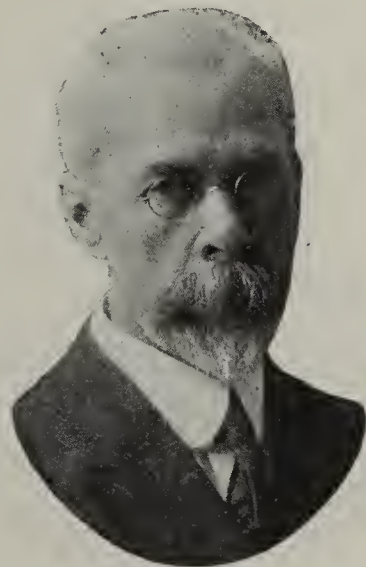
These are some of the thoughts I want to leave with you on conservation and business, and I believe you will agree with me that it represents our every day work and life. It is the conservation of business knowledge, it is the conservation of the body politic that makes for greater efficiency, greater happiness in our country, and if we look to the future as well as to the present and measure our profit by a long look ahead, and a willingness to do that which is not seemingly for our best interest immediately, but for the ultimate good of all, we will find ourselves better citizens and better business men. (Prolonged applause.)

Toastmaster Gates: Several years ago I was on a late train (I am usually on a late train), and coming into Birmingham there occurred an incident that I am inclined to tell because I know from experience that good stories come from Birmingham, and this may be a new story. We were in the smoking room; there were two Birmingham bankers (there are a lot of people in Birmingham bankers, from what I understand), and a man from Arkansas had been talking a lot about things in his State. Finally one of the Birmingham bankers said to his Birmingham friend, "Shall I tell the Arkansas story?" He said, "Take your own chances; I will not stand for it." He said a party of travelers, waiting for a train, had talked themselves out, and finally one of them said he had made a study of faces and could tell by looking at a man just where he was from. Another man said he could not do anything of the kind. So they proceeded to test his ability. The doubter pointed at one man and said, "Where is he from?" "From New York." And the man said, "He is right." He pointed to another man, and he said, "Where is he from?" "From Chicago." The man said, "You are right again." Pointed to another man and said, "Where is he from?" He looked at him a little longer and said, "He is from Alabama." The man said, "You are warm, but you are not right; I live over the Mississippi line but near Alabama." There was one man sitting back of the stove, who had not said anything at all, was crumpled up hanging over his chair, oblivious to all that was going on, and the man said, "Where is he from?" "He's from Arkansas." The man jumped up and said, "You're a liar; I'm sick, that's what's the matter with me." (Laughter.) One reason why I am telling you this story is that Mr. Garfield said he noted a distinct sneer on my mouth when I spoke of politicians. If I had anything that looked like a sneer on my face, it was not at the kind of a politician we have with us tonight. Mr. Garfield, that was not a sneer, that was a smile. I'm sick; that's what's the matter with me. (Laughter.) He also said he knew me by my face. I don't know why I must always run into trouble with that face, and, anyway, I have been with it more than anyone else has. Years ago, in journeying along the Nile in a boat on a three-weeks' trip, we got pretty well acquainted with all the passengers on the boat. There was an old English couple that I had not disturbed any that I knew of on the trip, and they had not disturbed me, and just as we were disembarking I ran across the old lady and she shook hands and said, "Mr. Gates, I am glad to have seen you, you know you have such a characteristic American face." (Laughter.) I said, "I am

glad you noticed it; I have traveled with it a long time, and I am becoming very much attached to it myself." I have sometimes thought I would go over to England and see if she had got that yet. (Laughter and applause.)

You know this reminiscent mood I got into a while ago; I can't get away from it. We have had changes in our officers, in our managers, and in those who manage our managers, and today I got into touch with the real power behind the throne. It was up in the secretary's office, and the young lady was pouring tea, and we got very confidential, and she said, "Granddad is having a hard time, I wish you would look after him a little bit. I want to tell you one of his weaknesses. You know before this banquet he goes to everybody and says, 'Now, I am going to call on you for a speech.'" Now I know that is so, because I have been to these banquets myself and Randall has come to me and said, "Gates, I am going to call on you," and I have gone through a banquet that I might have enjoyed, but did not because I was getting ready for the speech, and for a man to sit all the way through a banquet, thinking he is going to be the next man called on, and then have to go away without having got rid of that speech, is no joke, and I promised that young lady that I was going to cut this thing short, so you can go away knowing that there will be a lot of unspoken speeches, but you do not have to go away for fear of them.

One reason why I look so old, so much older than I really am, is that for more than twenty years I have frequented the



Prof. Charles F. Binns, Alfred, N. Y.

architects' outer offices (laughter), held down the chairs, listened to the sweet sounds that came from the private office; sat there for hours only to have Fritz Wagner trip past me with the contract in his hand. How he does it I do not know. He is the best competitor a man ever had and the strongest and most efficient. The next on the program, as you will see, is the "Stein Song," by Fritz Wagner. I have sometimes thought he got these contracts by singing, and I would like to hear from him now. (Applause.)

FRITZ WAGNER'S REMARKS.

Mr. Toastmaster, Ladies and Gentlemen:

I would have felt flattered when I saw my name on this program had I not known my friend Gates' old tricks. He is worse than the architects. (Laughter.) He always tries to make me do the things I can't do. Since I don't know this "Stein Song," that is why he put me down for it. A lady said to her husband, "Dear, the doctor told me I will have to go south for the winter, where shall I go?" He said, "Go to another doctor." (Laughter.) Now, Mr. Gates is certainly a very good toastmaster, there is no doubt about it, but he knows very well I am not fit for a toast, knows very well that I can not sing that "Stein Song." I see these beautiful color effects, the wonderful combinations of tapestry brick, etc., etc., all wonderfully reflected. I see them here tonight again, the ladies honoring our assembly here, of course, makes it a much more beautiful picture than I have seen, but it is really surprising what I see there. There are fine combinations, and, if I understood Mr. Garfield correctly, they are all within the law. (Laughter.) Now, when I got scared with the "Stein Song" Mr. Gates flung at me, I began to inquire and I discovered that, separated from me only by

three or four gentlemen and ladies, there is a gentleman with a Caruso chest who can sing better than I, and I beg to be excused, ladies and gentlemen. (Applause.)

Toastmaster Gates: He has got a substitute. Will the substitute respond?

Mr. Bastedo: I am sorry, but I do not know the "Stein Song," and therefore I can not sing it.

Toastmaster Gates: Mr. Randall has sprung a new one on me when he worked these poems on us. He said he was not going to let me see this program until we got up here tonight, and I haven't seen the poetry yet. I don't believe it is poetry. I am sorry that Mr. Sunderland is not here tonight, but I am not sorry that we have such a good substitute for him as my friend Rose. Those of you who have listened to Senator John B. Rose, of Roseton, N. Y., will be glad he is here to take Mr. Sunderland's place. (Applause.)

BLUE SKY AND COMMON SENSE.

BY JOHN B. ROSE, ROSETON, N. Y.

"'Tis well at times to soar above with grace,
But have a care about your landing place."

Mr. Toastmaster, Ladies and Gentlemen:

I came to Chicago to speak upon the advisability of publicity and I find myself speaking, for the second time today, without being advertised, on the toast list as among the speakers. After listening to the toastmaster and the very able address of Mr. Garfield, and having passed through some of the difficulties of which he



Grant Dibert, Pittsburgh, Pa.

spoke—namely, litigation—and having learned from my good friend on the right, that all those present tonight have received a clean bill of fare, so far as any combination in which he may have been engaged—as I cast about me here tonight I can say truly this is the most beautiful banquet I ever attended. I have just one criticism to make of our friend Randall. I call to your mind that when the photographer was about to snap the picture, he said to the ladies, "Look sweet." Now they always look sweet to me. (Laughter.) There is one peculiar thing about the arrangement of the head table; I felt like reciting a parody on the "Charge of the Light Brigade," "Ladies to the front of me, ladies to the right of me, ladies to the left of me, but none near me." (Laughter.)

After dinner speaking is an art, and those who attempt to follow a serious, and I think I may safely add a very well prepared, address such as we have listened to tonight from Mr. Garfield, need be very careful how he attempts to address an audience of this kind. Most speeches at a time such as this are either of two kinds, awfully simple, or simply awful. Now the first class are usually amusing and are a great delight to the hearer. It is frightfully hard on the speaker, because the man who is highly amusing either does not know it and thinks he is making a very poor address and feels very miserable, or if he does not know it, he realizes that he is making a fool of himself for the benefit of his friends. (Laughter.) In the "simply awful" class is the man who attempts at an unseasonable hour to deliver a serious speech, and soaring aloft into flights of oratory, he attempts to charm and hold an audience when he realizes that they are good naturedly tolerating him, and then he begins to look for a place to "get off at," and wishes some of his friends who know him well would throw out the lifeline. (Laughter.) Having received courteous treatment

this morning at the hands of the brick manufacturers when I arrived at an untimely hour when they were about to adjourn for lunch, and detained them for an hour in an endeavor to induce them to put up some money and let me spend it, I feel that I would be transgressing upon their generous hospitality if I made any extended remarks, but I do want to correct an error.

One of my very best friends, you know the kind that gets you by the button-hole and says, "You made an awfully good speech, Jack, but you made an awful mistake when you did so and so," came to me this morning after my speech when I had referred to an incident in the civil war, the famous ride of Phil Sheridan, and said that perhaps I had stepped on the toes of some of my southern friends, so I want to take this opportunity of expressing publicly my admiration for the heroism and the loyalty and the patriotic spirit which the men of Dixie rendered their flag as they saw it. During the past week in Albany, and I must plead guilty to the indictment of being somewhat mixed up in politics, though I have not been sent to Washington—yet (laughter), I was privileged to meet and talk with one of the grand old men of the civil war, General Sickles, who came to ask a slight appropriation of the State of New York of some three or four hundred dollars to send down to the battlefield of Gettysburg the veterans of the civil war who are to be present at the great encampment there in 1913. The government has appropriated \$50,000 for the erection of a peace monument, and in 1913 the President of the United States—he has not told us yet who he is to be—is to lay the corner stone and the Chief Justice of the Supreme Court, a southerner and an ex-Confederate officer, is to preside, and those of you who attend, and I would advise you all to be there, will witness the spectacle of 150,000 veterans of the North and the South unite with hands clasped and in each other's embrace bear aloft the stars and stripes. (Applause.)

I am reminded of a story of a tall, stout woman of some 260 pounds who had for a husband a man about five feet four, weighing 110. (Laughter.) It was his great pleasure to escort his wife to all the public functions but, somehow or other, he could never get in the limelight. Finally an opportunity was given him to take a prominent part in the proceedings. As he was coming down the stairs—and I am informed that this took place in this hotel, although I am sure it could not have referred to any of the wives of the brickmakers—he preceded, under orders, his wife. When they were about half-way down the stairs the lady's foot slipped and she fell, and as she did so she was projected down the stairs, knocking out from under him her husband's feet, and he found himself in her lap and together they went on down the stairs, and when they arrived at the bottom, he sat there and rather enjoyed this the first opportunity he had ever had of sitting on his wife, as he expressed it. She waited a minute or two, and finally she said, "John, this is as far as I go." (Laughter and applause.)

Toastmaster Gates: I feel as you all do, that we are mighty glad we are here. Some of you have noticed that I said my "friend" Rose. I want to say I have spent the day being introduced to Mr. Rose. Everywhere I have gone today somebody has introduced me to Mr. Rose, and the strange thing about it is that he "stood for it." He is my friend. (Laughter.) But the gang with the hammer is watching me, and I am not going to give them much more chance, particularly as I do not want to keep Mr. Dickey, from Kansas City, from you for another minute.

THE INFLUENCE OF OUR INLAND WATERWAYS ON THE DISTRIBUTION OF CLAY PRODUCTS.

BY WALTER S. DICKEY, KANSAS CITY

"The inland streams we will navigate,
And have our wares delivered while we wait."

Mr. Toastmaster, Ladies and Gentlemen:

My only excuse for being here tonight is one of those "simply awful" talks that our friend Rose referred to. This is my first experience. Although a member of the organization for a number of years, this is the first chance I have had to attend these annual gatherings, and so my subject is rather a serious one, and a dry one at that. Before coming to the serious part, however, I want to refer to this other side. When Mr. Rose spoke of the lady of 260 pounds, I thought surely it must have been the same lady I heard of who, at an entertainment, had her husband referred to as a "model husband," and not understanding the meaning of the term, she looked it up in the dictionary and she found the word, "Model, a small imitation of the real thing." (Laughter.)

Bacon says: "There are three things which make a nation great and prosperous—a fertile soil, busy workshops, and easy conveyance for men and commodities from one place to another."

Minimizing transportation cost is now an economic subject of world-wide importance, and, with us, a national necessity.

Direct and indirect charge for transportation of commodities

is, by far, the greatest contribution every man makes to the cost of existence, and any movement looking towards lightening that burden is of paramount importance to every American and, in fact, to all mankind.

In the onward march of civilization and progress, the improvement of inland waterways is one of the milestones we have reached. It is a stupendous task and must be taken in hand energetically and fearlessly, and handled like other gigantic undertakings, thoroughly and successfully worked out for the great good of the nation at large.

Open, free waterways through the heart of this land, entirely removed from private control or domination, would, in effect, give us the same advantages inland as though located upon the ocean, these avenues of commerce being alike open to the rich and the poor, the large and the small shipper, the big freighter and the little dinghy.

The great source of wealth of the United States, the great producing section, as well in minerals, fuel, timber, and staples of manufacture, is inland, and not on the Atlantic, Pacific or Gulf coasts. The whole watershed of the Great Lakes and of the Mississippi river, while now practically producing for export only food products, raw cotton and petroleum, will some day be the workshop of the world. But this can never come until this large and fertile area, the very abdominal cavity of the continent, reaches the sea with its products at the lowest possible cost.

Assertion is here made that in hundreds of industries, we are utterly unable to compete in the markets of the world with the producers, manufacturers and shippers of such countries as Great Britain and Germany, as well as many other European countries, solely because their great industries are located either on tidewater, or by natural and artificial waterways are enabled to reach tidewater at minimum rates. These old nations of Europe have grown great because of their being navigators and carriers upon the high seas. Allow me to ask, what would happen if the United States of America, being great by reason of its natural richness and productiveness, should develop the seagoing habit, and carry not only its own products, but those of other nations to the ports of the world?

With the early completion of the Panama Canal marking an epoch in the history of this country, the people of the United States will have increased their handicap in the chase for world-wide trade, unless we immediately improve and navigate our inland waterways and restore our one-time powerful merchant marine. This is clear because the great ditch, connecting the Atlantic and Pacific, designed to be of benefit to the people of the Union, will, under present conditions, more certainly tighten the grasp of the seafaring nations of Europe upon world-wide trade and enable these nations to still further outstrip us in the race for international business with our very neighbors in the Pacific.

Great nations should, and do, encourage their people to sell goods in distant lands and far-off countries, securing in return an inflow of foreign gold. Prosperous and progressive nations must, like energetic farmers, produce and sell at a profit more than they buy.

Let us hope that in the onrushing tendencies to develop the inland waterways of this country and restore their use for the carrying of persons and property into and out of the United States, we may at the same time stimulate a desire among our citizens for the seafaring life that, in some way, it may be made profitable for American capital to expand the ship-building and ship-owning industries in this land of ours; that we may develop a race of seagoers, sailors and seamen, to the end that, instead of the United States directly and indirectly paying to investors in Europe owning foreign shipping, an enormous sum, in carrying charges for our own merchandise in and out, we perform this service ourselves, using American-built vessels, manned by American sailors and seamen, directed by American navigators, flying the American flag and carrying American products to all the great markets of the world. (Applause.)

Toastmaster Gates: Our good old friend, Dr. Converse, is not with us tonight, but we have been fortunate to find a splendid substitute, and we will now listen to Mr. B. Mifflin Hood, of Atlanta, Ga.

MODERN ILLUSIONS.

MR. B. MIFFLIN HOOD, ATLANTA, GA.

"As the campaign gathers fervor
And the marchers loudly shout,
Have a care, the suffragette will get you
If you don't watch out."

Mr. Toastmaster, Ladies and Gentlemen:

The subject assigned to me tonight is "Modern Illusions." I would say that it is an illusion that a layman should be requested to step into the boots of a doctor. In reference to modern illusions, I would say that there has been an illusion current in the east that Chicago is not artistic, that Chicago has been so busily

engaged in the accumulation of dollars that she has lost the opportunity of being literary, of being artistic. There comes a time of making money, and a time of leisure, and a time of culture when a city becomes artistic, and I wish to call to your attention that no city in America could have pulled off a clay or brick show such as is today being held in Chicago. This is not the opinion of a member from the "Chicago of the South," but I am quoting verbatim from a New York gentleman of authority, who is competent to know whereof he speaks, who said that Chicago has pulled off a clay products show so artistic that it is a marvel even to the New Yorker. I wish to add, there has been a renaissance in American architecture. That in the last thirty-five years there has been more progress made in brick designing, face brick manufacturing, in which the necessity of considering mortar is just as essential to the brick architecture as the brick itself, to an extent that we have created in America a unique position, a renaissance, if you choose to call it, in the artistic treatment of brick, that if you will go out to the Coliseum you will find more than fifty per cent of the exhibits in face brick the result of a brick that has only been on the market five years. This product is the result of an inspiration of one individual, and it became so attractive to the progressive architects of the country that it became contagious, and the wave of enthusiasm has swept from the Atlantic to the Pacific, and today rough texture brick is what has created the new renaissance. And Chicago can justly be proud of not only having pulled off the first Clay Products Show, but one so artistic that it is unique in being the only city in the country that could have pulled it off so successfully.

In commenting on a remark that has been made this evening, it is also a modern illusion that there could be any question of hurt



W. S. Dickey, Kansas City, Mo.

feelings because of a mention of the civil war, or the reference to Shenandoah. There has been a renaissance in the south that where a fact of history is quoted, no matter how bitter the pill, we will take it and look pleasant. I wish to say that in Atlanta, where in 1865 but two houses were left standing by the virtue of the process that Mr. Sherman thought necessary, that patriotic Americans invited Mr. Sherman to Atlanta twenty-five years later and wined him and dined him at our most exclusive club, and there is no more loyal section of America today than the south. Think of the numbers we contributed to the Spanish-American war and what an important part the southern soldiers played in that, and though the Spanish-American war was a war on humanitarian grounds, it was successful in that it brought the sons of the north and the sons of the south together under one flag. (Applause.) Who was it that marched up San Juan hill with Theodore Roosevelt, but the cowboys of Texas? You could get today, if American properties were threatened by foreigners, more negroes in the American army as volunteers than you could possibly have gotten in 1861, when you were fighting in their behalf.

Another modern illusion is that I must build a frame house because a brick house is too expensive. (Laughter and applause.) The *Chicago Tribune* in an editorial in yesterday's issue quotes an architect that a brick house will cost about nine per cent more than a frame house, and that this difference will soon be eaten up by insurance, cost of repainting, etc. Mr. Garfield has said that conservation means not only conservation of the natural resources of America, but it means conservation of our energies physically, if you please. Then if you want to conserve American energies, let us live in the right kind of a house. (Applause.)

Another modern illusion is that it sometimes pays to knock your competitor. I wish to say that this is positively wrong, and a dangerous policy to follow, and is so retroactive that it will de-

stroy the very best person that engages in the pursuit. (Applause.) If you can not say something complimentary of your competitor when his product is brought before you, ignore it and pass on. There is an expression current in Atlanta that "There is no room in Atlanta for knockers, when you cease to be a booster, please move." (Applause.)

We also have on our program a quotation in reference to modern illusions—

"As the campaign gathers fervor
And the marchers loudly shout,
Have a care, the suffragette will get you
If you don't watch out."

The secretary says that means the toast to the women. I do not think, however, that the American women care to be placed in a class with the English militant suffragists. Carrie Nation did her work with a hatchet, but it was not permanent. (Laughter.) Carrie Nation has passed on, but the saloons still thrive in Kansas. However, when it comes to the education of the young American, I believe the fairminded men of America will say that woman is entitled to suffrage in the matter of education in the schools. However, we may look on with interest and receive the benefit of that experiment if the progressive States of the west adopt suffrage, and if successful there we may be roused out of our conservatism and adopt it in the east. We are living in a great country, and I believe when the best thought of the East and the best thought of the American woman rises up and demands suffrage and man finds she is in earnest, and she desires to vote and vote conscientiously, I believe she will get what she wants. (Applause.)



W. D. Richardson, Columbus, Ohio.

Another modern illusion is that the modern industrial gentleman and capitalist can pile up a big fortune in dollars, in industries, and then have his daughter feel that there is no man in the western hemisphere good enough for her, therefore she embarks out into, not the new world, but the old world for exploiting, and marries a count that is no account. (Applause.) Therefore, I would like to see in terra cotta or burned clay, if you please, a picture of an ideal American home, with the ideal manly man of America living happily together with the best product of America, its womanly woman. In contradistinction to that, the home of the chateau, with its non-producer of a husband, with its tremendous expense account, its no account head of the family and the dissatisfied, broken-hearted woman at the head of the household. I would burn these two pictures in the minds of Americans, so that the young women of America will not think they have to go to Europe for a husband when their fathers have made a fortune.

A modern illusion should not be that every brick manufacturer should attend the next national convention, and that every manufacturer should bring his wife, and if he has not got a wife, bring his daughter, and if he has not got either wife or daughter, he should try to find a sweetheart and make her his wife, and we can consequently propose a toast to the ladies tonight.

"Here's to your wives and your sweethearts. May your sweethearts become your wives, and may your wives always be your sweethearts." (Applause.)

It is not among the modern illusions that no man of America, be he in the industrial line, or what not, is too big to be free from the judgment of Uncle Sam, and yet I hope that in our clay products industry we some of us can be prosperous enough and big enough to attract the attention of Uncle Sam. I appreciate what we have heard from Mr. Garfield, that we must co-operate and stand together in order that we must have a wider market, an increased superior product at the least possible cost. Those of us in the timber district, in old Georgia and the pine belt in Georgia know that we must use brick. Even in Atlanta, our old Georgia pine is fast becoming extinct, that where in the past architects have specified hard pine, they are now very glad to build of brick, and in Atlanta a brick veneer house can be built at the same cost as a frame house with first class material, because the first class material is hard to obtain in lumber.

Another modern illusion is that the express companies of this country are themselves too big to be subject to judgment, but when a representative of the legal association goes after them they come to taw and we have a revision of the rates. The same applies to the railroad rates, and so what we want is constructive legislation, as Mr. Garfield has said, and not destructive litigation.

Possibly in conclusion, I might say, let us write our faults upon the sand and burn our virtues into clay (applause), and if we wish to turn to history to find our highest ideals, let us read the history of the mothers of the Presidents of America, and we will find that the mothers of these chief executives were just as great as were their sons themselves. And as long as our civilization produces such women as Florence Nightingale and Clara Barton, man will always have respect for his better half and acknowledge her as leader. (Applause.)

Mr. W. S. Dickey: Mr. Toastmaster, as a resident of Kansas City, as a manufacturer of the State of Kansas, doing business in nearly all of the cities of that State, I would like to correct an impression that the last speaker may have given out in regard to the prevalence of saloons in the State of Kansas. Under the present administration of Governor Stubbs, there is not today an open saloon in the State of Kansas. (Applause.)

Toastmaster Gates: I am requested to announce that the Coliseum will be open during Sunday, so that any of you who go out there can entertain yourselves there.

It is with a feeling of regret that I find I have lost a distinction that I felt I had, but I lost it today. I had, and a great many of my friends had, insisted that I was the most absent-minded man in the convention. Today I lost that honor. I have been informed that one of the members of this convention has taken it. He has never gone away from the banquet with his own overcoat, he has frequently gone home with one too small or with one that trailed on the ground, or with one of another color. Yesterday he was with quite a party going to the Coliseum and when they got out on the sidewalk ready to take a taxi, one of them called to this particular gentleman, saying "You can sit with the chauffeur." He turned and climbed in with a driver, sat there and then said to the chauffeur, "I'm going to the Coliseum." At once there came from the back seat, in firm, distinct tones, "My wife and I are going to the Blackstone theater, I don't know as we care particularly where you are going." (Laughter.) There is some satisfaction in knowing that when I lose this distinction I lose it to a good man and a reliable one.

I have waited twenty-six years for this opportunity. Twenty-six long years. If you wait long enough, it usually comes. Secretary Randall has suggested (and, by the way, I have insisted, that I am going to keep my word—there are going to be large packages of unspoken speeches going out of this room tonight) (laughter)—as I was saying, Secretary Randall has suggested we rise and sing "Auld Lang Syne," and I said, "No, we won't do it; we won't mar this joyous occasion." I am no warbler, and there are others as bad. I have always had an ambition, which my friends say I have never achieved, of stopping talking when I get through. I have waited twenty-six years for this opportunity; it will probably be another twenty-six years before I get another opportunity. This occasion has seemed so pleasant to me, in that you have all sat here right through the performance, that I think this is an opportune time to close, and, preparatory to meeting my committee who instructed me not to talk, I bid you "Good night."

NUMERICAL ROSTER, N. B. M. A., CHICAGO, 1912

NAME	FIRM	TOWN	NAME	FIRM	TOWN
1. WILL P. BLAIR, Secretary N. B. M. A.,	Cleveland, O.		93. CHAS. B. REED, Clearfield Clayworking Co.,	Clearfield, Pa.	
2. D. B. POTTER, Thornton Fire Brick Co.,	Clarksburg, W. Va.		94. J. R. ROWLAND, Bessemer Limestone Co.,	Youngstown, O.	
3. H. A. JOHANN, Taylor Iron & Steel Co.,	Chicago, Ill.		95. D. E. REAGAN, Hocking Valley Prod. Co.,	Columbus, O.	
4. M. O'SHAUGHNESSY, Taylor Iron & Steel Co.,	Chicago, Ill.		96. F. G. WHITE, Jenkins & Reynolds,	Chicago, Ill.	
5. EBEN RODGERS, Alton Brick Co.,	Alton, Ill.		97. A. J. AUBREY, Bessemer Limestone Co.,	Youngstown, O.	
6. H. JEROME LEE, Building Brick Ass'n,	New York, N. Y.		98. E. K. CORMACK, Wis. Lime & Cement Co.,	Chicago, Ill.	
7. JAMES E. RANDALL, The Clay-Worker,	Indianapolis, Ind.		99. JOHN W. SIBLEY, Sibley-Menge Brick Co.,	Birmingham, Ala.	
8. M. E. GREGORY, Brick, Terra Cotta & Tile Co.,	Corning, N. Y.		100. C. W. RAYMOND, JR., The C. W. Raymond Co.,	Dayton, O.	
9. D. WARREN DE ROSAY, Corry Brick & Tile Co.,	Corry, Pa.		101. E. G. BIECHLER, The C. W. Raymond Co.,	Dayton, O.	
10. A. W. AYLESWORTH, The Bonnot Co.,	Canton, O.		102. F. A. ELLIOTT, The C. W. Raymond Co.,	Toronto, Ont.	
11. THEO. A. RANDALL, Sec'y N. B. M. A.,	Indianapolis, Ind.		103. J. I. MAUGLE, The C. W. Raymond Co.,	Brooklyn, N. Y.	
12. WM. SIMPSON, The Frost Mfg. Co.,	Galesburg, Ill.		104. R. I. DENNISON, C. W. Raymond Co.,	Kansas City, Mo.	
13. C. A. BLOOMFIELD, Bloomfield Clay Co.,	Metuchen, N. J.		105. JOS. HOCK, Wis. Lime & Cement Co.,	Chicago, Ill.	
14. F. M. BRADY, Cleveland Brick & Clay Co.,	Cleveland, O.		106. ADOLPH LOEFFLER, Wis. Lime & Cement Co.,	Chicago, Ill.	
15. G. A. ANDERSON, The J. D. Fate Co.,	Plymouth, O.		107. CHAS. WOODWARD, Wis. Lime & Cement Co.,	Chicago, Ill.	
16. ALBERT POTTS, C. & A. Potts & Co.,	Indianapolis, Ind.		108. JOSEPH SULLIVAN, Wis. Lime & Cement Co.,	Chicago, Ill.	
17. N. C. RALPH, Ashtabula Shale Brick Co.,	Ashtabula, O.		109. GEORGE DOERK, Wis. Lime & Cement Co.,	Chicago, Ill.	
18. W. H. H. ROGERS, R. B. & T. Mfg. Co.,	Rochester, N. Y.		110. FLOYD PIERCE, Wis. Lime & Cement Co.,	Chicago, Ill.	
19. C. FRED FOLEY, Independent Powder Co.,	St. Louis, Mo.		111. R. EITEL, Wis. Lime & Cement Co.,	Chicago, Ill.	
20. J. M. HOSKINS, Terre Haute Vit. Brick Co.,	Terre Haute, Ind.		112. J. M. ADAMS, Ironclay Brick Co.,	Columbus, O.	
21. J. CROW TAYLOR, Louisville, Ky.			113. LOUIS A. SMITH, A. F. Smith Co.,	New Brighton, Pa.	
22. W. H. SWETT, Illinois Brick Co.,	Blue Island, Ill.		114. AMOS P. POTTS, Ohio State University,	Columbus, O.	
23. G. B. MENTZ, G. B. Mentz & Co.,	Walkill, N. Y.		115. ARTHUR D. ROGERS, The Brickbuilder,	Boston, Mass.	
24. O. N. TOWNSEND, T. B. Townsend B. & C. Co.,	Zanseville, O.		116. GEO. W. SHOEMAKER, Columbus, O.		
25. JOHN T. HUMMERT, Gem City Brick Co.,	Quincy, Ill.		117. L. R. WELLS, Ohio State University,	Columbus, O.	
26. CHARLES T. HARRIS, Fiske & Co.,	New York, N. Y.		118. C. T. DUN, Ohio State University,	Columbus, O.	
27. WM. D. GATES, American T. C. & Ceramic Co.,	Chicago, Ill.		119. O. W. WILL, Roessler-Hasslacher Chem. Co.,	Perth Amboy, N. J.	
28. RICHARD B. HOEHNE, Ceramic-Engineer,	Bucyrus, Ohio.		120. H. W. BLOOMFIELD, N. J. Clay Prod. Co.,	Metuchen, N. J.	
29. JAY TERRY, Terry Bros.,	Kingston, N. Y.		121. L. L. STEPHENSON, Birmingham, Ala.		
30. C. G. STEVENSON, Stevenson & Co.,	Wellsville, O.		122. J. W. GRESHAM, Griffin Press Brick Co.,	Griffin, Ga.	
31. W. T. DUMBLETON, Marion Brick Works,	Montezuma, Ind.		123. JACOB HOCKSEMA, Zeeland Brick Co.,	Hamilton, Mich.	
32. HOWARD H. STAFFORD, Ga.-Car. Brick Co.,	Augusta, Ga.		124. PETER HOCKSEMA, Zeeland Brick Co.,	Holland, Mich.	
33. J. W. ROBB, Clinton Paving Brick Co.,	Clinton, Ind.		125. E. F. DECKERT, Main Belting Co.,	Cleveland, O.	
34. H. J. VOTAW, The J. D. Fate Co.,	Plymouth, O.		126. P. A. SMITH, A. F. Smith Co.,	New Brighton, Pa.	
35. J. H. McKENZIE, Rockmart Brick & Slate Co.,	Atlanta, Ga.		127. GEO. P. FISHER, Ohio State University,	Columbus, O.	
36. A. R. ROOT, Chambers Bros. Co.,	Philadelphia, Pa.		128. KENNETH R. AYER, Ohio State Univ.,	Columbus, O.	
37. LINCOLN S. MORRISON, Chambers Bros. Co.,	Atlanta, Ga.		129. E. M. GEORGE, Main Belting Co.,	Chicago, Ill.	
38. C. J. DECKMAN, Deckman-Duty Brick Co.,	Cleveland, O.		130. CHAS. F. KRAMER, A. F. Smith Co.,	New Brighton, Pa.	
39. GEORGE M. KRICK, Krick-Tyndall & Co.,	Decatur, Ind.		131. D. E. HUMPHREY, Deckman-Duty Co.,	Cleveland, O.	
40. J. S. McCANN, Thornton Fire Brick Co.,	Thornton, W. Va.		132. ARTHUR WALBERT, Chicago, Ill.		
41. D. L. WADSWORTH, Ohio Ceramic Eng. Co.,	Cleveland, O.		133. B. C. PIERCE, Presbrey Fire Brick Co.,	Taunton, Mass.	
42. D. H. ATHERTON, Williams Grove Brick Co.,	Phillipsburg, Pa.		134. W. P. VARNEY, Chicago Hy. Press Brick Co.,	Chicago, Ill.	
43. L. D. BINYON, S. S. Kimbell Brick Co.,	Chicago, Ill.		135. ABEL HANSEN, Fords Terra Cotta Co.,	Perth Amboy, N. J.	
44. E. C. KIMBELL, Meacham & Wright,	Chicago, Ill.		136. HEINRICH RIES, Ithaca, N. Y.		
45. M. K. ZIMMERMAN, Brick & Clay Record,	E. Liverpool, O.		137. R. R. HICE, Beaver, Pa.		
46. F. J. HELWIG, Standard Fire Brick Co.,	Pueblo, Colo.		138. M. BRANDENBURG, Brick & Clay Record,	Chicago, Ill.	
47. R. D. LINDSAY, Denver Press Brick Co.,	Denver, Colo.		139. H. B. WILEY, Am. Clay Machinery Co.,	Kansas City, Mo.	
48. SAMUEL R. BUSEY, Baltimore Brick Co.,	Baltimore, Md.		140. AXEL ANDERSON, Anderson Brick Co.,	Minneapolis, Minn.	
49. C. P. MAYER, C. P. Mayer Brick Co.,	Bridgeville, Pa.		141. H. E. GRIMM, Edgar Allen Am. Mang. Steel Co.,	Chicago, Ill.	
50. JOHN W. HALL, Westport Paving Brick Co.,	Baltimore, Md.		142. E. F. KNIGHT, Bradford Press Brick Co.,	Bradford, Pa.	
51. F. G. MATTESON, Purlington Pav. Brick Co.,	Galesburg, Ill.		143. FRANK B. CALMYN, Chicago Brick Mach. Co.,	Chicago, Ill.	
52. H. H. McDONALD, N. P. B. M. A.,	Cleveland, O.		144. JOHN J. MORONEY, Chicago Brick Mach. Co.,	Chicago, Ill.	
53. C. H. FROST, Los Angeles Press Brick Co.,	Los Angeles, Cal.		145. J. L. COOPER, Main Belting Co.,	Chicago, Ill.	
54. HOWARD FROST, Los Ang. Press Brick Co.,	Los Angeles, Cal.		146. J. B. HAMMOND, Bolivar Face Brick Co.,	Bolivar, Pa.	
55. CLAUDE E. FULLER, Buffalo Brick Co.,	Buffalo, Kansas.		147. THOMAS A. REES, H. P. Camp Co.,	Aultman, O.	
56. C. C. BLAIR, Bessemer Limestone Co.,	Youngstown, O.		148. C. C. BARR, Barr Clay Co.,	Streator, Ill.	
57. F. L. MANNING, Peebles Paving Brick Co.,	Portsmouth, O.		149. W. H. LOWRY, Derry, Pa.		
58. J. B. WILCOX, Alliance Clay Products Co.,	Alliance, O.		150. F. W. BUTTERWORTH, Western Brick Co.,	Danville, Ill.	
59. A. E. HILDER, Sydney Brick Co.,	Sydney, Manitoba.		151. R. L. QUEISSER, Queisser-Bliss Co.,	Cleveland, O.	
60. A. P. MAURER, Metropolitan Pav. Brick Co.,	Canton, O.		152. D. F. MOREY, Morey Clay Products Co.,	Ottumwa, Iowa.	
61. JOHN H. SIMPSON, Trimble Brick Mfg. Co.,	Dayton, O.		153. WM. HANLEY, Bradford Press Brick Co.,	Bradford, Pa.	
62. TOM S. ROUSE, Brazil, Ind.			154. A. S. REID, A. S. Reid & Co.,	Newark, N. J.	
63. R. C. PENFIELD, Am. Clay Machinery Co.,	New York, N. Y.		155. W. HARRY GAUL, A. S. Reid & Co.,	Philadelphia, Pa.	
64. L. W. PENFIELD, Am. Clay Machinery Co.,	Willoughby, O.		156. J. H. RICH, Piedmont Industrial,	Winston Salem, N. C.	
65. R. O. PERROTT, Am. Clay Machinery Co.,	Bucyrus, O.		157. L. E. RODGERS, L. E. Rodgers Eng. Co.,	Chicago, Ill.	
66. H. S. SIMPSON, Am. Clay Machinery Co.,	Bucyrus, O.		158. A. V. BLEININGER, University of Illinois,	Urbana, Ill.	
67. JAMES P. MARTIN, Am. Clay Machinery Co.,	Bucyrus, O.		159. W. S. DICKEY, W. S. Dickey Clay Mfg. Co.,	Kansas City, Mo.	
68. S. J. HEAFIELD, Am. Clay Machinery Co.,	Columbus, O.		160. J. C. FOWLER, Watsontown Brk. & C. P. Co.,	Watsontown, Pa.	
69. ED. W. DOW, Am. Clay Machinery Co.,	Bucyrus, O.		161. W. H. HILL, Watsontown Brk. & C. P. Co.,	Watsontown, Pa.	
70. F. L. HOPLEY, American Clay Machinery Co.,	Bucyrus, O.		162. J. L. SCOTT, Macomb Sewer Pipe Co.,	Macomb, Ill.	
71. P. L. SIMPSON, Am. Clay Machinery Co.,	Chicago, Ill.		163. GEO. H. TEFFT, W. S. Dickey Clay Mfg. Co.,	Kansas City.	
72. C. O. RORICK, Arnold-Creager Co.,	New London, O.		164. HERVEY HAIGH, Catskill, N. Y.		
73. FRANK McCLELLAN, Arnold-Creager Co.,	New London, O.		165. H. C. BECKMAN, Progress Brick & Mach. Co.,	St. Louis.	
74. JULIAN E. CARY, Richmond Brick Co.,	San Francisco, Cal.		166. LAMBERT HAIGH, Catskill, N. Y.		
75. C. B. SHARER, Am. Clay Machinery Co.,	Bucyrus, O.		167. JAMES A. DURGIN, Saco Brick Co.,	Saco, Maine.	
76. H. C. PENFIELD, Am. Clay Machinery Co.,	Chicago, Ill.		168. C. E. FOSTER, Kittanning Clay Prod. Co.,	Bradford, Pa.	
77. H. B. CRUM, Am. Clay Machinery Co.,	Chicago, Ill.		169. W. M. HODGES, Tuna Valley Pr. Brick Co.,	Bradford, Pa.	
78. E. J. RUTLAND, Am. Clay Machinery Co.,	Bucyrus, O.		170. G. W. FOSTER, Pearl Clay Product Co.,	Bradford, Pa.	
79. W. P. WHITNEY, Danville Brick Co.,	Danville, Ill.		171. GUY E. NETTLETON, Main Belting Co.,	Mason City, Iowa.	
80. H. C. ADAMS, Danville Brick Co.,	Danville, Ill.		172. R. E. SUNDERLAND, Sunderland Bros.,	Omaha, Neb.	
81. THOS. J. HAWKINS, Danville Brick Co.,	Danville, Ill.		173. W. A. MORRISON, Chambers Bros. Co.,	Philadelphia, Pa.	
82. WM. H. NEFF, Danville Brick Co.,	Danville, Ill.		174. F. K. PENCE, A. E. T. Co.,	Zanesville, O.	
83. C. H. FRANK, Athens & Nelsonville Brick Co.,	Columbus, O.		175. CHARLES BONNER, Bonner & Marshall Co.,	Chicago, Ill.	
84. J. PARKER B. FISKE, Fiske & Co.,	New York City.		176. CHAS. A. BONNER, Bonner & Marshall Co.,	Chicago, Ill.	
85. F. B. DUNN, Dunn Wire-Cut Lug Brick Co.,	Conneaut, O.		177. A. A. OLDHAM, The Bonnot Co.,	Canton, O.	
86. FRED TALBOT, Laclede-Christy Clay Prod. Co.,	St. Louis.		178. ROY G. SMITH, The Bonnot Co.,	Kansas City, Mo.	
87. H. K. LACKLAND, Laclede-Christy Clay Prod. Co.,	St. Louis.		179. H. C. KLEYMEYER, Standard Brick Co.,	Evansville, Ind.	
88. F. L. BUNTON, Laclede-Christy Clay Prod. Co.,	St. Louis.		180. C. C. STRATTON, Alumina Shale Brick Co.,	Bradford, Pa.	
89. W. R. BARNHART, JR., Wooster Shale Brick Co.,	Wooster, O.		181. J. O. TRAUTWEIN, Trautwein Dryer & Eng. Co.,	Chicago, Ill.	
90. HERMAN L. MATZ, Kimbell Brick Co.,	Chicago, Ill.		182. R. C. BENNETT, Wellington Machine Co.,	Wellington, O.	
91. SPENCER M. DUTY, Deckman-Duty Brick Co.,	Cleveland, O.		183. LEMON PARKER, Parker, Russell & Co.,	St. Louis, Mo.	
92. R. L. WINSLOW, Clearfield Clayworking Co.,	Clearfield, Pa.		184. L. A. CULVER, JR., Wabash Clay Co.,	Veedersburg, Ind.	

NAME	FIRM	TOWN	NAME	FIRM	TOWN
185. W. T. BLACKBURN, Paris, Ill.			297. J. M. JENKINS, JR., Jenkins Brick Co., Montgomery, Ala.		
186. I. M. JUSTICE, Mfrs. Equipment Co., Dayton, Ohio.			298. MARION W. BLAIR, Kushequa Brick Co., Kushequa, Pa.		
187. W. A. SACHS, Mfrs. Equipment Co., Dayton, O.			299. A. J. DYER, E. T. Lewis Co., Nashville, Tenn.		
188. J. L. SCHROLL, Mfrs. Equipment Co., Dayton, O.			300. W. A. HOLST, W. O. Holst Bldg. Supply Co., Toledo, O.		
189. F. J. NIXON, Paine & Nixon, Duluth, Minn.			301. M. F. O'SULLIVAN, Toledo, O.		
190. H. E. CULLUM, C. W. Raymond Co., Minneapolis, Minn.			302. W. SCHAPPER, Roessler-Hasslacher Chem. Co., Chicago, Ill.		
191. C. A. PHILLIPS, Twin City Brick Co., St. Paul, Minn.			303. RICH. I. BROWN, Brown Instrument Co., Philadelphia, Pa.		
192. ARCHIBALD BONNER, Bonner-Marshall Co., Chicago, Ill.			304. J. POST, W. & J. Post, East Williston, N. Y.		
193. HARRY C. PODOLSKY, Bonner-Marshall Co., Chicago, Ill.			305. F. W. DONAHOE, The Everhard Co., Massillon, O.		
194. FRED L. WUERZINGER, Bonner-Marshall Co., Chicago, Ill.			306. W. P. VARNEY, Chicago Hy. Press Brick Co., Chicago.		
195. CHAS. H. CLAIBORNE, Union Mining Co., Baltimore, Md.			307. W. T. BUSSELL, Clay Products Co., Brazil, Ind.		
196. R. E. BROWN, Union Mining Co., Mt. Savage, Md.			308. H. O. STEELE, J. C. Steele & Sons Co., Statesville, N. C.		
197. J. W. ANDERSON, JR., Woodland Clay Co., Woodland, Ill.			309. H. H. FATE, The J. D. Fate Co., Plymouth, O.		
198. C. H. DOAN, Nelsonville Brick Co., Columbus, O.			310. H. R. SYKES, The J. D. Fate Co., Plymouth, O.		
199. H. W. CARTER, Cook & Brown Lime Co., Oshkosh, Wis.			311. W. A. LONDON, Fairfield Brick & Tile Co., Fairfield, Iowa.		
200. CHARLES M. CROOK, Youngstown, O.			312. FRED PATTERSON, Fairfield Brick & Tile Co., Fairfield, Iowa.		
201. W. C. DENNISON, Ohio Clay Co., Cleveland, O.			313. J. H. CHAMBERS, Chambers Brothers Co., Philadelphia, Pa.		
202. G. W. DENNISON, Ohio Clay Co., Cleveland, O.			314. W. C. ALWINE, Alwine Bros., New Oxford, Pa.		
203. A. SNYDER, Snyder & Co., Ltd., Portage La Prairie, Canada.			315. L. AULMANN, Eagle Iron Works, Des Moines, Iowa.		
204. A. BERG, Berg Machinery Co., Toronto, Canada.			316. H. L. TRAMP, Creston Brick & Tile Co., Creston, Iowa.		
205. JOHN BERG, Berg Machinery Co., Toronto, Can.			317. ELLIS LOVEJOY, Richardson-Lovejoy Eng. Co., Columbus, O.		
206. WERNER MALSCH, Roessler-Hasslacher Chem Co., New York.			318. HOMER F. STALEY, Ohio State University, Columbus, O.		
207. ED BARR, Austin, Minn.			319. J. A. DOLBEN, Dolben & Sullivan, Boston, Mass.		
208. GEO. C. VIDETTO, American Pulv. Co., St. Louis, Mo.			320. A. R. CAMPBELL, Federal Terra Cotta Co., Metuchen, N. J.		
209. E. B. MERRY, Merry Bros. Brick Co., Augusta, Ga.			321. W. N. DURBIN, Anderson Fdry. & Mach. Works, Anderson, Ind.		
210. A. H. MERRY, Merry Bros. Brick Co., Augusta, Ga.			322. W. K. CALHOUN, Ft. Scott Brick Co., Ft. Scott, Kans.		
211. CHAS. S. REED, Chicago Retort & F. B. Co., Chicago, Ill.			323. A. P. GREEN, Mexico Brick & Fire Clay Co., Mexico, Mo.		
212. W. L. HAMILTON, Union Mining Co., Mt. Savage, Md.			324. B. B. BELDEN, Canton Pressed Brick Co., Canton, O.		
213. J. W. MOULDING, Thos. Moulding Co., Chicago, Ill.			325. J. MIDDLETON, U. S. Geological Survey, Washington, D. C.		
214. M. N. KIMBELL, S. S. Kimbell Brick Co., Chicago, Ill.			326. C. H. COLEMAN, Athens Pressed Brick Co., Athens, Texas.		
215. H. O. BINYON, S. S. Kimbell Brick Co., Chicago, Ill.			327. E. T. LEWIS, E. T. Lewis Co., Nashville, Tenn.		
216. H. R. BEAGLE, Beaver Clay Mfg. Co., New Galilee, Pa.			328. L. T. LEWIS, E. T. Lewis Co., Nashville, Tenn.		
217. H. E. STEFFLER, Steffler & Brown Face Br. Co., Pittsburg, Pa.			329. H. C. VANDAVEER, Vandaveer-Stoy Co., Houston, Texas.		
218. GEORGE E. SMITH, Philadelphia, Pa.			330. J. W. FORSYTHE, Riverside Fuel & Supply Co., Fremont, O.		
219. M. J. WILLIAMS, Williams Crusher & Pulv. Co., St. Louis, Mo.			331. CHAS. BURRIDGE, H. Brewer Co., Tecumseh, Mich.		
220. A. T. LEACH, Brick & Clay Record, Chicago, Ill.			332. J. F. FISHER, Deckman-Duty Co., Malvern, O.		
221. G. M. CAMPBELL, Brick & Clay Record, Chicago, Ill.			333. A. I. HUNTER, Red River Valley Brick Co., Gr. Forks, N. D.		
222. C. W. LANSING, Brick & Clay Record, Chicago, Ill.			334. FRANK GEHEKE, Red River Valley Br. Co., Gr. Forks, N. D.		
223. I. SOLON, Brick & Clay Record, Chicago, Ill.			335. R. K. BOWMAN, J. L. Mott Co., Trenton, N. J.		
224. S. B. DOBBS, S. B. Dobbs Co., Philadelphia, Pa.			336. W. J. J. BOWMAN, J. L. Mott Co., Trenton, N. J.		
225. CHAS. E. REMMEY, Atlantic Brick Co., Mays Landing, N. J.			337. P. H. SWALM, J. L. Mott Co., Trenton, N. J.		
226. J. F. LEWIS, Jackson, Mich.			338. J. B. NICHOLSON, Toronto Fire Clay Co., Toronto, O.		
227. W. J. SNYDER, Brazil Clay Co., Brazil, Ind.			339. HARRY NICHOLSON, Toronto Fire Clay Co., Toronto, O.		
228. F. H. SNYDER, United Brick Co., Rochester, N. Y.			340. T. P. CUTHBERT, Toronto Fire Clay Co., Pittsburg, Pa.		
229. G. H. FRANCIS, United Brick Co., Greensburg, Pa.			341. B. KOEHLER, A. Koehler Co., Geneva, Neb.		
230. A. F. HOTTINGER, Northwestern Terra Cotta Co., Chicago.			342. J. FRED SMITH, Smith Brick Co., Omaha, Neb.		
231. S. H. PROTHEROE, Main Belting Co., St. Louis, Mo.			343. WM. SMITH, Smith Brick Co., Omaha, Neb.		
232. ALBERT WARREN, Commonwealth Clay Co., Streator, Ill.			344. J. H. ZELLER, Brazil Clay Co., Brazil, Ind.		
233. C. W. DENNISTON, Rochester, N. Y.			345. E. R. DILLEHAY, Dillehay Brick Co., Danville, Ky.		
234. GEORGE T. DICKOVER, Dickover & Son, Wilkesbarre, Pa.			346. W. D. RICHARDSON, Ohio Mining & Mfg. Co., Shawnee, O.		
235. WM. S. DICKOVER, Dickover & Son, Wilkesbarre, Pa.			347. J. B. YOWELL, University of Illinois, Champaign, Ill.		
236. GEORGE B. WAITE, Dickover & Son, Wilkesbarre, Pa.			348. OTTO SPRING, University of Illinois, Champaign, Ill.		
237. J. W. BOGUE, 3 V. Brick Co., Neodesha, Kan.			349. W. A. HOWELL, Collinwood Brick Co., Toledo, O.		
238. JOHN E. SCHUESLER, Schuesler Brick Co., Buffalo, N. Y.			350. A. R. KUHLMAN, Ohio Brick Co., Toledo, O.		
239. HENRY BENDER, Bender Brick Co., Buffalo, N. Y.			351. C. D. SMITH, Auburndale Brick Works, Toledo, O.		
240. JOHN DIETSCHLER, Dietschler Brick Co., Buffalo, N. Y.			352. G. E. LUCE, Chicago Brick Mach. Co., Chicago, Ill.		
241. WM. J. GRAAP, Buffalo, N. Y.			353. GEO. W. LISCHER, National Press Brick Co., Mascoutah, Ill.		
242. JACOB HENESLER, Buffalo, N. Y.			354. A. SNYDER, A. Snyder & Co., Portage la Prairie, Can.		
243. WM. BURGESS, Don Valley Brick Co., Toronto, Ont., Can.			355. H. S. LANGWORTHY, Kane Brick Co., Kane, Pa.		
244. J. H. MEAD, Onondaga Vit. Brick Co., Warners, N. Y.			356. F. W. GRICE, Broderick & Bascom Rope Co., St. Louis, Mo.		
245. E. F. CHAPIN, JR., Universal Port. Cement Co., Chicago, Ill.			357. LEVI MARSHALL, JR., Consol. Brick Co., Horseheads, N. Y.		
246. W. J. STEPHANI, O. W. Ketcham T. C. Works, Philadelphia.			358. M. McEVERHARD, The Everhard Co., Massillon, O.		
247. R. L. LEWIS, The Wassal Brick Co., Gloucester, O.			359. G. VANEKLASSEN, Zeeland Brick Co., Zeeland, Mich.		
248. W. H. GORSLINE, Rochester, N. Y.			360. WM. SCHLAKE, Illinois Brick Co., Chicago, Ill.		
249. A. F. OSMOND, Upper Kittaning Brick Co., East Brady, Pa.			361. THOS. F. HORNADAY, Brazil Face Brick Co., Brazil, Ind.		
250. A. J. KAUTZ, Chicago, Ill.			362. F. R. KANENGEISER, Bessemer Limestone Co., Bessemer, Pa.		
251. H. J. FLOOD, Chisholm, Boyd & White, Chicago, Ill.			363. A. J. BUCH, Peebles Paving Brick Co., Portsmouth, O.		
252. E. H. ABEND, Belleville Brick Co., Belleville, Ill.			364. T. C. LUNDY, Lonsdale Face Brick Co., Knoxville, Tenn.		
253. H. A. WHEELER, St. Louis, Mo.			365. V. L. SNYDER, Winnipeg, Manitoba, Can.		
254. C. H. BRAY, Western Clay Mfg. Co., Helena, Mont.			366. E. M. HOUGHTALING, New York City.		
255. L. D. YANCEY, John C. Boss Co., Atlanta, Ga.			367. T. M. HARWOOD, Sunset Brick & Tile Co., Gonzales, Texas.		
256. S. W. VANCE, Crookston Brick and Tile Co., Crookston, Minn.			368. STEPHEN KELLY, Arbuckle Co., Rushville, Ind.		
257. E. A. ALLEN, Ohio Ceramic Engineering Co., Chicago, Ill.			369. W. W. ITTNER, A. Ittner Brick Co., Belleville, Ill.		
258. C. H. POOLE, L. E. Rodgers Engineering Co., Chicago, Ill.			370. W. A. McCALL, Dealers Record, Chicago, Ill.		
259. A. V. JOHNSON, L. E. Rodgers Engineering Co., Chicago, Ill.			371. GEO. A. KING, Dealers Record, Chicago, Ill.		
260. J. J. McLAUGHLIN, McLaughlin Bldg. Material Co., Chicago.			372. WARFIELD WEBB, Brick & Clay Record, Chicago, Ill.		
261. B. M. MITCHELL, McLaughlin Bldg. Material Co., Chicago.			373. J. E. HOWARD, Washington, D. C.		
262. JOS. MITCHELL, McLaughlin Bldg. Material Co., Chicago, Ill.			374. H. H. OBERLY, Jas. B. Oberly Co., Wilmington, Del.		
263. WM. KELLS, McLaughlin Bldg. Material Co., Chicago, Ill.			375. W. H. GIBB, The Brown Instrument Co., Pittsburgh, Pa.		
264. WM. C. COOLINS, McLaughlin Bldg. Material Co., Chicago.			376. JOHN P. ALMOND, JR., Del. Terra Cotta Co., Wilmington, Del.		
265. O. C. HUNT, McLaughlin Bldg. Material Co., Chicago.			377. WILLIAM CONWAY, Philadelphia, Pa.		
266. CHAS. J. PARROTT, McLaughlin Bldg. Material Co., Chicago.			378. C. B. STOWE, Stowe-Fuller Co., Cleveland, O.		
267. T. J. TURNER, McLaughlin Bldg. Material Co., Chicago.			379. D. D. DEEDS, Thew Automatic Shovel Co., Lorain, O.		
268. J. T. McDONOUGH, McLaughlin Bldg. Material Co., Chicago.			380. J. M. ARBUCKLE, Arbuckle & Co., Homer, Ind.		
269. F. B. CHENEY, McLaughlin Bldg. Material Co., Chicago.			381. JAS. P. WILLIAMS, Alton, Ala.		
270. THOS. CULLERTON, McLaughlin Bldg. Material Co., Chicago.			382. JOHN F. BURKE, Burke Brick Co., Rochester, N. Y.		
271. THOS. GARRY, McLaughlin Bldg. Material Co., Chicago.			383. CHAS. W. SLAGLE, Burns & Russell Co., Baltimore, Md.		
272. JOS. HANBY, McLaughlin Bldg. Material Co., Chicago.			384. A. H. RUSSELL, Burns & Russell Co., Baltimore, Md.		
273. GEO. F. WELLMAN, McLaughlin Bldg. Material Co., Chicago.			385. THEO. H. SWAN, Rochester, N. Y.		
274. S. X. WILLARD, McLaughlin Bldg. Material Co., Chicago.			386. C. C. MURRAY, Reynoldsville Br. & Tile Co., Reynoldsville, Pa.		
275. J. C. O'CONNOR, McLaughlin Bldg. Material Co., Chicago.			387. EDWIN L. MITCHELL, The Mitchell Brick Co., Cincinnati, O.		
276. M. E. ROBERTS, McLaughlin Bldg. Material Co., Chicago.			388. WM. MITCHELL, The Mitchell Brick Co., Cincinnati, O.		
277. J. W. CULLEN, Main Belting Co., Chicago, Ill.			389. F. S. CAPERS, JR., Standard Fire Brick Co., Pueblo, Colo.		
278. CHAS. AMBROSE, Pfannmueller Eng. Co., Chicago, Ill.			390. J. B. HULLETT, Lozier Motor Co., Chicago, Ill.		
279. JOHN C. BOSS, The John C. Boss Co., Elkhart, Ind.			391. L. W. FLOOD, Chisholm, Boyd & White Co., Chicago, Ill.		
280. F. C. MEIERS, The John C. Boss Co., Elkhart, Ind.			392. H. H. FREESE, E. M. Freese & Co., Galion, O.		
281. H. B. HENDERSON, Columbus, O.			393. A. J. FREESE, E. M. Freese & Co., Galion, O.		
282. GEO. E. THOMAS, Highland Fire Clay Co., St. Louis, Mo.			394. B. E. PLACE, E. M. Freese & Co., Galion, O.		
283. C. H. KERR, Pittsburg Plate Glass Co., Tarentum, Pa.			395. R. A. WHISTON, E. M. Freese & Co., New York City.		
284. E. H. CALLAWAY, E. H. Callaway Eng. Co., New York, N. Y.			396. E. L. HESS, E. M. Freese & Co., St. Louis, Mo.		
285. H. R. CALLAWAY, E. H. Callaway Eng. Co., New York, N. Y.			397. G. R. HESS, E. M. Freese & Co., St. Louis, Mo.		
286. A. L. SMITH, Western Clay Mfg. Co., Helena, Mont.			398. F. H. ROBINSON, E. M. Freese & Co., Pittsburg, Pa.		
287. G. S. BRUBAKER, H. Brewer & Co., Peru, Ind.			399. V. H. WHITNEY, C. Berricks Sons Co., Buffalo, N. Y.		
288. GEO. H. HARTWELL, Chicago, Ill.			400. D. MacDONALD, DuBois & Butler Brick Co., DuBois, Pa.		
289. J. A. HAMMETT, National Fire Proofing Co., Chicago, Ill.			401. W. R. HASSELBACK, DuBois & Butler Br. Co., DuBois, Pa.		
290. E. F. LENDROTH, National Fire Proofing Co., Chicago, Ill.			402. H. L. TAITE, Canvas Belting Co., Cleveland, O.		
291. H. B. FOX, Sparta Clay Co., Sparta, O.			403. W. REECE, Canvas Belting Co., Cleveland, O.		
292. M. L. BELL, Wilkinsburg, Pa.			404. J. C. McCAUSLAND, McCausland Bros., Akron, O.		
293. W. V. BRAGDON, University of Chicago, Chicago, Ill.			405. GEO. W. SCHMIDT, Buffalo, N. Y.		
294. THOS. M. WILSON, Wilson Kiln Co., Philadelphia, Pa.			406. GEO. L. SCHMIDT, Buffalo, N. Y.		
295. H. W. SMITH, Roessler-Hasslacher Chem. Co., E. Liverpool, O.			407. F. W. WALTERS, Perth Amboy F. B. Co., Perth Amboy, N. J.		
296. C. J. PETERSON, Weller Mfg. Co., Chicago, Ill.			408. H. B. McMILLEN, Western Stoneware Co., Macomb, Ill.		

NAME	FIRM	TOWN	NAME	FIRM	TOWN
409. G. B. LUCKETT, Crawfordsville Sh. Br. Co., Crawfordsville, Ind.			524. H. L. McNEES, Kittanning Clay Mfg. Co., Kittanning, Pa.		
410. A. E. HUCKINS, Sheldon Br. & Bldg. Sup. Co., Champaign, Ill.			525. GEO. E. ANDERS, Cincinnati, O.		
411. E. G. HAUSERMAN, The Queisser-Bliss Co., Cleveland, O.			526. JOHN ANDERS, Cincinnati, O.		
412. CHAS. B. VERNOOY, Illinois Brick Co., Chicago, Ill.			527. N. L. VERMILYA, Thurber Brick Co., Thurber, Texas.		
413. WM. G. BOHNSACK, Illinois Brick Co., Chicago, Ill.			528. ARTHUR S. GOETZ, Thurber Brick Co., Ft. Worth, Texas.		
427. L. W. SPRAGUE, The McArthur Brick Co., McArthur, O.			529. E. C. HOADLEY, Malakoff Pressed B. Co., Ft. Worth, Texas.		
414. GEO. F. PERKINS, Illinois Brick Co., Chicago, Ill.			530. EDWIN BROCKWAY, Brockway Brick Co., Brockway, N. Y.		
415. W. R. ALLISON, Illinois Brick Co., Chicago, Ill.			531. J. W. CHANNEL, Melvin Tile & Brick Co., Melvin, O.		
416. W. C. TROTTER, Stand. Dr. Pipe Co., St. John, P. Q. Can.			532. W. F. CHANNEL, Melvin Tile & Brick Co., Melvin, O.		
417. C. S. TROTTER, Stand. Dr. Pipe Co., New Glasgow, Can.			533. JOE P. FINCH, Ft. Worth, Texas.		
418. W. H. McNALLY, W. M. McNally & Co., Montreal, Can.			534. GEO. J. POTTS, C. & A. Potts & Co., Indianapolis, Ind.		
419. B. E. LaDOW, Fredonia, Kans.			535. J. H. BACH, Bach Brick Co., Chicago, Ill.		
420. H. WOLCOTT ALLISON, Chicago, Ill.			536. FRED A. BACH, Bach Brick Co., Chicago, Ill.		
421. M. R. DeFRANCE, Vanport Brick Co., Pittsburg, Pa.			537. J. P. STILLWAUGH, The Hamilton Brick Co., Hamilton, O.		
422. GEO. C. STEPHENS, Bryant Supply Co., Kansas City, Mo.			538. S. P. STILLWAUGH, Can. Con. Clay Co., Picton, N. S., Can.		
423. ROBERT TWELLS, Walnut Hills, Ill.			539. D. W. LOVEJOY, A. B. Meyer & Co., Indianapolis, Ind.		
424. THOS. KENNEDY, Dominion Sewer Pipe Co., Toronto, Ont.			540. J. S. VAN VOLKENBURGH, Zeeland Brick Co., Zeeland, Mich.		
425. O. S. PILSLOW, The McArthur Brick Co., McArthur, O.			541. F. SALMEN, Salmen Brick & Lumber Co., Slidell, La.		
426. H. S. HAMILTON, The McArthur Brick Co., McArthur, O.			542. J. L. MURPHY, Hocking Valley Brick Co., Nelsonville, O.		
428. H. A. CRAIG, Chicago, Ill.			543. M. P. POST, Post Bros., Commerce, Mo.		
429. H. A. McLAUGHLIN, Thew Auto. Shovel Co., Lorain, O.			544. J. W. LAZEAR, Brown Instrument Co., Philadelphia, Pa.		
430. HARRY B. HOLMES, Wis. Lime & Cement Co., Chicago, Ill.			545. A. STEINMAYER, LaSalle Press Brick Co., LaSalle, Ill.		
431. HENRY M. JANDRICK, Twin City Brick Co., St. Paul, Minn.			546. M. F. MOONEY, C. W. Raymond Co., St. John, Can.		
432. R. G. EISENHART, Consol. Brick Co., Horseheads, N. Y.			547. S. G. CASS, Jackson Tile & Brick Co., Jackson, Minn.		
433. C. H. CARPENTER, Suburban Brick Co., Wheeling, W. Va.			548. DAVID LEHMAN, Ironclay Brick Co., Columbus, O.		
434. J. M. HOSKINS, T. H. Vit. Brick Co., Terre Haute, Ind.			549. FRANK THOMAS, Highbee Coal Co., Wyoming, Ill.		
435. J. L. HANKINSON, Hankinson & Hagler, Augusta, Ga.			550. JAMES HIGBEE, Higbee Coal Co., Wyoming, Ill.		
436. J. O. SHARP, Mafood Brick Co., Toronto, Can.			551. STANLEY L. McMICHAEL, Cleveland, O.		
437. P. J. LAUBSCHUR, Beaver Clay Mfg. Co., New Galilee, Pa.			552. APOLLOS W. O'HARA, Hamilton Clay Mfg. Co., Carthage, Ill.		
438. H. S. BURGESS, Beaver Clay Mfg. Co., Cleveland, O.			553. WM. H. PLUMB, Hamilton Clay Mfg. Co., Hamilton, Ill.		
439. G. E. GOLDNER, Vincent Clay Prod. Co., Ft. Dodge, Iowa.			554. J. B. CRAWDER, Hamilton Clay Mfg. Co., Hamilton, Ill.		
440. C. CONNETT, St. Joseph Pressed Br. Co., St. Joseph, Mo.			555. GEORGE E. BURNER, Hamilton Clay Mfg. Co., Carthage, Ill.		
441. LEON VINCENT, Ft. Dodge, Iowa.			556. F. J. PASSE, Preston Brick Yard, Preston, Minn.		
442. GEO. O. BERRY, Columbus, Ga.			557. S. GUNTHER, Gunther Bros., Port Washington, Wash.		
443. C. W. VOLLRATH, The Vollrath Co., Sheboygan, Wis.			558. S. M. McHOSE, Nevada, Iowa.		
444. F. C. SCHAPPER, The Roessler-Hasslacher Chem. Co., Chicago.			559. R. M. McHOSE, Nevada, Iowa.		
445. S. H. FOSTER, The Gate City Br. Wks., Winnipeg, Man., Can.			560. FRANK GUNTHER, Gunther Bros., Pt. Washington, Wash.		
446. C. J. SUDDUTH, Opelika, Ala.			561. J. H. GLONINGER, Gloninger & Co., Pittsburg, Pa.		
447. W. H. WOOD, Brockville, Ont.			562. F. JOS. DEGENHART, John H. Black Co., Buffalo, N. Y.		
448. F. A. GUIGNON, Chicago Retort & F. B. Co., Ottawa, Ill.			563. FRED M. HAENZEL, John H. Black Co., Buffalo, N. Y.		
449. W. H. HILL, Murphysboro P. Br. Co., Murphysboro, Ill.			564. HENRY T. WYNN, Wynn & Starr, Trafford, Pa.		
450. D. C. HAEGER, Illinois Shale Tile Co., Aurora, Ill.			565. A. Q. STARR, Houston Bros. Co., Pittsburg, Pa.		
451. DOUGLAS F. STEVENS, Acme Brick Co., Cayuga, Ind.			566. V. F. DARTNELL, Montreal, Ont.		
452. W. D. GREEN, Marion Mach. & Fdry. Co., Marion, Ind.			567. W. SEDGLEY, Farmers' Clay Products Co., Omaha, Neb.		
453. V. S. CURTIS, Curtis Brick Co., Grant Park, Ill.			568. L. H. OUREN, Farmers' Clay Products Co., Omaha, Neb.		
454. E. C. POTTER, Illinois Brick Co., Chicago, Ill.			569. S. A. CORNEER, Farmers' Clay Products Co., Omaha, Neb.		
455. F. A. HOILES, The Alliance Brick Co., Alliance, O.			570. E. E. KLOOZ, Trumbull Brick Co., Youngstown, O.		
456. W. N. ALDERMAN, The Athens Brick Co., Athens, O.			571. A. C. BURK, Omaha Clay Works, Omaha, Neb.		
457. J. S. McCANNELL, Milton Pressed Brick Co., Milton, Ont., Can.			572. JOHN S. NEBLE, Omaha Clay Works, Omaha, Neb.		
458. P. J. OPPEN, Fredonia Brick Co., Fredonia, Kans.			573. D. A. HANSEN, Omaha Clay Works, Omaha, Neb.		
459. GEO. J. WALTERS, Chattsworth, Ill.			574. G. H. CLIPPERT, Geo. H. Clippert & Bro. B. Co., Detroit, Mich.		
460. C. H. ALSIP, Calumet Brick Co., Chicago, Ill.			575. H. F. CLIPPERT, Geo. H. Clippert & Bro. B. Co., Detroit, Mich.		
461. HORACE PURINTON, Horace Purinton Co., Waterville, Me.			576. J. PORTER, W. Va. Paving B. Co., New Cumberland, W. Va.		
462. S. T. JACOBS, Chicago Brick Co., Chicago, Ill.			577. S. B. GOUCHER, Nat. Fire Proofing Co., Pittsburg, Pa.		
463. EDWARD ORTON, JR., Ohio State University, Columbus, O.			578. SAMUEL McADOO, Northwestern Clay Mfg. Co., Toronto, O.		
464. B. MIFFLIN HOOD, Atlanta, Ga.			579. J. O. FREEMAN, Northwestern Clay Mfg. Co., New Windsor, Ill.		
465. BEN S. FISHER, Col. B. & T. C. Co., Union Furnace, O.			580. W. A. HULL, Richlands Brick Co., Richlands, Va.		
466. PROF. C. W. PARMELEE, Rutgers Col., New Brunswick, N. J.			581. CHAS. H. KEPLER, Saginaw Paving Brick Co., Saginaw, Mich.		
467. HORACE H. ITTNER, Prince Albert, Sask., Can.			582. H. W. HOLMES, Puritan Brick Co., Detroit, Mich.		
468. W. H. McCARTHY, Chicago, Ill.			583. J. S. NICHOLS, Columbus Brick Co., Columbus, Neb.		
469. W. HAMMERSTHMIT, Lombard B. & Tile Co., Lombard, Ill.			584. C. H. BRYAN, Lonyo Brick Co., Detroit, Mich.		
470. F. R. CARTER, Peoria, Ill.			585. JOS. LARKINS, Lonyo Brick Co., Detroit, Mich.		
471. V. T. OUTLAND, Standard Dry Kiln Co., Indianapolis, Ind.			586. R. K. HURSH, University of Illinois, Urbana, Ill.		
472. DAVIS BROWN, The American Clay Mach'y Co., Bucyrus, O.			587. ANDREW DODS, Ontario Sewer Pipe Co., Toronto, Ont.		
473. ELISHA K. KANE, Kushequa Brick Co., Kushequa, Pa.			588. C. G. STEVENSON, The Stevenson Co., Wellsville, O.		
474. L. B. HUMPHREY, The Humphrey B. & T. Co., Brookville, Pa.			589. JOHN RINGLE, Ringle Brick Co., Wausau, Wis.		
475. J. M. HUMPHREY, The Humphrey B. & T. Co., Brookville, Pa.			590. C. W. WILLIAMS, Ft. Wayne, Ind.		
476. ROSS C. PURDY, Ohio State University, Columbus, Ohio.			591. J. A. DAILY, Ayer-McCarel-Reagan Clay Co., Terre Haute, Ind.		
477. S. D. PARKER, Medora Shale Brick Co., Medora, Ind.			592. E. W. DAILEY, Terre Haute, Ind.		
478. C. C. McMILLAN, Medora Shale Brick Co., Medora, Ind.			593. P. W. A. FITZEMUSSEN, H. Brewer & Co., Tecumseh, Mich.		
479. FRED R. CHARLES, Richmond, Ind.			594. ARTHUR W. RIGGS, Canton Pressed Brick Co., Canton, O.		
480. R. F. GRADY, St. Louis Terra Cotta Co., St. Louis, Mo.			595. DONNELLY WEVER, Morse-Coney Co., Cincinnati, O.		
481. JOHN ANDRES, Standard Brick Mfg. Co., Evansville, Ind.			596. G. H. MORTON, Jewettville Brick Co., Jewettville, N. Y.		
482. W. R. GUNN, Ft. Scott Brick & Tile Co., Ft. Scott, Kan.			597. G. W. LENKERD, Clymer Brick & Fire Clay Co., Indiana, Pa.		
483. W. J. CALHOUN, Ft. Scott Brick & Tile Co., Ft. Scott, Kan.			598. L. F. GRANT, Westinghouse Elec. & Mfg. Co., Cleveland, O.		
484. GAIL R. TRUMAN, St. Louis Terra Cotta Co., St. Louis, Mo.			599. DANIEL CUSTER, Daniel Custer & Sons, Johnstown, Pa.		
485. F. W. DENNIS, Norfolk, Va.			600. ALBERT S. WITT, Johnstown Face Brick Co., Johnstown, Pa.		
486. K. E. LYMAN, Jamestown Paint & V. Co., Jamestown, Pa.			601. J. W. CANDLER, Deckman-Duty Brick Co., Cleveland, O.		
487. R. D. McMANIGAL, Logan, O.			602. CHAS. H. REKER, Deckman-Duty Brick Co., Cleveland, O.		
488. JNO. B. PRULLAGE, Vincennes, Ind.			603. J. M. BLAIR, The J. M. Blair Brick Co., Cincinnati, O.		
489. R. A. BAILEY, Springfield Brick Co., Springfield, Mass			604. R. T. STULL, University of Illinois, Urbana, Ill.		
490. JOE J. RISCH, Vincennes, Ind.			605. CHAS. A. ERNSTBERGER, Tomkins Bros., Newark, N. J.		
491. S. J. PRULLAGE, Vincennes, Ind.			606. C. E. McCAMMON, L. H. McCammon Bros., Cincinnati, O.		
492. JNO. A. RISCH, Vincennes, Ind.			607. J. F. DENISON, The Denison Clay Co., Coffeyville, Kan.		
493. O. T. CHRISTERSON, Orenstein-Arthur Koppel Co., Chicago.			608. J. E. EXNER, Coffeyville Shale Brick Co., Coffeyville, Kan.		
494. LOUIS HELLMANN, Orenstein-Arthur Koppel Co., Chicago.			609. R. D. LANDRUM, Lisk Mfg. Co., Canandaigua, N. Y.		
495. FRED B. ADAMS, Adams Brick Co., Indianapolis, Ind.			610. F. B. CLYATT, Fidelity Materials Co., Kansas City, Mo.		
496. WALTER PURSELL, The Pursell-Grand Co., Cincinnati, O.			611. R. H. SKELTON, Ontario Sewer Pipe Co., Toronto, Ont.		
497. E. F. GRAND, The Pursell-Grand Co., Cincinnati, O.			612. V. C. MORRISON, Indiana Drain Tile Co., Brooklyn, Ind.		
498. GEO. H. MOOMAW, Sheffer & Moomaw Bros., Sugar Creek, O.			613. W. P. GRATH, Illinois Supply & Const. Co., St. Louis, Mo.		
499. D. G. MOOMAW, Stone Creek, O.			614. WM. L. RODGERS, Fernholtz Brick Machinery Co., St. Louis, Mo.		
500. W. H. HOAGLAND, Claycraft Brick Co., Columbus, O.			615. J. J. KOCH, Fernholtz Brick Machinery Co., St. Louis, Mo.		
501. E. D. ROSENCRANS, The American Architect, New York.			616. H. M. STRONG, So. Webster Face Brick Co., So. Webster, O.		
502. PAGE A. ROBINSON, The American Architect, Chicago, Ill.			617. VALENTINE RICE, So. Webster Face B. Co., Chillicothe, O.		
503. G. E. SLY, The American Architect, New York City.			618. CHARLES P. LIGHT, Washington, D. C.		
504. W. C. BLACK, Carter, Black & Ayers, New York City.			619. A. McDILLAN, Yankee Hill Brick Mfg. Co., Lincoln, Neb.		
505. A. A. AYERS, Carter, Black & Ayers, New York City.			620. GEO. J. SCHWARZ, Milwaukee, Wis.		
506. C. A. GARDNER, American Enameled B. & T. Co., New York.			621. D. T. RIFFLE, Allegheny Brick Co., Ltd., Pittsburg, Pa.		
507. B. JACQUART, American Enameled B. & T. Co., New York.			622. W. F. SOISSON, Jos. Soisson F. B. Co., Connellsville, Pa.		
508. F. C. KLUTEY, Kleymeyer & Klutey, B. & T. C., Henderson, Ky.			623. GEO. P. ZOUCH, Hudson Cement & Sup. Co., Baltimore, Md.		
509. J. W. HAHN, Boston, Mass.			624. SAMUEL WEIDMAN, Wis. Geol. Survey, Madison, Wis.		
510. G. A. GUIGNARD, The Guignard Brick Wks., Columbia, S. C.			625. S. M. GOULD, Alton Brick Co., St. Louis, Mo.		
511. C. G. GUIGNARD, The Guignard Brick Co., Columbia, S. C.			626. THOS. JONES, Macomb Sewer Pipe Co., Macomb, Ill.		
512. JNO. VANEKLASEN, Zeeland Brick Co., Zeeland, Mich.			627. O. W. KETCHAM, O. W. Ketcham Co., Philadelphia, Pa.		
513. MARTIN BATES, Zeeland Brick Co., Kalamazoo, Mich.			628. P. R. KETCHAM, O. W. Ketcham Co., New York City.		
514. J. W. HENSLEY, Indianapolis, Ind.			629. H. E. BENFIELD, Ohio Min. & Mfg. Co., Cleveland, O.		
515. A. R. WARNER, The White Co., Cleveland, O.			630. ANTHONY ITTNER, Anthony Ittner Brick Co., St. Louis, Mo.		
516. C. A. HOSHOUR, Cleveland Vit. Brick Co., Oklahoma City, Ok.			631. W. H. DYMOND, S. S. Kimbell Brick Co., Chicago, Ill.		
517. A. J. DARBYSHIRE, Sabina, O.			632. THOS. OLIFF, Clio, Mich.		
518. T. C. McDERMOTT, Mohawk Valley B. & Sup. Co., Utica, N. Y.			633. J. LEO CHILD, Hancock B. & T. Co., Findlay, O.		
519. C. B. PLATT, Platt Pressed & Fire Brick Co., Van Meter, Ia.			634. JNO. BENEDICT, Davenport, Iowa.		
520. B. W. BALLOU, Kan. Buff Brick & Mfg. Co., Buffville, Kan.			635. HARRY L. MEYER, Alton Brick Co., Alton, Ill.		
521. C. A. NOLL, Kan. Buff Brick & Mfg. Co., Wichita, Kan.			636. OSCAR ZIMBALL, Sheboygan, Wis.		
522. F. C. LAFOUNTAIN, Kan. Buff B. & Mfg. Co., Kansas City.			637. J. G. HAMILTON, Grand Rapids B. Co., Grand Rapids, Wis.		
523. R. L. BYRAM, Kan. Buff Brick & Mfg. Co., Buffville, Kan.			638. J. R. ZMUNT, Newburgh Brick & Clay Co., Cleveland, O.		

NAME	FIRM	TOWN	NAME	FIRM	TOWN
639. G. F. MONFORT, The Good Roads Mach'y Co.,	Pittsburg, Pa.		753. MRS. G. A. BUCKLEY, Buckley B. & T. Co.,	Montrose, Col.	
640. TOM W. GREEN, Sioux City B. & Tile Works,	Sioux City, Ia.		754. ALFRED PETTIT, Chestnut Ridge White Brick Co.,	New York.	
641. C. STEADMAN, Steadman & Robinson Co.,	Greenridge, N. Y.		755. JNO. BUCKLEY, Buckley Brick & Tile Co.,	Montrose, Col.	
642. ROBT. NESCH, Pitts. Paving Brick Co.,	Kansas City, Mo.		756. W. P. IRVIN, Laclede-Christy Clay Products Co.,	Beaver, Pa.	
643. C. M. DAGGETT, Horace Purinton Co.,	Waterville, Me.		757. B. T. COTTER, Coshocton Brick Co.,	Coshocton, O.	
644. A. W. BRENNER, Alex. Brenner, Ltd.,	Montreal, Ont.		758. JAS. P. HINDE, Hinde Brick & Tile Co.,	Sandusky, O.	
645. L. G. KILBOURNE, Col. Brick & T. C. Co.,	Columbus, O.		759. W. E. DUNWODY, Standard Brick Co.,	Macon, Ga.	
646. J. T. HARRINGTON, Northern B. & Sup. Co.,	St. Paul, Minn.		760. W. W. AUSPACH, J. P. Auspach & Co.,	Edgerton, Ind.	
647. G. NEWCOMBE, Estevan Coal & B. Co.,	Estevan, Sask., Can.		761. H. W. SPAULDING, American Fabric Belt Co.,	Chicago, Ill.	
648. T. P. HARRINGTON, Harrington Bros.,	St. Paul, Minn.		762. W. M. TAYLOR, Kan. Buff Brick & Mfg. Co.,	Memphis, Tenn.	
649. L. C. THRASHER, Monon, Ind.			763. R. FULLERTON, Waite-Fullerton Co.,	Winnipeg, Man., Can.	
650. T. R. MATSON, Meacham & Wright Co.,	Chicago, Ill.		764. WALTER COLYER, Albion Shale Brick Co.,	Albion, Ill.	
651. JNO. M. STONER, Cin. Clay Products Co.,	Cincinnati, O.		765. T. BUCKLEY, Western Brick Co.,	Danville, Ill.	
652. HENRY SUER, H. Suer & Bro.,	Cincinnati, O.		766. W. A. SHOEMAKER, Western Brick Co.,	Danville, Ill.	
653. JNO. W. TYNDALL, Krick & Tyndall Co.,	Decatur, Ind.		767. E. G. MENGELMAN, Canton, Ohio.		
654. T. E. SIMPERS, Westinghouse Elec. & Mfg. Co.,	Pittsburg, Pa.		768. L. S. COMBS, Gary, Ind.		
655. C. E. MERRY, Des Moines, Ia.			769. JAS. B. OBERLY, Wilmington, Del.		
656. F. M. WALLACE, Champaign, Ill.			770. E. J. SCHARIS, Detroit Brick & Sales Co.,	Detroit, Mich.	
657. S. C. HAINES, Main Belting Co.,	Detroit, Mich.		771. WM. F. CLARK, Grand Rapids Brick Co.,	Grand Rapids, Mich.	
658. E. P. FOSTER, Bessemer Limestone Co.,	Youngstown, O.		772. JNO. VANDENBURG, Grand Rapids Brick Co.,	Grand Rapids, Mich.	
659. PHILIP RAINER, Newburgh Brick & Clay Co.,	Bedford, O.		773. LOUIS KOCH, Twin City Brick Co.,	Minneapolis, Minn.	
660. ANDREW BASEL, Newburgh Brick & Clay Co.,	Cleveland, O.		774. E. A. HULTS, General Electric Co.,	Chicago, Ill.	
661. DAN LOCHRIE, Toronto, Can.			775. W. S. McCAMERON, L. H. McCamerson Bros.,	Cincinnati, O.	
662. GEO. FRID, Hamilton, Ont.			776. JNO. H. DONOHUE, JR., North Brick & Sup. Co.,	St. Paul.	
663. A. B. LUTEN, Metropolitan Pav. Brick Co.,	Toledo, O.		777. J. L. HULL, Cambridge Brick & Tile Works,	Cambridge, Ill.	
664. W. G. POATE, Freeport Clay Products Co.,	Freeport, Pa.		778. C. J. HILL, S. S. Kimbell Brick Co.,	Chicago, Ill.	
665. JNO. P. CAHOON, Salt Lake Pressed Brick Co.,	Murray, Utah.		779. OWEN TYLER, Louisville, Ky.		
666. JNO. B. CAHOON, Salt Lake Pressed Brick Co.,	Murray, Utah.		780. S. S. CURRY, Western Brick Co.,	Danville, Ill.	
667. O. W. RENKERT, Moberly Paving Brick Co.,	Moberly, Mo.		781. S. MITCHELL, Mitchell Clay Mfg. Co.,	St. Louis, Mo.	
668. O. T. WITTER, Metropolitan P. B. Co.,	Canton, O.		782. HAROLD JOHNSON, Johnson, Jackson & Co.,	Indianapolis.	
669. W. M. PRATT, Earlville, Ill.			783. EDW. BOGK, Ricketson Mineral Paint Works,	Milwaukee, Wis.	
670. C. F. RABBERTT, Orenstein-Arthur Koppel Co.,	Chicago, Ill.		784. S. P. REITZ, Black Fork Co.,	Portsmouth, Ohio.	
671. JNO. H. W. FENYVESSY, City Press Ass'n,	Chicago, Ill.		785. CHAS. WEST, Weyburn, Can.		
672. P. H. GRAHAM, C. W. Raymond Co.,	Inglewood, Ont.		786. F. R. MINTON, Mexico Brick & Fire Clay Co.,	Mexico, Mo.	
673. C. F. BECKWITH, University of Illinois,	Urbana, Ill.		787. L. G. BLACKMER, Blackmer Post Pipe Co.,	Chicago, Ill.	
674. GEO. W. HEALD, Engineer, Chicago, Ill.			788. W. S. COCHRANE, Midland Brick Co.,	Peru, Kan.	
675. E. A. MORSE, South Bend, Ind.			789. GEO. E. DERRY, Central Ky. B. & Tile Co.,	Lexington, Ky.	
676. JNO. L. JACKSON, Am. Sandstone B. Mfg. Co.,	Saginaw, Mich.		790. WILL OPITZ, Opitz Drainage Co.,	Elkhorn, Wis.	
677. J. W. C. WEST, Eureka Brick Co., Inc.,	Norfolk, Va.		791. FREDERICK H. McDONALD, Grand Rapids, Mich.		
678. C. LEON LEONARD, Leonard Brick Co.,	Delton, Mich.		792. FRANK SHERMAN, Postville Clay Products Co.,	Postville, Ia.	
679. W. H. HAWKINS, Dover Fire Brick Co.,	Cleveland, O.		793. NICK WELLS, Postville Clay Products Co.,	Postville, Ia.	
680. F. C. PRESTON, Dover Fire Brick Co.,	Cleveland, O.		794. C. A. MARSHALL, Cresco Brick & Tile Co.,	Cresco, Ia.	
681. G. H. ATHERTON, Gold Bros. Brick Co.,	Big Stone City, S. D.		795. JOHN B. ROSE, Newburgh, N. Y.		
682. O. W. BASTEDO, New York City.			796. PHILIP GOLDRICK, Saugerties, N. Y.		
683. F. A. MORELAND, Vulcan Soot Cleaner Co.,	Chicago, Ill.		797. IRVING J. ROSE, Kingston, N. Y.		
684. A. A. McCLAMROCK, The Wallace Mfg. Co.,	Frankfort, Ind.		798. H. J. JOVA, Newburgh, N. Y.		
685. R. B. LAWSON, Otterbein, Ind.			799. JOHN E. FOWLER, Haverstraw, N. Y.		
686. H. J. KAUFMAN, Claycraft Brick Co.,	Columbus, O.		800. J. H. SUDERLY, Coeymans, N. Y.		
687. W. S. SHUTTS, Centerville Brick Co.,	Centerville, Ia.		801. ALONZO ROSE, Kingston, N. Y.		
688. F. L. WARNER, Standard Brick Co.,	Crawfordsville, Ind.		802. JAMES F. IRWIN, Rensselaer, Ind.		
689. A. B. LAMBERT, Illinois Brick Co.,	Chicago, Ill.		803. N. COVERT, Fishkill, N. Y.		
690. GEO. C. VIDETTO, American Pulv. Co.,	St. Louis.		804. JOS. FOSTER, JR., American Fabric Belting Co.,	Cleveland, O.	
691. MAX RESBERG, Universal Portland Cement Co.,	Chicago, Ill.		805. A. K. KINLEY, American Fabric Belting Co.,	Cleveland, O.	
692. A. E. WILLIAMS, Western Brick Co.,	Danville, Ill.		806. A. B. NICHOLS, American Fabric Belting Co.,	Cleveland, O.	
693. O. W. DUNLAP, Dunlap Mfg. Co.,	Bloomington, Ill.		807. L. A. FORD, American Fabric Belting Co.,	Cincinnati, O.	
694. L. E. SNODGRASS, Lincoln Park Coal & B. Co.,	Springfield, Ill.		808. D. ARBUCKLE, American Fabric Belting Co.,	Cleveland, O.	
695. G. S. SIMONDS, G. S. Simonds & Co.,	Chicago, Ill.		809. BRECKINRIDGE LONG, St. Louis, Mo.		
696. HENRY J. LUTTER, Lutter Brick Co.,	Chicago, Ill.		810. A. E. DAVIS, Western Brick Co.,	Indianapolis, Ind.	
697. DANIEL BLAUL, Lake View Brick Co.,	Chicago, Ill.		811. WM. G. GRIFFITHS, The Pyro Clay Products Co.,	Oak Hill, O.	
698. F. C. BOGK, Ricketson Mineral Paint Wks.,	Milwaukee, Wis.		812. J. R. MONTGOMERY, Buckeye Traction Ditcher Co.,	Findlay, O.	
699. MAX MUELLER, Mueller Bros. St. Louis, Mo.			813. HON. JAS. R. GARFIELD, Cleveland, O.		
700. G. W. TRASY, Martin Grate Co.,	Chicago, Ill.		814. D. R. BOONE, Wilburn Brick & Tile Co.,	Oglesby, Texas.	
701. F. C. WORTH, Martin Grate Co.,	Chicago, Ill.		815. A. F. KEENEY, Standard Brick Co.,	Crawfordsville, Ind.	
702. J. L. GREEN, Laclede Christy Clay Prod. Co.,	St. Louis, Mo.		816. ERNEST EPLER, Albion Shale Brick Co.,	Albion, Ill.	
703. PAUL BEER, Barber Asphalt Paving Co.,	Des Moines, Ia.		817. FRANK R. HALE, American Clay Co.,	Terre Haute, Ind.	
704. ELIHU HARPHAM, Buckeye Sewer Pipe Co.,	Akron, O.		818. E. M. HALL, Davenport Locomotive Works,	Chicago, Ill.	
705. PHIL. A. WEBER, City Engineer, Canton, O.			819. JAMES P. PENFIELD, American Clay Mach'y Co.,	New York.	
706. A. W. LARMIE, Thos. Connelly, Chicago, Ill.			820. J. F. MARTIN, Arthur, Ill.		
707. PRESS CAMPBELL, Canton, O.			821. H. H. GRENNISS, A. C. M. Co.,	Brick Dept., Great Falls, Mont.	
708. JOHN A. CONNELLY, Thos. Connelly, Chicago, Ill.			822. C. W. CRAIG, American Clay Co.,	Brazil, Ind.	
709. MARK KAPLAN, George B. Carpenter & Co.,	Chicago, Ill.		823. GEO. A. FLETCHER, Brazil Machine & Fdy. Co.,	Brazil, Ind.	
710. W. C. OLDS, Southern Railway, Washington, D. C.			824. J. H. MEESOM, Macomb S. P. Co.,	Macomb, Ill.	
711. J. H. WATKINS, Southern Railway, Washington, D. C.			825. N. L. MEIR, Mormoncoolie Brick Works,	La Crosse, Wis.	
712. W. L. FERGUS, W. L. Fergus & Co.,	Chicago, Ill.		826. C. L. HAYES, Buffalo Building & Sup. Co.,	Buffalo, N. Y.	
713. EDWARD C. RACEY, Metropolitan Brick Co.,	Chicago, Ill.		827. S. M. HAMILTON, Buffalo Building & Sup. Co.,	Buffalo, N. Y.	
714. W. OVERPACK, Alberta Clay Prod. Co.,	Medicine Hat, Can.		828. C. E. WILLIAMS, C. E. Williams Brick Co.,	San Antonio, Tex.	
715. CHARLES A. MYERS, Fraser-Myers Brick Co.,	Dallas, Texas.		829. BEN H. RICHARDS, Richards Brick Co.,	Edwardsville, Ill.	
716. F. T. HARVARD, University of Wisconsin,	Madison, Wis.		830. B. H. RICHARDS, JR., Richards Brick Co.,	Edwardsville, Ill.	
717. WM. E. LOOMIS, Sherbrooke, P. Q., Can.			831. E. S. MORSE, Potomac Brick Co.,	Washington, D. C.	
718. J. G. MAMER, Mamer Brick Co.,	Benton Harbor, Mich.		832. L. PERRY WEST, West Bros. Brick Co.,	Washington, D. C.	
719. F. W. DE WOLFE, Illinois Geological Survey,	Urbana, Ill.		833. DOUGLAS SUTHERLAND, Chicago, Ill.		
720. CLAUDE SMITH, Chicago, Ill.			834. HENRY W. LUTTER, Lutter Brick Co.,	Chicago, Ill.	
721. J. L. STEVENS, Boone Brick & Tile Co.,	Boone, Iowa.		835. G. M. WHITNEY, The Dunn Wire Cut Lug B. Co.,	Conneaut, O.	
722. T. M. AUBLE, Wadsworth B. & T. Co.,	Wadsworth, O.		836. R. L. FRINK, The Frink Pyrometer Co.,	Columbus, Ohio.	
723. M. H. LEATHERMAN, Wadsworth B. & T. Co.,	Wadsworth, O.		837. C. A. DUNN, Hydraulic Press Brick Co.,	Chicago, Ill.	
724. H. S. WAITE, Waite, Fullerton Co.,	Winnipeg, Can.		838. C. C. WHITACRE, Whitacre Fireproofing Co.,	Waynesburg, O.	
725. H. H. RANDOLPH, C. W. Raymond Co.,	Chicago, Ill.		839. RALPH SPENCER, Dresden Sand Co.,	Detroit, Mich.	
726. A. MALINOVSKY, C. W. Raymond Co.,	Chicago, Ill.		840. G. S. TOTTER, Detroit Brick Sales Co.,	Detroit, Mich.	
727. J. A. GARBET, Thew Automatic Shovel Co.,	Lorain, Ohio.		841. H. HEUSS, The C. W. Raymond Co.,	Chicago, Ill.	
728. WM. H. HUNT, Cleveland, Ohio.			842. FRANZ ROESSLER, R. H. C. Co.,	Perth Amboy, N. J.	
729. A. DENRIGHT, Atlas Car & Mfg. Co.,	Cleveland, Ohio.		843. E. M. LUNDIEN, Alberta Clay Products Co.,	Dayton, Iowa.	
730. DR. CLIPPET, Detroit, Mich.			844. R. NEWBOLD, Kiln Builder, Toronto, Ohio.		
731. F. LENTZ, Hebron Fire & Pressed Brick Co.,	Hebron, N. D.		845. W. C. HORN, Marshalltown Sewer Pipe Co.,	Muncie, Ind.	
732. A. O. WACHTER, Sheboygan Falls, Wis.			846. C. B. LEWIS, Toronto Press Brick Co., Ltd.,	Nilton, Ont., Can.	
733. H. GROESCHEL, Sheboygan Falls, Wis.			847. J. D. MACDONALD, Toronto, Ont., Can.		
734. M. J. LOFTICE, Cooper Brick & Tile Co.,	New Haven, Iowa.		848. E. C. MILLER, Ft. Wayne Brick Co.,	Ft. Wayne, Ind.	
735. J. W. STIPES, Champaign, Ill.			849. MAX IMSCHER, Ft. Wayne, Ind.		
736. J. G. WERNER, Farmers' Co-op. B. & T. Co.,	Mason City, Ia.		850. H. HILGEMEIER, Ft. Wayne, Ind.		
737. GRANT DIBERT, Iron City Brick & Stone Co.,	Pittsburg, Pa.		851. PAUL KINDER, Ft. Wayne, Ind.		
738. D. J. KENNEDY, Darlington Brick & Min. Co.,	Pittsburg, Pa.		852. E. W. CROOK, Ft. Wayne, Ind.		
739. C. E. JEWETT, Hocking Valley Fire Clay Co.,	Nelsonville, O.		853. E. A. KING, Edwin A. King, Washington, D. C.		
740. H. B. SCHAAL, Hocking Valley Fire Clay Co.,	Nelsonville, O.		854. C. SOLFISBURG, Aurora, Ill.		
741. H. M. KIMBELL, Meacham & Wright Co.,	Chicago, Ill.		855. E. C. HOWARD, Columbus, O.		
742. A. J. DUNN, Chase Foundry & Machine Wks.,	Columbus, O.		856. E. W. GIEK, N. Manchester Tile Wks.,	N. Manchester, Ind.	
743. E. C. ENGLE, Brown Instrument Co.,	Philadelphia, Pa.		858. E. B. SHELTON, Covington, Ky.		
744. W. L. SIBLEY, Sibley-Menge Brick Co.,	Sibleyville, Ala.		859. H. BRUBAKER, Indianapolis, Ind.		
745. J. M. POWELL, Indiana Drain Tile Co.,	Brooklyn, Ind.		860. W. H. BRECHT, Boone, Iowa.		
746. W. H. BROSMAN, Albion Vit. Brick Co.,	Albion, Ill.		861. A. B. SCOTT, Boone, Iowa.		
747. L. W. WILSON, Albion Vit. Brick Co.,	Albion, Ill.		862. H. A. RAWSON, Des Moines, Iowa.		
748. J. C. CARLYLE, Albion Vit. Brick Co.,	Albion, Ill.		863. J. D. W. HALL, Des Moines, Iowa.		
749. SAM A. ZIEGLER, Albion Vit. Brick Co.,	Albion, Ill.		864. C. STRAHLE, Stanton, Neb.		
750. F. W. STUART, Shackelford Brick Co.,	Des Moines, Ia.		865. R. J. STRAHLE, Stanton, Neb.		
751. F. B. HOLMES, F. B. Holmes & Co.,	Detroit, Mich.		866. JANSEN & ZOLLER, Pekin, Ill.		
752. A. R. D. JOHNSON, Johnson & Johnson Co.,	Raleigh, N. C.		867. E. SEIBERT, Pekin, Ill.		
			868. M. J. SPRANG, The Sprang Clay Prod. Co.,	Ft. Wayne, Ind.	

THE BUILDING BRICK ASSOCIATION

Hears Reports of Officers and a Number of Able Publicity Papers.

THE THIRD annual convention of the Building Brick Association was a success in every detail. Over one hundred members attended each of the several sessions, and an air of keen interest predominated throughout the proceedings. The reports that were read showed the membership of the association had increased one-third during the past year, that the results of the publicity work had been more than satisfactory, the financial condition substantial, and that there had been a great increase in the public spirit in the use of brick. This knowledge put all of the delegates in the best of

an evolution or have had such demands made upon them to keep abreast of the times, the face brick business in many ways had not responded, had not grasped the opportunities that were its rightful due. The face brick business had developed in two ways, in production of variety and in quality, but with this development the manufacturers seemed quite content and did not boost their product as they should through publicity, thinking that "the necessity of the use of brick" was sufficient for their work without an apparent thought of its greater possibilities, of its universal and widespread use



Directors of the Building Brick Association of America.

humor, so that they were ever ready to boost the publicity game and lend an attentive ear during the reading of the papers and the discussions which followed.

After calling the convention to order, President R. L. Queisser, of Cleveland, Ohio, read the president's annual address, in which he declared it afforded him great pleasure as the presiding officer to extend to them felicitations and welcome them to the third annual convention of the association. He spoke of the political situation, prophesying that both Presidential candidates would be from his State, Ohio, and stated that as in politics, so in the clay business, this was an era of conservation, and that it behooved every one to be wary of expansion which often means lower prices, a greater chance at bad credits and, in the end, a heavy contraction of our resources, credits and our ultimate loss. He told of the age and present day opinions of the face brick business, and declared that although few businesses have experienced such

for almost any and all building purposes. He pointed out the benefits of publicity work, showed what other organizations were doing, the results they were obtaining and what the brick men could accomplish by more thorough and active advertising campaigns. In this connection he said:

"Many brick men have recently said to me that they were almost convinced that advertising brick did not pay, either collectively or individually. They even predicted dire disaster to certain manufacturers who have developed new lines of brick, who have had the courage to copyright their name and who have spent larger sums of money in advertising their one product than the whole of our association has spent in its campaign of education of the public; yet I am glad to say that prosperity seems to be their lot, and they report that they are not only satisfied that advertising pays but that the results amply justify their course.

"Many manufacturers seem to be unwilling either to do

any advertising themselves or to share in a general campaign. They will not exploit their own product, depending almost entirely upon their sales agencies to bring their brick to the notice of the architect and consumer, yet I venture to say that there is not in this whole country a manufacturer (other than brick) with an investment of from \$100,000 to \$1,000,000 and an output of about the same figures, that does not set aside and spend a considerable amount each year in the exploitation of his product. It is a well known fact that the consumer constantly calls for brands that are convincingly advertised, and with that kind of an article, be it a corset or a new brand of face brick, the sale is half won if backed up with good advertising, yet for this practical assistance in the sale of brick the manufacturer spends little or nothing. It is almost past belief and understanding."

In speaking of sales agencies, he remarked that while there might be some conflict between the manufacturers and the dealer, the elimination of the latter was far in the distant future, and probably undesirable, for where there is a close, harmonious relationship between the two the condition is ideal. The dealer, however, must not be expected to carry the entire load and all the troubles incident to the selling of brick, but that the manufacturer must in a broad, consistent way assist in the general campaign of publicity, besides giving the best possible service. The dealer should do his part by local effort, not only by solicitation through a competent selling force, but by a careful, well studied plan of advertis-



Stanley L. McMichael, Cleveland, Ohio.

ing in both daily and weekly newspapers and such local trade journals as his locality affords, but the whole scheme is of equable reciprocity and neither the manufacturers or dealer can long exist if both are not mindful of each other's welfare and necessities and both willing to give and take to help promote and advance each other's interest.

He spoke of the good work of the B. B. A. and the Ohio association at length, and referred to the latter's solution of the freight rates problem. He urged the establishment of a freight rates department in the association to handle this perplexing problem. Such a department or bureau would cost lots of money, but the returns would be ten to every dollar expended. In conclusion, he said:

"The tide of business progresses move on and upward. We may think we are up to date, yet my belief is we have just commenced, we have just scratched the surface of the great clay industry. We have, in fact, scarcely arrived; the greatness I see in the future overwhelmingly overshadows that which has been accomplished.

"We will improve our production in quality, we will increase its quantity, promote a diversity in the uses of brick, and that all comes only through the leaven that you, as manufacturers inject into the situation as it confronts you at the present time.

"Be engrossed with the love of your business, apply higher ideals, employ newer methods, use better judgment; all these being a means to a higher end.

"Today is splendid, tomorrow is better; let there be a quickening of spirit, let us work together in closer harmony of

purpose, that purpose being the general good and our individual profit."

Following this address the reports of the auditor, secretary-treasurer and the traffic committees were read, after which the election of directors took place. The following men were elected to serve three years: R. G. Eisenhart, William Hanley, C. E. Ives, H. J. Jova, Arthur D. Rodgers, Ralph Simpkins, C. B. Ver Nooy, Herman L. Matz, H. W. Holmes and John B. Rose; these, with the following men, J. M. Adams, F. W. Butterworth, J. Howard Chambers, W. E. Dunwoody, J. Parker B. Fiske, S. M. Gould, Charles J. Henderson, W. M. Hodges, L. G. Kilbourn, H. G. Kley Meyer, S. C. Martin, T. C. Moulding, R. L. Queisser, Eben Rodgers, John W. Sibley, W. Siwart Smit, W. J. Snyder and Howard H. Stafford, constitute the complete board.

At the beginning of the Thursday morning session the new board elected the following officers: President, Ralph Simpkins, Hydraulic Pressed Brick Company, St. Louis; vice-president, William Hanley, Bradford Pressed Brick Company, Bradford, Pa.; secretary-treasurer, J. Parker B. Fiske, New York City. This session of Thursday morning was a big publicity meeting and was held in the Green Room of the Annex. Nearly every seat was taken and the attention of the delegates was held throughout the meeting.

The first paper on the program was by Stanley McMichael, a former newspaper man of Cleveland, and now secretary of the Cleveland Real Estate Board.

His address was as follows:

PUBLICITY AND ITS RELATION TO THE BRICK BUSINESS.

BY STANLEY L. M'MICHAEL, CLEVELAND, OHIO.

Mr. President and Gentlemen of the Convention:

In addressing you upon the topic, "Publicity and Its Relation to the Brick Business," I am forcibly reminded of the remark credited to Mark Twain. Mark said "To be good is noble. To teach others to be good is nobler—and easier."

It is a very easy matter for a person to propound elaborate theories, to debate upon fine systems, to elaborate upon what you ought to do, but it is quite another matter to inform you what you really can do.

At the outset I wish to indicate to you that my observations for the most part are based upon definite knowledge and experience.

For twelve years I was a newspaper man, being associated with large daily newspapers in Detroit, Michigan, and Cleveland, Ohio. During that time I came more or less closely in contact with brick men and I have been amazed to note their disregard for publicity in connection with their own business.

I saw the beginning of the throes of this association. During the past year I have kept close watch of its progress, being in touch, more or less, with your president, Mr. Quiesser. Six or eight months ago I made your directors a definite proposition for the prosecuting of a publicity campaign on a natural scale, but, owing to certain conditions, we were unable to put the plan into effect. It interested the directors, but that was about as far as it went. It was a good deal like the man who was somewhat intoxicated and was on his way home late one night. He arrived in the neighborhood where he thought he lived and after gazing solemnly at a house which looked familiar to him he mounted the steps and, standing upon the porch, hammered violently upon the front door. After he had rattled around for a time, some one stuck a head out of an upstairs window and said, "What do you want?"

"Does Mr.—hic—Smith live here?" inquired the inebriate thickly. "No, Mr. Smith does not live here. What difference does it make to you?"

"Well, it makes—hic—considerable difference ter me—hic—I'm Mr. Smith."

Publicity is one of the great dominant forces in human life today. It is the dynamic power which drives the wheels of industry, for without publicity the product of a million factories would never be sold. It echoes the final word in business, political and moral affairs. The merchant the would-be mayor and the moralist use it and their success is often measured by the skill with which they adapt it to their varied needs.

To those who seek its bounties it is ready to mete out a just measure. It brings fame to the orator far beyond the narrow confines of the immediate circle of human beings who hear the magic spell of his voice; it wafts abroad the story of the marvelous skill of the surgeon; it tells a million minds the tale of the business man who has achieved success; it arouses indignation in the breasts of countless thousands when some foul crime has been committed; it rights labor wrongs; it sends scurrying to their hiding places political grafters, embezzlers and thieves who grow rich at public and private expense; it adjusts, balances and lubricates the affairs of men.

I venture to say that there is not a vocation in which mankind engages which can not be injured or benefited by publicity. The public demands publicity, else why the wonderful success of thousands of newspapers throughout the country and hundreds of weekly and monthly publications? Traced to its source, you will

probably find that publicity has done as much for the human race in the last 100 years as any other single element.

The first American newspaper was published in 1790. Beginning with the early years of the last century the forerunners of our modern dailies made their appearance. They grew gradually and stimulated education and communication between men and who can deny that since their advent the human race has not progressed with greater rapidity in business, invention, political and moral life than during all the previous centuries of time?

Newspapers were followed by magazines, trade publications, house organs and a hundred other forms of publicity, until today almost every person pins his faith on some sort of publication, whether it be the Holy Bible or a favorite magazine.

This subject is so vast that it can be touched upon but lightly. To many persons the principal thing suggested by publicity is advertising. This really is only one phase of a great general field. It is true that it is the part which is responsible for the financial success of the whole scheme on which modern publicity is based. Were it not for the receipts periodicals received from advertising you would doubtless be paying ten cents apiece for your morning newspapers and fifty cents a copy for popular magazines. Newspapers are conducted primarily for money, despite the opinion expressed to one newspaper publisher. This individual was the editor of a Western paper and had been appointed a state inspector of public institutions. Among other places he had occasion to visit was a large asylum for the insane. One of the inmates took him for a new arrival.

"What made you crazy?" the demented one demanded.

"Oh, I was trying to make money out of the newspaper business," replied the editor, wishing to humor the patient.

"Huh!" was the reply, "your're not crazy, your're just a plain damn fool."

Were it not for the newspapers, indeed, I very much doubt if we would find retail business in its modern form. Instead of the great department stores of our large American cities there would be countless small shops, presided over by individual proprietors, standing behind their counters and calling customers by their first names. Many big enterprises are often measured by the amount of publicity they receive, whether it be paid for at so much per agate line or furnished free for the news value it possesses.

Advertising has developed into science, managed by experts, who direct the expenditure of millions in money each year in promoting the interests of salable products. Just as in any other business, there are high grade, mediocre and commonplace men engaged in this calling. Some are entirely unfitted by training and mental equipment for the work required of them. Some who are spending fat advertising appropriations ought to be selling ribbon in a department store or ladeling out sugar over a grocery counter. One is amazed after talking with some of them regarding the elements of publicity how they could ever have been chosen to hold responsible positions and direct advertising campaigns, yet they are hard at it trying to fill space for which the boss is paying fancy rates. Their methods are weak and erratic and they have about as keen a perception of the art as the man whom I heard of who was called as a witness in a railroad accident and was asked to tell in his own way the story of how the affair had happened.

"Well," he said, "Ole and I was walking down the railroad track and I heard a whistle and I got off the track and the train went by, and I got on the track again and I didn't see Ole; but I walked along and soon I see one of Ole's legs and then I seen one of Ole's arms and then another leg and then over on one side I sees Ole's head, and I says: 'My God, somethin' muster happened to Ole.'"

What is publicity? It is the science of conveying knowledge about subjects you wish made known to the minds of the largest number of persons in as speedy, effectual and economical a manner as possible.

You might print 100,000 hand bills and have them distributed over a large area, but they would cost you many times as much as a similar service and space in a periodical having that circulation. This illustrates economy. One paper might reach a class of persons but casually interested in your advertisement—a reason why you would choose wisely in mediums. Circulation is not always everything in a newspaper, but it usually stands for a lot. Down in Pennsylvania lived an editor who had a keen sense of humor. He once wrote a prospective advertiser, setting forth in attractive fashion the value of his paper as a medium of publicity. The advertiser was interested in the letter, but desired more specific information, so wrote, saying that he had never heard of that particular sheet before, and asked where it circulated.

"The Podunk News," wrote back the editor, circulates in Europe, Asia, Africa, North and South America, and it is just about all I can do to keep it from going to hell."

Simplicity is a keynote of good advertising. Combined with typographical attractiveness, ginger and catchy art of some kind it will reach and penetrate the minds of readers quickly and effectively. Too few persons, in my opinion, realize the value of pictures in their ads. The eye catches them at first glance and they remain long in the memory after the written sentiments are forgotten. Even in the small classified ads I like to see some distinctive sign, such as a cross, a circle with an initial within or a drawing of some sort of kind. Even in a large page crammed with agate type such an ad will stand out and bark and will be the first to catch the eye of the casual reader. I believe that every campaign of lasting value has associated with it a catch phrase, trade mark of an unusual nature, or some distinctive form of illustration. You can see the Gold Dust Twins a block away when you can't read the type, but your mind instantly reverts to a

washing powder. "Strong as a Gibraltar" has probably struck your eye a hundred times without seemingly making any particular impression, yet when the time comes for you to buy insurance you probably will remember it and investigate the merits of the insurance offered by the company using that phrase in its advertisement. "His Master's Voice" is another which you all recognize. "Japalac" is a copyrighted trade mark and used by only one firm, yet in many a home throughout this land it is another word for varnish. Get a slogan, a catch phrase, a typical picture, something which jams itself into the eye or smashes up against the ear every time it is seen or heard and then hammer away at it in connection with your regular advertising. You capitalize in this way the hundreds of dollars you spend in advertising, and after your campaign is ended you have something lasting to show for it, if you have succeeded in making a phrase or a picture, a commonly recognized symbol of your business. Don't be extravagant in your phraseology, for it is not always the man who howls the loudest and waves his arms about in the air the most that makes the best impression. A young lawyer was defending a foreign client in police court. It looked black for the foreigner and the young lawyer fairly outdid himself in trying to convince the magistrate that his client was innocent. The lawyer dwelt on the prisoner's ignorance of American customs, his straightforward story and enough other details sufficient to extend his talk fully fifteen minutes. His client was acquitted. In congratulating the freed man the lawyer held out his hand in an absent though suggestive manner. The client grasped it warmly. He said:

"Dot was a fine noise you make. T'anks. Goo'bye!"

Gentlemen, you do not realize that the world does not know all about your brick. You do not comprehend that there are those in existence who need convincing that as a building material it is relatively cheaper than cement, and from a utilitarian standpoint it is superior to that material.

I do not need to draw your attention to the fact that the cement companies of this country long ago realized that pub-



Frank W. Butterworth, Danville, Ill.

licity was the best getting medium that they could secure. You know they have spent hundreds of thousands of dollars in publishing the merits of cement and the demerits of other building materials. While they have been reaping golden harvests you brick men have been content to amble along, cheerfully cutting each others' throats with ruinous competition, and calmly neglecting every proposition intended to get you together on a working basis. You have branded co-operation as a myth and have been satisfied to make a mere living as individuals while every other business has been protecting itself through trade organizations and by means of publicity campaigns throughout the length and breadth of this great country.

Fifteen or twenty years ago the face brick business of the United States was conducted for the most part in sheds at the rear of city lots. When you wanted to show a customer a sample you dove into the bottom of a barrel and fished out a brick. Conditions have changed. The brick business has been dignified. You now maintain splendid salesrooms and have sample departments, where customers at a glance may see the comparative value of the brick you handle.

While you have improved your sales methods you have still been astonishingly slow in organizing for mutual benefit and you have almost totally ignored your best business getting medium—publicity. Publicity is intimately associated with organization and cannot succeed without it. It is not mere advertising alone, but the art of conveying information from mind to mind, whether it be the paid ad, the news story, the feature article or attractively illustrated books.

Do you suppose the magazines and newspapers of this country would have flooded millions of homes with tons and tons of literature containing complimentary stories concerning cement had not an organized movement been behind the project? Do you imagine that an individual company could have obtained these results? Do you think that the campaign in favor of cement just

grew naturally? Do you realize that it was promoted in a definite manner by organizations launched and maintained very largely for that purpose?

Let me refer for a moment to the subject of organization. The tendency of the hour is for men in similar occupations to co-operate. Farmers form their granges to promote better conditions under which to dispose of their product, and every fruit-growing section of the United States has a fruit growers' exchange, which deals directly with the transportation companies and buyers. In our large cities we find grocers, butchers, insurance men, builders, real estate dealers and practically every line of business firmly welded together in trade organizations. Long ago these men realized that what they failed to do as individuals they are accomplishing in associations. The men who are getting rich today are co-operating, not competing in the old sense of the term. There are many trade organizations keenly alive to the situation, which are revolutionizing the methods under which business is being conducted. It behooves the brick men to support more loyally the association which represents their industry.

To the student of affairs organization seems inevitable. Efficiency methods are being applied to all callings. Business life is being speeded up. Business men are realizing that to keep up with the keen competition which modern methods has brought into existence they must establish new rules and adhere faithfully to them. The brick dealer, who a decade or two ago kept his business in a notebook in his vest pocket now has an elaborate filing system in his office. He increases the volume of his business by combining effective mechanical methods with his brains. The value of following efficient business methods is no longer scoffed at. The men making good in the affairs of the world today are those who can drop into their office chairs and place their fingers on every item of business on a minute's notice.

Organization begins with the individual. He applies efficiency methods to his own work. Later he joins with other men, forming a partnership or company; that company in time becomes a part of a corporation and that corporation probably later joins in a combination. We have a number of these gigantic combinations today, and President Taft and Attorney General Wickersham are both sitting up nights wondering what to do with them.

Organization is a fundamental principle of success and is but another term for order. The science of business as it is conducted today demands organization of the highest type. It seems strange that you brick men took so long to realize that organization will cure many of your business ailments. You have allowed petty jealousies to intervene, and have failed to realize that competition must exist.

The day has passed when one dealer can control all of the business. There is enough to satisfy the reasonable ambition of all. Competition, it is true, must exist, but let it be friendly and honorable. The logical way for this great industry to be supervised is by a great trade organization with representatives in every town and city where face brick is sold.

You will never see your great industry on its highest plane until you realize that close acquaintance begets friendship, and friendship begets esteem. Associations are merely mediums through which men work harmoniously together to accomplish beneficial results.

It may not have taken much effort to organize an association such as yours, but it does require a lot of tall hustling to keep it going, and I think your officers will cordially agree with me in that proposition. Ninety per cent. of all men who start in business are said to fail at some point in their careers. Probably the same can be said of organizations.

Largely through the activities of your president, Mr. Queisser, one simple little change in rates seems to have saved \$50,000 for the brick dealers of this country in one year. What would a thorough organization of every brick manufacturer in this country bring forth? Once organized on a sufficiently strong basis, where a definite remedy could be expected, there are wonderful possibilities for an educational and publicity campaign. People of this country should be taught that brick is the logical material with which to build their homes; that it lends individuality to a residence; that it is fireproof and indestructible, and that it embraces all the elements of economy offered by other materials.

Publicity, in my opinion, does not consist alone of paid advertisements in periodicals. Infinitely greater results can be obtained if you are clever enough to break in on the news pages of newspapers and magazines. You smile when the words "press agent" are used, yet what amusement enterprise, political campaign or big promotion plan of any kind even thinks of doing without its publicity manager? Publicity is a definite element, emanating from a trained mind, carefully evolved and designed to have certain psychological effects. That the newspapers will co-operate in intelligent campaigns of this sort is being proven continually.

A year ago I conducted a convention publicity campaign for the National Association of Real Estate Exchanges, covering a period of seven weeks, in which were secured over 200 columns of newspaper space, valued at an average of \$50 a column, which would be a very low rate for most of the newspapers concerned. This meant, for an expenditure of several hundred dollars, over \$10,000 worth of actual newspaper space was secured.

There are over 20,000 newspapers in the United States today. These newspapers are hungrily searching for matters of public interest. If you can prepare copy and supply photographs which are of public interest, little difficulty will be experienced in persuading many newspapers to print them. Therein lies the wonderful success of the campaign in behalf of cement. Clever press agents were secured. Men who knew what the newspapers wanted proceeded to furnish it and columns upon columns of reading

notices and pictures were printed in every part of the country dealing with the advantages and possibilities of cement.

There are hundreds of newspapers throughout the country which are willing, I believe, to print matter concerning brick and its advantages as a building material were it only supplied to them in appropriate form.

Advertising men have led you to believe that you have to pay fancy rates for your publicity. I do not deny that some money must be appropriated for paid advertisements. It is also true, however, that much free publicity matter will be handled by newspapers if you know how to reach them. Half the money spent in this great country today on advertising, in my opinion, is wasted because the consideration is one of buying space, instead of filling it with effective arguments.

I have also directed a publicity campaign in connection with a national organization which has members in most of the large cities and towns throughout the United States. We have a list of something like 3,000 newspapers to which we send articles every two or three months. Some of them, it is true, do not print these articles, but on the other hand, many of them do, and that without one cent of expense except the cost of producing the article and mailing it out. The matter is handled as news, has news value and the papers are glad to get it.

A plan followed in connection with this same campaign was to prepare set interviews. I would pick out a list of 600 or 800 members, write each one a stock letter, that we wanted him to stand as sponsor for an interview. The interview would be enclosed, properly prepared and ready for the editor to send to the typesetting machine. The plan was to have each man receiving an interview telephone the city editor of the paper in which he desired the article should appear. The city editor was told that if a reporter would call at that particular office he would be furnished with a news story. Invariably the reporter would call. The man would then hand the reporter the interview, stating that he had it prepared to save the newspaper man the trouble. In ninety per cent. of the instances where this particular plan was faithfully followed the interviews were printed. The stories were used because they were of real news value and because the paper often wished to please that particular merchant or business man.

In following such a plan, however, the interviews or stories must have inherent news value if they are to be properly received by the newspapers. As an example of what a properly directed publicity campaign would do let me say that upon returning home every man of you should have in his hand, placed there by the secretary or the publicity manager of this organization, an interview concerning the value of brick as a building material, together with observations about this convention. Upon arriving at your home towns you could call your editors up and in a great many instances the articles would be published. To demonstrate just what I am saying, I wish every one of you upon your return to your home city would call up the city editor of your favorite paper and ask him to send a reporter to your office. Give the reporter a good story as to what has been accomplished at this convention. Tell him about the local men who are here and how brick is coming to be used more and more because of its sterling qualities. Fill the reporter up with a good line of information and then see whether you do not get newspaper notice. That notice will draw the attention of people in your town to the fact that you are in the brick business. Some who read it will be building homes this spring and in casting about for a material to use will remember that you are in the brick business. Business will be attracted, merely through an innocent little notice such as that.

Now suppose you have a publicity man employed by this association who is continually working out plans for the securing of publicity in your home papers, and advising you of methods whereby you can secure such publicity. Would it not increase the value of this national organization in your eyes, as well as benefit your pocketbooks?

Gentlemen, you need a press agent. Your association needs a general promoter. First of all, however, you must be impressed with the fact that organization must be your watchword. Fail to maintain this organization and it means that you cannot conduct an efficient publicity campaign, that the railroads of this country are going to cripple your interstate business. It means that the unattached concerns in the big cities are going to cut prices to a point where you cannot make a living in the brick business. It means that the newspapers will continue to ignore you except when you hand them a check for advertising, which often brings no results.

The Building Brick Association itself needs a new plan to operate under. You have a goodly number of members, but there are hundreds of others who should belong and who should contribute toward bettering conditions.

In all the large cities of the country building and real estate departments are maintained in the leading newspapers. These are legitimate places in which to secure publicity for the brick industry. As a newspaper man I always welcomed any legitimate piece of news concerning the brick business, and I believe that Mr. Queisser will admit that I have suggested to him two or three pretty good plans for securing publicity in connection with the sale of large orders of brick for new buildings.

I do not urge big expenditures in promiscuous advertising in the newspapers throughout the country, though some advertising is necessary. Given an appropriation of \$15,000 for publicity purposes, I would first spend about \$3,000 or \$4,000 for a good publicity manager, equip an office with a multigraph machine, give him a couple of office assistants and let him proceed to grind out publicity matter, getting it into print through the co-operation of members of this association. It would help the individuals, the association and the brick business alike. You would get \$50,000

worth of space for your appropriation of \$15,000 and you would have considerable money to sweeten up the periodicals with paid advertisements. This is not a vision, but a fact.

I wish to urge loyalty to your trade publications. Let me say that as a newspaper man the brick business has some of the finest trade organs of any industry in existence.

The Brick Builder, as an architectural proposition, is in a class by itself and is not surpassed by any publication on earth. THE CLAY-WORKER is a splendid example of a trade journal, always clean and efficient.

I have received THE CLAY-WORKER regularly for the last eight or ten years and have watched its progress very closely and I regard it as one of the best trade magazines in the country. The other magazines devoted to the interest of the brick business are all of a high order and deserve patronage. It pays for the brick man to be represented in their own trade publications. I doubt very much, however, the advisability of sinking great sums of money in space advertising. A half a column of reading matter in the news section of a paper is worth half a page of display advertising, which is read by probably ten per cent. of the people taking the paper.

It makes all the difference in the world, you know, on how you go about getting publicity. One must know what goes on behind the scenes in newspaper offices to realize just how to get space for publicity matter concerning the brick business. As I say, it all depends on the way you go about it, which reminds me of an incident.

I was on a train going from Cleveland to Buffalo the other day and sat opposite an individual who was very much intoxicated, yet he had some glimmer of reason left. The conductor reached him and asked for his ticket, and the drunk inquired:

"Shay, conductor, how-hic-far is it from Cleveland ter Buffalo?"

"Why," replied the conductor, pleasantly, "it is 183 miles."

"Shanks," said the drunken man, who sat and thought very deeply. Ten minutes later the conductor returned through the train. The drunk shoved his foot out and the conductor stumbled over it.

"Shay," conductor," the man demanded, "how-hic-far ish it fr'm Buffalo ter Cleveland?"

"Why, you darn fool," shouted the conductor, "it's 183 miles. Did you suppose it would be any different?"

"Well, I dunno," said the drunk. "You can't always tell, for sometimes there's considerable difference between time 'tween Christmas an' New Years and New Years an' Christmas."

I believe there are a great many of the magazines devoted to the building interests and to architectural matters which would willingly print illustrated articles concerning the value of brick as a building material were suitable articles prepared for them. There are scores of weekly publications which would willingly print articles of merit supplied them by this association. There are companies supplying plate matter to hundreds of daily newspapers which for a small cash consideration will use reading matter and illustrations concerning brick and its advantages as a building material.

If I do little else I wish to impress you with the necessity of breaking in on the news pages of the newspapers as often as possible. Be more resourceful, for it is the resourceful man that succeeds.

I read the other day of a deputy marshal in Alabama who was resourceful, for he didn't let a little thing like an extradition law beat him. When the court was about to convene one day it was found that a certain man who was out on bail was reported to be enjoying himself over in Georgia. Deputy Jim went after him. The next day Jim telegraphed to the judge: "I have persuaded him to come."

A few days later the deputy rode up to the courthouse on a mule, leading his prisoner tied securely with a heavy clothesline. The prisoner looked as if he had seen hard service.

"Why, Jim," said the judge, "you didn't make him walk all of the way from Georgia, did you?"

"Nope," said Jim.

"I thought not," said the judge.

"No," responded Jim. "Part of the way I drug him and when we come to Tallapoosa river he swum."

It all depends upon the way one goes about getting publicity whether he is successful in his ambitions.

Newspaper men do not run around in circles in seeking news. They usually have regular routes and individual sources of news. They make a practice of seeing those men who naturally absorb news and who impart it easily. The man who always says: "Nope, nothing doing," is the one who eventually finds that his newspaper friends do not turn up frequently at his office. By and by they do not come at all, and that man's free publicity ceases. If you have a newspaper friend he is usually glad to make your name figure prominently in stories, to your own undoubted advantage. The morning you get your name in the news column a score of men remind you pleasantly of the fact during the day, though your name might have been appearing in big type in an ad for months. You paid handsomely for the ad, but the notice in the news columns cost you nothing. If you don't know some of your local newspaper men hustle around and get acquainted with them.

My plea for the promotion of proper publicity methods is emphasized, I think, by those followed in many other trade organizations. There are several organizations promoted for the purpose of increasing the sale of certain kinds of goods. Organizations are a cause—publicity a result. The paint manufacturers have banded together and have a publicity department and, as you know to your sorrow, the cement men have been intelligently employing

publicity for a number of years. Isn't it about time that the brick manufacturers got busy and realized that not only competition in prices, but also competition in methods must be combatted? While you are busy cutting each others' throats manufacturers of other lines of building materials are getting the business which should be coming to you and for which you are struggling so valiantly.

But what are you going to do about it? Are you going back home and cut the price of that gray brick from \$18 to \$16 per thousand and slash the quotation on that red brick from \$18 to \$15?

Are you going to hand your friends some insipid conversation on what a nice time you had at the convention here and what attractive exhibits were made at the big clay show? Or are you going back home with a firm determination to co-operate with other brick manufacturers; to swear renewed fealty to the National Building Brick Association; to persuade your brother brick makers that co-operation and not competition is the word of the hour.

Are you going to learn a lesson on which the trusts and combinations of this country have waxed rich—that the consumer has to pay the bill any way, and that you might just as well be getting yours as letting it go to the railroads and to similar concerns?

Are you going to formulate a sensible campaign for spending the money you contribute for publicity purposes, or are you going to fritter your cash away at the behest of paid advertising agencies, whose only interest in your affairs is the percentage they charge for the opportunity of spending your money?

Are you going on with ruinous competition or are you planning to co-operate in a great campaign which will convince the people of the United States that if they are to build with an attractive, durable, honest material they must use brick?

Having decided to participate in such a co-operation each one of you may rest content that you will get results. I sincerely believe that many of your problems will, in the light of such co-operation, solve themselves, that business will be wonderfully stimulated, for the people will speedily awaken to the fact that the Building Brick Association is a new star arisen, with splintered glitterings of light out of the firmament.

"The night shall be filled with music,
And the cares which infest the day
Will fold their tents like Arabs,
And as silently steal away."

(Applause.)

Following a long discussion on this subject, Mr. Fred W. Boltz, traffic manager of the National Petroleum Association, of Cleveland, spoke on "Transportation and Its Relation to the Brickmaker." He spoke from notes and told of the work of the B. B. A. and the effect it has had on the brickmaker. He declared that the B. B. A. has raised the brickmaking industry up 100 per cent. in the eyes of the brickmaker himself.

Following is a list of the papers read and discussed at this meeting. Several of these will be published in full in subsequent issues of THE CLAY-WORKER:

"Constructive Competition"—R. E. Sunderland.

"Industrial Co-Operation"—W. P. Varney.

"The Reflex Action"—E. F. Knight.

"The Chicago Face Brick Association"—H. L. Matz.

"Benefits to the Individual Manufacturer from the General Advertising of the Association"—John W. Sibley.

"The Twin Sister of Advertising"—T. P. Cuthbert.

"The American Brickmaker's Opportunity"—A. R. D. Johnson.

"Our Creed"—Clyde C. Murray.

During the meeting it was decided that the association should publish a book containing 100 bungalow designs with twenty pages of reading matter, the book to cost in the neighborhood of fifty cents each to the public and thirty-five cents each to members. They decided to run a publicity bureau in connection with their advertising and to expend money for expert writers on publicity.

This was declared the most successful meeting this association has ever had and augers well for the future success of their splendid work along publicity lines.

BUSY TIMES AROUND WISCONSIN HEADQUARTERS.

George J. Schwarz, of Milwaukee, the Wisconsin State vice president of the N. B. M. A., proved himself one of the liveliest of live wires at the national convention by establishing Wisconsin headquarters at the Hotel Annex and entertaining all comers in a most liberal and cordial manner, so much so that some of the visitors were under the impression that he was vying with Roosevelt and LaFollette for national recognition. He certainly made a host of friends for himself and the Wisconsin contingent. Milwaukee would prove a strong competitor for the national convention if she saw fit to enter the race.

ANNUAL CONVENTION AMERICAN CERAMIC SOCIETY.

THE FOURTEENTH ANNUAL MEETING of the American Ceramic Society was held in the Auditorium Hotel, in the banquet hall on the ninth floor. The meeting was called to order on Monday, March 4, at 10 a. m. President Weelans, in his annual address, pictured the growth of the society and the increased membership and interest. Volume XIII, containing the proceedings of 1911 meeting, held at Trenton, N. J., included 837 pages. Forty-five papers and their discussions are contained in this volume.

Mr. Weelans pointed out the fact that the work of the society is being given practical application with success from year to year. The ceramic schools are not turning out enough graduates to supply the demand for trained men.

Mr. Purdy, in his capacity as editor, was complimented on his work.

The financial condition of the society was reported by the secretary as follows:

RECEIPTS.

Brought forward from preceding year.....	\$ 151.84
Receipts from dues.....	2,158.41
Receipts from publications.....	1,002.37
Miscellaneous	277.00
Total	\$3,589.62

DISBURSEMENTS.

Cost of publication of Vol. XIII.....	\$2,646.69
Secretary's office	646.48
Miscellaneous	198.63
	\$3,491.80
Balance in bank	\$ 97.82
Grand total	\$3,589.62

OUTSTANDING ACCOUNTS.

Dues and fees.....	\$ 53.26
Sale of publications.....	95.01
Total	\$148.27

In order to place the Ceramic Society on a sounder financial basis, it was suggested that the initiation fee for active members be \$10, and that of associate members be \$5. The annual dues to be increased to \$7.50 for active and \$5 for associate members.

By vote, the Committee on the Classification of Whitewares was discharged, as was also the Committee on Standard Methods of analysis.

Committees were appointed to draft resolutions on the deaths of S. V. Pepple and E. Taylor.

The appointment of a committee on arrangements for the reception of the delegates to the International Association for the Advancement of Science next September was placed in the hands of the trustees.

New associate members were then added to the society.

The following papers were read and discussed by the members of the society:

2. "A Study of Glaze Composition on the Basis of 'Norms,'" by Prof. R. C. Purdy, Columbus, Ohio. The writer found that when the lime-silica ratio was such as to form Wallastonite good clear glazes with good gloss and crazing was observed. When the lime-silica alumina ratio were favorable to the foundation of anorthite opaque glazes with less gloss and no crazing were secured. The addition of silica did not materially affect opacity unless it produced an excess of Wallastonite.

3. "A Note on Terra Cotta Glazes," by C. W. Parmelee, New Brunswick, N. J. The writer varied the MgO, BaO, CaO, ZnO and K₂O in a terra cotta glaze, keeping the Al₂O₃ and SiO₂ constant. He then took the best glazes from the above variations and varied the silica and alumina. He deduced that in all cases the most fusible glaze had .4K₂O equivalent. The most crazing and best opacity were secured with high zinc content. Otherwise his observations checked those of Purdy in Vols. V and XIII of the Transactions.

4. "A Study of the Relationship Between Body Composition and

Glaze," by Chas. F. Binns and Gordon D. Phillips, Alfred, N. Y. Read by title.

5. "A Thermal Study of SiO₂B₂O₃ Mixtures," by A. V. Bleining and Paul Teetor.

The writers attempted to determine an exothermic reaction by the blending of the two compounds. By varying the proportion of B₂O₃ and SiO₂ in mixtures and melting the writers determined the relative solubilities in water.

6. "Colors Produced by Nickel Oxide in Ceramic Mixtures Containing Zinc," by F. K. Pence, Zanesville, Ohio. With prepared nickel oxide the writer secured a blue color which was not due to cobalt. Commercial nickel oxide also gave a good blue color. However, the presence of zinc oxide was necessary in order to secure a blue color.

7. "The Influence of Lime Compounds on Light Green Chromium Stains," by A. R. Heubach, Alfred, N. Y.

In order to cut down the cost of Seger's stain, Victoria green, containing both K₂Cr₂O₄ and CaCl₂, the writer replaced the two compounds. The best greens were obtained with equal amounts of CaF₂ and CaCO₃. Zinc can be used in the chromium stain, but not in the glaze.

8. "A Glaze Imitation of Granite," by Ralph Heidingsfeld, New Brunswick, N. J. The writer produced black spots by the use of minerals, such as specular iron ore, biotite and graphite.

9. "The Nomenclature of Clays," by Charles F. Binns, Alfred N. Y. The writer disparages the fact that we have no standard system of classifying clays. There is much confusion in the use of the terms kaolin and kaolinite. The paper was discussed by Prof. Orton, Prof. Ries and Mr. Hice.

10. "The Production of a Black Spot on Terra Cotta Glazes," by C. W. Parmelee, New Brunswick, N. J. The black spot was produced by the use of varying amounts of CO₂O₃, Fe₂O₃, Cr₂O₃. The ratio of the oxides had some influence, but the greatest factor was in the underslip used.

11. "Studies on Flint Clays and Their Associates," by Sidney L. Galpin, Ithaca, N. Y. Read by title.

12. "The Production of Vitrified Black and Chocolate Floor Tile," by R. C. Purdy, Columbus, Ohio.

By the use of a brown stain and a blue stain in a stoneware body the author produced good browns and vitrified black colors.

13. "Notes on the Replacement of Clays by Galena," by H. A. Buehler, Rolla, Mo. Read by title.

14. "Cobalt Colors Other Than Blue," by R. T. Stull and G. H. Baldwin. The writers called attention to the fact that most coloring oxides were capable of producing at least two colors in a glaze. He succeeded in securing colors other than blue by the use of cobalt.

15. "The Action of Granular Lime in Burnt Clay," by Chas. F. Binns and Merle A. Coates, Alfred, N. Y. By the addition of varying sizes of crushed limestone into a clay the writer observed the effect of the size of the grain of the lime in disrupting the clay.

16. "The Influence of the Composition of the Stain in the Production of Red from Chrome Tin Compounds," by R. C. Purdy, Columbus, Ohio.

The writer reaffirms his previous work on the subject. The pink color secured is effected by the source of the chromium. Washing the stain is not necessary. Recalcination of the stain gives but slight improvements. The stains should be calcined at as high a temperature as is feasible.

17. "The Clays and Clay Industries of Argentina," by Juan Hoursouripe, Bucyrus, Ohio. The author discussed the possibilities of clay products in Argentina. He gave an account of the geology of that region and a description of the present status of the clay working industry. Building brick are manufactured and used extensively. The paving brick and other clay working industries are undeveloped.

18. "Note on the Accidental Pink Discoloration of a White Enamel for Terra Cotta," by Duane F. Albery, Terra Cotta, Ill. Read by title.

19. "A Simple Rope Haulage from a Shale Pit," by Walter A. Hull, Richlands, Va.

The paper described a successful rope hauling system. The difficulties encountered and the method of overcoming them were discussed.

20. "The Influence of Variable Silica and Alumina on a Porcelain Glaze of Constant RO," by R. T. Stull, Urbana, Ill.

21. "Some Practical Problems Encountered in Producing a Stiff Mud Floor Tile," by W. H. Gorsline, Rochester, N. Y.

A discussion of the difficulties due to die trouble in the manufacture of quarry tile.

22. "Matt Glazes," by R. C. Purdy, Columbus, Ohio.

A theory accounting for the formation of matt glazes.

23. "The Manufacture of Quarry Tiles," by Geo. W. Shoemaker, Columbus, Ohio.

24. "A Theory for the Causes of Mattness in Glazes," by Forrest K. Pence, Zanesville, Ohio.

The author believes mattness to be due to (1) something akin to precipitation; (2) to compounds which enter into solution slowly. To prove the theory the author worked (1) raw glaze; (2) half frit; (3) all frit. In all cases mattes were produced.

25. "The Working of Some Montana Clays," by R. R. Hice, Beaver, Pa.

26. "Some Data on the Deformation Points of Feldspar-Quartz and Feldspar-Mica Mixtures," by A. S. Watts, Washington, D. C.

The author discussed the variation of physical properties of kaolins with depth of deposit, by a comparison of the size of grain, shrinkage, etc., of samples taken from the bottom and top. Charts were distributed showing a deformation study of feldspar-quartz, feldspar-beryl and feldspar-muscovite series. The test pieces were cone shaped and compared to standard pyrometric cones.

27. "Recent Developments in the Refractory Material Industry," by F. T. Hayward, Madison, Wis.

The writer gave a brief history of the development of the refractory industry. The electrical smelting of metals has created a demand for a line of refractories, such as magnesite brick and chrome brick. The refractory industry has kept pace with the steel industry.

28. "The Time Factor in the Vitrification of a Clay," by A. V. Bleininger and F. M. Wallace, Urbana, Ill.

The writers heated small briquettes of shale and fire clay to different temperatures and show the variation in porosities due to the length of the heating period.

29. "Some Experiences with the Drying of Hollow Building Tiles," by A. E. Williams. Read by title.

of acids and alkalies and studied the effect of these additions as shown by the volume shrinkage and by comparing the total water added and pure water.

41. "Notes on Fuel Oil Burning," by J. K. Moore, Seattle, Wash.

42. "The Relation Between Preheating Temperature and Drying Shrinkage," by R. K. Hursh.

By volume shrinkage and per cent. of water added the writer studied the effect of heating representative clays to constant weight at different temperatures.

43. "A Fuel Oil System for Test Kilns," by R. H. McElroy and G. H. Raymond. Read by title.

44. "Drying Defects in Some Cretaceous Clays of the Great Plains Regions," J. Kule, Ithaca, N. Y. Read by title.

45. "Note on the Fuel Consumption of Whiteware Kilns," by T. Gray, East Boston, Mass. Read by title.

46. "The Plasticity of Clays," by F. F. Grout, Minneapolis, Minn.

The author reviewed his work on the clays of West Virginia and brought forth more evidence of his theory that plasticity is caused by molecular-attraction between the clay particles and water. He succeeded in obtaining inorganic colloidal materials from clays by treating with ammonia. Hot or cold water extraction alone failed to digest colloidal substances.

47. "Notes and Data on Operation of Denny-Renton Double Deck Tunnel Dryer," by Samuel Karzen, Akron, Ohio.

The writer gave a detailed account of experiments carried out to obtain the best drying efficiency.

48. "The Dehydration of Clays," by G. H. Brown and E. T. Montgomery.

The writers show acceleration and retardation curves secured



Prof. Edward Orton, Secretary.



Arthur S. Watts, President-Elect.



Ellis Lovejoy, Treasurer.

30. "Effect of the Time Factor on the Softening Points of Pyrometric Cones," G. H. Brown, Pittsburg, Pa.

31. "The Power Consumption for Stiff Mud Brick Machinery," by R. R. Hice, Beaver, Pa.

When a Corliss engine was replaced by electrical power the consumption per 1,000 brick was cut to one-half.

32. "The Uselessness of the Rational Analysis as a Means of Controlling Glaze-Frit," by R. C. Purdy, Columbus, Ohio.

By varying the kind of ball clay in several bodies the writer deduced that there was no relation between their behavior and the rational analysis.

33. "The Use of Fats, Oils, Etc., in Dies for Dust-Press Wares," by Geo. Simcoe and A. F. Smith, Trenton, N. J.

34. "The Relation Between the Ashley Absorption Factor and the Drying Shrinkage of Some Clays," by A. V. Bleininger.

35. "Data on the Performance of a Gas-fired Continuous Kiln," by W. D. Richardson.

36. "The Viscosity of Clay Slip," by G. H. Brown and G. A. Murray. Read by title.

37. "The Use of the Thermo-couple Pyrometer in a Paving Brick Plant," by D. E. Humphrey, Cleveland, Ohio.

38. "Some Possible Definite Relations Between Composition and Physical Properties of Clays," F. F. Grout, Minneapolis, Minn.

By synthetic mixtures the writer prepared compounds analogous to those serving as the matrix in clay wares. These were tested as to strength.

39. "Down-draft Kiln Bottoms," by T. W. Garve, Columbus, Ohio.

40. "The Influence of Acids and Alkalies Upon Clays in the Plastic State," A. V. Bleininger and C. E. Fulton, Urbana, Ill.

The author took representative clays and added varying amounts

by heating representative clays in an electric furnace. Combined water is evolved slowly at 450 degrees C., and may be driven off at that temperature. Preheating causes loss in plasticity in some cases, in others not.

49. "High Voltage Insulators and High Voltage Testing," by E. T. Montgomery, Pittsburg, Pa.

A plea for the standardization of methods of testing and a description of testing apparatus.

50. "The Causes and Control of Crazeing in Enamels for Cast-iron," by H. P. Staley, Columbus, Ohio.

51. "Notes on the Di-electric Strength of Some Porcelains," by B. S. Radcliffe, Urbana, Ill.

52. "A Comparison of Ten White Enamels for Sheet Steel," by R. D. Landrum, Canandaigua, N. Y.

The author compared American enamels to ten representative enamels made from German formulae. The enamels were tested for solubility in acetic acid, their ability to stand sudden heating and cooling and their tendency to chip under impact.

53. "The Effect of Temperature on the Di-electric Strength of Porcelain," by Geo. Weimer and C. T. Dun, Columbus, Ohio.

54. "Colors for Enameled Sheet Steel and Iron," by Willard L. Bruner, Perth Amboy, N. J.

55. "The Relation Between Porosity and Crushing Strength of Burned Clay Products," by G. H. Brown, Pittsburg, Pa.

A comparison of the behavior of various shaped test pieces. The crushing strength increases gradually with decrease in porosity, until ten per cent. porosity is reached. Below ten per cent. the crushing strength increases or decreases, according to the behavior of the clay in final vitrification.

56. "The Replacement of Tin Oxide by Antimony Oxide in Enamels for Castiron," R. E. Brown, Urbana, Ill.

57. "A Comparison Between the Rattler Test and the Sandblast Test for Paving Brick," by Edward Orton, Jr.

The sandblast test did not measure the toughness or brittleness of the clay product. Roughly, the sandblast and rattler losses are parallel. The sandblast test brings in more factors than the rattler test.

58. "The Necessity of Cobalt Oxide in the Ground Coat of Enamels for Sheet Steel," by R. D. Landrum, Canandaigua, N. Y.

In ground coats for sheet steel it has been found that a coat that will not adhere may be made to do so by the addition of cobalt oxide. Advances the theory that the CoO was reduced and formed a union with the iron.

59. "The Laboratory Methods of Testing Paper Clays," by C. S. Gwinn. Read by title.

60. "The Cost of Enamelled Steel Cooking Utensils," by Jos. B. Shaw, Mt. Savage, Md. Read by title.

61. "Tests on a Series of Bricks from the Western Canadian Provinces," by Heinrich Ries, Ithaca, N. Y. Read by title.

62. "The Policy of Keeping Secret the Results of Research Laboratories of Private Companies," by R. D. Landrum, Canandaigua, N. Y.

63. "A Method of Making Comparative Tests of Flint and Feldspar," by C. E. Jackson, Wheeling, W. Va. Read by title.

64. "The Establishment of Technical Training Schools for Artist-Craftsmen in Connection with Industrial Plants," by M. E. Cooke, Columbus, Ohio. Read by title.

65. "Some Hydrous Silicates Formed Under Steam Pressure," by L. F. Barringer, Schenectady, N. Y. Read by title.

67. "Note on the Dissociation of Calcium Hydrate," by R. K. Hursh, Urbana, Ill.

On Monday evening, Dr. Heinrich Ries, of Cornell Uni-



W. C. Hoagland, Columbus, Ohio.

versity, delivered a highly interesting lecture on "The Clays of the Western Provinces of Canada." The lecture was accompanied by illustrations. Many of the clays occur in lense shaped masses and their winning is accomplished with difficulty. A few beds of refractory clays occur. Near Vancouver, deposits of high-grade shales are being worked.

On Tuesday evening, Mr. Arthur S. Watts, of the Bureau of Mines, presented an illustrated lecture on "Kaolin Mining and Refining in the Southern Appalachian District." The lecture was the first public statement of the work done by the writer in those regions, and was given by approval from the director of the Bureau of Mines. By the methods of mining, much of the kaolin is wasted. The sand and mica are removed by washing. The geology of the region was discussed and illustrated by Prof. Orton.

On Wednesday afternoon, the final business session of the society was held. The following new members were installed: R. D. Landrum, K. Takihashi and T. R. Ernest. The names of the new associate members were read and approved. Adjournment followed.

By all the meeting was pronounced as being highly successful. The number and value of the papers presented was greater than that of any previous meeting.

The following officers were elected for the ensuing year:

President, Arthur S. Watts, Columbus, Ohio; vice-president, Prof. C. W. Parmelee, New Brunswick, N. J.; secretary, Prof. Edward Orton, Jr., Columbus, Ohio; treasurer, Ellis Lovejoy, Columbus, Ohio; board of trustees, William Cannan, Syracuse, N. Y.; J. Parker B. Fiske, New York City; Harold P. Humphrey, Trenton, N. J., and officers elected.

AMERICAN FACE BRICK ASSOCIATION ORGANIZED.

A MEETING OF THE face brick manufacturers of the country was held in the Auditorium Hotel, Chicago, Thursday afternoon, March 7, and an organization known as the American Face Brick Association was formed. The officers elected were: President, J. M. Adams, secretary and general manager Ironclay Brick Company, Columbus, O.; vice president, E. C. Clark, general manager Kittanning Brick and Fire Clay Company, Pittsburg, Pa.; secretary-treasurer, W. H. Hoagland, secretary and general manager Claycraft Brick Company, Columbus.

The board of directors as selected is as follows: J. M. Adams, Columbus, O.; H. R. Beagle, New Galilee, Pa.; J. H. Black, Buffalo, N. Y.; F. W. Butterworth, Danville, Ill.; E. C. Clark, Pittsburgh, Pa.; J. Parker B. Fiske, New York City, N. Y.; W. H. Hoagland, Columbus, O.; W. H. Holmes, Detroit, Mich.; L. G. Kilbourne, Columbus, O.; C. A. Myers, Dallas, Tex.; J. W. Moulding, Chicago, Ill.; C. A. Phillips, St. Paul,



J. M. Adams, Columbus, Ohio.

Minn.; W. D. Richardson, Shawnee, O.; Jno. W. Sibley, Birmingham, Ala., and W. J. Snider, Brazil, Ind.

Many of the leading face brick manufacturers of the country have already joined this association, the purpose of which is a co-operative movement to secure better freight and express rates. It is the outgrowth of the Ohio Face Brick Association, which has accomplished wonderful things along this line. The membership of the association to-day represents an output of between 500,000,000 to 600,000,000 face brick annually, and it is confidently expected that every face brick manufacturer in the country will become a member.

It is not the purpose of the new association, the promoters declare, to usurp the functions of the B. B. A. in any way, the latter organization being one devoted solely to publicity work. The real desire of this new organization is to work in harmony with the B. B. A. and to become an important spoke of the N. B. M. A. "The new association," President Adams writes, "has a multitude of things to do, which relate, first, of the N. B. M. A. "The new association," President Adams plete, the work will be taken up with vigor."

There was a hungry hunt for those "I Will" hatpins by the stag contingent wanting a peace offering to take home.

SEVENTH ANNUAL CONVENTION OF THE NATIONAL PAVING BRICK MANUFACTURERS' ASSOCIATION.

THE NATIONAL PAVING BRICK MANUFACTURERS' Association held their annual meeting in the Green Room of the Congress Hotel, Chicago, convening March 4, as per their announcement. Their sessions continued until all their business was disposed of. The attendance was large, eighty-one registering as active and associate members. Not only unanimity of opinion, but enthusiastic interest in the work of the association, prevailed throughout the sessions.

The president's address was listened to with marked interest and is reproduced in full.

President Deckman's Address.

Gentlemen of the Convention:

While, so far as I know, there has been no precedent for me to follow in making a report to the Association and its Board of Directors, I have, nevertheless, assumed that some report of the stewardship of your presiding officer would be in keeping with general practices in such positions, and that, even though not required by any rule or precedent, in making a report, some ideas or questions might be brought to our attention that would be of some benefit to our Association and its membership, and, with this object in view, I beg to submit the following:

At the Convention of our Association at Louisville, Ky., in



Charles J. Deckman, Cleveland, Ohio.

February, 1911, I was chosen by your Board of Directors to serve as your president during the past year, and, by reason of my official position, was also made a member of the Office Committee. In the discharge of my duties in each case I have done my duty to the Association and its membership, as I have seen it, without fear or favor, or hope of reward. The duties as presiding officer have been of the most pleasant character; the kindly consideration of our membership have been most cordial and friendly.

During the first two months after assuming office, I was absent from my labors, and it was not until my return in April that your office committee met for organization and the promotion of work placed in their charge. We met, however, early in April and formulated plans for conducting the affairs of the office as provided in our regulations governing the same, and in this we had the most cordial and hearty co-operation of Mr. Will P. Blair, the National Secretary of the Association.

During the first three or four months after the removal of the office of the Association to Cleveland, your Office Committee was reasonably active in holding meetings each week for the consideration of Association matters, and much good was accomplished, since which time, however, your committee have not met so frequently, but each individual member has, from time to time, manifested personal interest in the affairs of the Association at as frequent intervals as it has been possible to do so, and personally I have devoted some time each week at the Association offices in advising for the best interests of the Association.

All of this service and time has been rendered and given by the Office Committee without cost to the Association, so far as I have any personal knowledge, and, while it is somewhat like presenting

an eulogy at your own funeral, I am inclined to believe the thanks of this Association are due the Committee for their efforts, and the out-of-town members should be reimbursed for expenses incurred in attending the meetings and performing the duties assigned to them by your regulations.

The Office Committee was not successful in securing the services of an Assistant Secretary until in June, when the Committee were unanimous in their choice of Mr. H. H. Macdonald, of Cleveland, Ohio, and in our judgment the selection was a most wise and fortunate one. Mr. Macdonald has shown his aptness and fitting qualifications to satisfactorily fill the position, and has been a most faithful, hearty, and untiring co-worker with Mr. Blair, and all others connected with the Association work, and his work has been in sympathy with all the things for which the Association stands committed.

We regret that conditions have not warranted your Office Committee in appointing an Association Engineer. However, we recognize the great importance of this position being filled as soon as the conditions will warrant it, as it is a most valuable position and one that demands careful, conscientious, and thoughtful consideration. It is of untold value to our membership and the education of the public in the importance of proper construction.

When this position is filled with a capable man, the work of the Association will benefit our membership and the public to such a degree that its value cannot be measured in the cost incurred, and the future service of the Office Committee, who ever they may be, will not be required, to the same extent as in the past.

Some Things the Members Should Advocate.

In my judgment, there is no one thing more essential or necessary for the perfect building of a permanent and durable brick pavement than the proper application of the cement grout filler. I am of the opinion that no higher service can be performed by our membership than that every member should familiarize himself with the proper method of application of the filler, and that it should be a sacred, bounden duty devolving upon each of us, that we make it our particular business to see that each contractor on every job we sell, be instructed in these methods, to the end that such results as we wish to accomplish in the filler are obtained.

As a result of our company having carried out this policy during the past paving season, we have more than a dozen streets and roadways constructed during the year to which we can point with pride, in the belief that our accomplishment has and will produce a most wholesome effect on the future construction of road building by as many contractors, and in every case we have been more than repaid by the expressions of gratification from the contractors themselves for the instructions and the service rendered, all of which we know has benefited the industry as a whole and brought a higher ideal of brick roadways to an observing and interested public, as well as raising the standard of workmanship among the contracting fraternity.

I, therefore, most heartily recommend the practice of this kind of work by all our membership, and fully believe your work will be repaid more than any cost in money that can be put upon it. I am also firmly of the opinion that we should not hesitate to express our belief in the kind and best brands of cements to use for this particular work.

There are a number of such brands of cements manufactured that produce equally satisfactory results; and, because of the importance of the filler, they should be recommended, and we should as strongly condemn and discourage the use of other brands of cement of questionable quality and which we know, from experience in use, to produce poor work and bad results. No brand of cement should stand condemned wherein its qualities have been raised to the standard required to produce satisfactory results, but let us have the manhood to stand for what we honestly believe to be right, regardless of whose interests may be affected or the particular brand of cement used. In this character of work we feel the very great need of an association engineer, and it is to be hoped that conditions favorable to the selection of such a man will develop at an early day.

Another very vital subject that should demand our united attention is in the matter of collection. We should appoint a committee to devise ways and means for collecting more promptly and at a fixed time for the material furnished every contractor for any improvement of whatsoever kind, and I recommend that a committee of three be appointed to devise some plan to bring about a uniform solution applicable to this important question, and that each member of our Association write out his views and submit the same to this committee for consideration as a guidance to them in arriving at their conclusions, and that such committee report at the next meeting of the Board of Directors; and, when concurred in by the board, the same be promulgated by the Association to its membership for universal use by all of us; and in this we should be and stand a unit. We can do ourselves no greater service than to carry to a successful conclusion a solution of this important question.

During the past year, individual local interests of our membership have been given a great deal of consideration as their interests have required attention, not, however, by the Association, but as individuals acting in harmony with the Association, in different localities, and in instances these considerations have extended to manufacturers not members of the Association. The most important of these matters thus considered, that has come to my personal

notice, is in the action, by the Ohio Manufacturers, in the adoption of several uniform clauses of contract for the sale, care, selection and payment of their product, and I deem this of enough importance to the whole of our membership to make special mention of their action in this report.

It was unanimously agreed by the Ohio Manufacturers that the following uniform conditions should be written in every contract made and entered into after January 1, 1912, for the sale and use of their product for paving purposes.

"Fourth. The party of the second part agrees to receive, pay the freight as required, carefully handle and unload immediately upon arrival all brick and block shipped by the party of the first part; to report promptly car numbers, if any, that do not arrive in proper order, and in what respect, if any, that the brick or block therein do not correspond with the invoice; that the failure to make such report in writing together with proof of same within two days after the receipt of car will be an acceptance of the quantity of brick or block as stated in the invoice thereof."

"Fifth. The party of the second part further agrees to use all reasonable care in unloading and handling, and that in all cases the brick or block shall be firmly piled and not dumped or pitched, and that no allowance shall be made for brick or block broken or for turning the same in pavement, it being understood, however, that brick or block delivered under this agreement shall be subject to inspection by the duly appointed inspectors; and the

good and sufficient bond or other security for payments as above stated, if required."

This action was taken with the twofold purpose in view of establishing our business on methods of a higher plane, and at the same time elevate the standard of the contractors with whom we have to deal, and there is no question as to the mutual benefits that will result to both with these conditions carried into effect.

Other instances worthy of mention are—the Detroit, Mich., situation, of which our members are familiar; the Cleveland Heights condition, where smear pavements had the call but were distanced in the race and brick adopted. These and many others demonstrated the use and value of our Association in its campaign for and promoting the use of brick as the highest standard of paving material.

Another matter to which I wish to call your attention is that I deem it of the utmost importance to our Association that each manufacturer, who either sells his own material or sells it through representatives or agents, should familiarize himself with the requirements of our specifications so that, in presenting our material for sale and in talking of its use and merits, the methods to be employed in its use to obtain the best possible construction may be made a most prominent feature of your sales department.

I believe in the most kindly and courteous relations with our competitors of all kinds of smear and combination pavements, but I do not believe we should exercise such friendly relations that



Part of the Display of the National Paving Brick Manufacturers' Association, Clay Products Show.

party of the second part further agrees, whenever possible, to use rejected block for batting or closures, and to stack up so as to permit of being counted all condemned or rejected block not so used, and also to store them for a time not to exceed sixty days; said defective block or brick in excess to yardage guarantee may be charged back and credit given therefor by the party of the first part, whereupon such material becomes the property of the party of the first part; also the credit for rejected block or brick shall not exceed the actual number returned to the party of the first part. It is also understood that said second party will make settlements on the basis of the entire quantity of block or brick shipped each month, and that any settlement for rejected block or brick is to be made at the final payment or after the work is completed."

"Sixth. Party of the second part agrees to pay party of the first part, or its order, on the 30th of each month for all block shipped the previous month. A discount of 50c per thousand will be allowed on all payments made on or before the 15th of the month for material shipped during the previous month, but positively no discount after said date. Party of the second part further agrees to pay interest on all over-due amounts at the rate of 6 per cent. per annum until paid. Party of the second part further agrees to return all freight receipts promptly to the party of the first part for credit monthly, and further agrees to give

would compromise us in a lessening of our efforts to defeat the use of their stuff, by reason of any advantage we may gain personally by the use of some of our material for special work in a part of the improvement. I stand for brick first, and recommend that we fight all composition pavements to a finish.

If we win, we have gained our point; if we lose and for any reason some brick must be used in the improvement then this business must come to some of us, and we have not sacrificed our business principles to get it. If these ideas are carried into effect by our sales department, our position is made the stronger in advocating that for which we and our Association stand.

At the time your Office Committee assumed direction of the affairs of the Association a very deplorable condition was presented by a large part of our membership in their failure to report their yardage promptly, and to pay their assessments, as obliged, promptly, that the officers might more definitely put into effect many things contemplated for our growth and advancement.

Several new, needed, and valuable publications were delayed by reason of this very unbusiness-like manner in which a goodly number of our members had drawn on futurity for these reports and payments, or had failed to meet their obligations at all, and no amount of solicitation on the part of your efficient office force had been instrumental in solving this important problem.

When these matters had been urgently pressed by your officers, the responsibility for the fulfillment by members of our Association

were shifted from one to another member of their respective companies, and as a result that, which had been everybody's business was nobody's business, and the Association suffered by the fault and neglect of its own members.

I am happy to report, however, that no such condition prevails at this time, and with but very few exceptions our membership report promptly, and pay their assessments regularly, and there is no reason for complaint of our membership generally in their fulfillment of their obligations. There are four members of our Association that have not fulfilled their obligations, either in the making of reports or the paying of their assessments.

These four members do not measure up to the high standard of our Association, and are not worthy to be associated with business men who do business promptly and with business methods. Three of these members are not represented at this meeting, and I believe their failure to fulfill their obligations has been more neglect and careless business methods rather than a disposition not to report and pay up, and I further believe they will do so when they have read this report. The fourth fellow, who is here and present, is so selfish that he will not even associate with himself. He is a dead beat, and we don't expect to get anything out of him. His name will be read at the business session of the Board. He will hear it and be unashamed. At the next session of the convention, he will try and crawl in at the side door unobserved, will continuously proclaim his membership and loyalty to our Association, will neglect to attend the meetings of the Board of Directors, because there is no compensation attached, and he will be a living exemplification of the smallest thing on earth. (Applause.)

The fellow who can't pay the freight and hasn't enough nerve to walk up and say so is a coward; but when he tries to make the public believe he is the whole Association, and as it were, tries to be a sport, laughs at the other fellow's stories, eats the other fellow's feed, attends the other fellow's show and sneaks out before the plate is passed, is a something I dare not mention if this report is to be printed and sent through the mail. I recommend such a member for mercy.

The report of Secretary Blair followed. It was quite voluminous, dealing in detail with the work of the past year. Secretary Blair said in part:

SECRETARY BLAIR'S REPORT.

"In accordance with instructions given us at the annual meeting of this Association one year ago, we closed the offices of the Association in Indianapolis, March 14, and re-established headquarters at 824 and 826 Brotherhood of Locomotive Engineers Building, Cleveland, Ohio, with Miss Grace Foulston as our only assistant.

"It soon became apparent that the accumulation of mail could not be taken care of with this force. Under authority of the board we were fortunate in securing the services of Miss Gertrude Lillis, who had previously been connected with the Association.

"Efforts were immediately employed to secure the services of someone who might fill the place of assistant secretary. Finally arrangements were made with Mr. H. H. Macdonald to assume the duties of that office June 1, 1911.

"The selection of Mr. Macdonald for this office has proven a fortunate one, as we believe, for the Association. He is diligent, enthusiastic and efficient in his work.

"Miss Foulston, after six years of continuous service of extraordinary efficiency, resigned her position November 20. Miss Lillis was promoted, and others have been added to our office force.

"Within a few days after the re-establishment of this office, President Deckman returned to the city of Cleveland, and from that time forward frequent meetings of the Executive Board took place, the first one being held Thursday, April 13, reviewing the work that had been done, and advising and directing work to be done.

"The Executive Board, with the office force, set about to collect past-due vantage from our membership. While this effort required considerable time of the Executive Board, as well as that of the office force, we are glad to report that very little delinquency remains, and the sum of \$6,278.80 was collected.

"The collection of this money enabled the Association, under the direction of the Executive Board, to institute a campaign of general advertising, such in excess of that ever undertaken.

"This course was pursued, following the expressed wishes of many of our membership that it should be undertaken. That it has been of great value to the industry, certainly no one can question.

"Evidence of the increased interest in vitrified brick as a paving material throughout the United States is clearly shown by the volume of correspondence that has reached this office, the record of which is as follows:

	Incoming.	Outgoing.
April	337	1,821
May	628	4,085
June	601	3,656
July	685	4,868
August	582	3,469
September	668	3,572
October	832	3,541
November	1,398	9,529
December	1,144	7,855
January	1,586	17,929
February	2,073	12,447
	10,534	72,772

"This correspondence has continuously taxed our office force beyond its ability. Nevertheless, the extraordinary interest manifested by engineers, officials and taxpayers throughout the country

has made this work a pleasure, though often necessary to work beyond ordinary office hours, in that it shows that the National Paving Brick Manufacturers Association is a real force at work in promoting, persuading and increasing the use of paving brick in this country.

"The chief strength of our competitors lies in the fact that they control and dictate the manner and method of putting their material into the streets; and the public favor gain comes from that fact, and that alone, and not from the material itself.

"The chief criticism, in fact the only criticism, directed toward brick lies in the fact that it is improperly constructed. But a properly constructed vitrified brick street pavement never meets with criticism, and always meets with commendation and approval.

"Does not the secret of our entire success and commanding influence with the public lie in the possibility of securing to the very utmost properly constructed vitrified brick streets?

"We believe so. We further believe that the National Paving Brick Manufacturers Association occupies a position of popular and professional influence in the country.

"With this advantage, why is it not an opportune time to take a stand upon the questions so forcefully suggested in the report of your president?

"In closing this report we wish to acknowledge our obligations to the office committee for assistance rendered and consideration extended throughout the year's work."

From the correspondence that was submitted in the official reports to the convention, it was realized by the membership more than ever of the standing and confidence in which the association is held by the leading engineers, municipalities and collegiate institutions of the country. It was easy to discern from the comments of all the membership that they were unanimous in the opinion that the good work should move on. The only thing we are sorry to record is the information that some of the manufacturers of paving brick do not hold membership in this association. That is one thing past human understanding, when the work of the association is so well known and so thoroughly effective throughout the United States.

The association listened with much interest to the able report of Mr. James E. Howard, of the Bureau of Standards, of his research work conducted during the past year in the matter of stresses, strains, expansion and contraction of brick pavements, and at the close of which they passed the following resolution:

"Resolved, That the National Paving Brick Manufacturers' Association appreciates the research work now undertaken by the Bureau of Standards in streets and roads.

"Resolved, further, That each member of this association address his Congressman respectively, insisting upon ample support for that government bureau in appropriations to come, in order that the work of the bureau may in no way be handicapped."

The board of directors elected for the ensuing year was as follows:

- J. B. Wilcox, Alliance, O.
- Eb. Rodgers, Alton, Ill.
- C. H. Doan, Columbus, O.
- W. N. Alderman, Athens, O.
- C. C. Barr, Streator, Ill.
- C. C. Blair, Youngstown, O.
- J. B. Hammond, Bolivar, Pa.
- M. E. Gregory, Corning, N. Y.
- F. M. Brady, Cleveland, O.
- J. W. Robb, Clinton, Ind.
- D. Warren DeRosay, Corry, Pa.
- W. P. Whitney, Danville, Ill.
- C. J. Deckman, Cleveland, O.
- C. P. Mayer, Bridgeville, Pa.
- J. G. Barbour, Canton, O.
- W. H. Hill, East St. Louis, Ill.
- F. L. Manning, Portsmouth, O.
- O. N. Townsend, Zanesville, O.
- D. R. Potter, Clarksburg, W. Va.
- John H. Simpson, Dayton, O.
- R. L. Lewis, Glouster, O.
- John W. Hall, Baltimore, Md.
- W. R. Barnhart, Jr., Wooster, O.
- W. P. Blair, Cleveland, O.
- L. A. Culver, Veedersburg, Ind.

The board, at their meeting for organization, re-elected the old officials, as follows:

- C. J. Deckman, president, Cleveland, O.
- J. W. Robb, vice president, Clinton, Ind.
- C. C. Barr, treasurer, Streator, Ill.
- Will P. Blair, secretary, Cleveland, O.
- H. H. Macdonald, assistant secretary, Cleveland, O.

FIRST INTERNATIONAL CLAY PRODUCTS EXPOSITION

The Great Chicago Coliseum Filled with Artistic Creations in Brick.

CHICAGO CERTAINLY lived up to her reputation and added another to her long list of important achievements in carrying to a successful issue the great Clay Products Exposition, and proved that her motto, "I Will," is no meaningless term. The undertaking was stupendous, and it took dauntless courage, endless energy and subtle skill to marshal all the forces necessary for its consummation. A laurel wreath should supplant the "tin hat" on the head of the goddess typifying the spirit of achievement, which is synonymous of Chicago.

The Clay Show was one of the most remarkable exhibitions of the "I Will" spirit which the city's historian will have occasion to chronicle. The thousands who thronged the vast Coliseum marveled at the beautiful structures in brick and terra cotta, and many expressed keen regret that the displays were temporary in character, and had to be razed and consigned to the dump at the close of the show. Not many there were who understood or thought of the investment of brains, muscle and money which it represented. When it is considered that the conception and execution of the vast enterprise was due chiefly to one man, R. C. Penfield, members of the N. B. M. A. may better appreciate what Secretary Randall meant when he said on the floor of the convention that his "hat was off to Mr. Penfield."

It is true, of course, that Mr. Penfield had able associates, without whose assistance he could not possibly have accomplished what he did, but it is equally true that Mr. Penfield was the master mind which brought together the forces that wrought the great work, and so the credit for the Clay Show must be given to him. However, the Clay Products Exposition was such an immense success that credit may be given to all who were associated with Mr. Penfield in the enterprise and still have some left over. It was a Chicago show, and Chicago brickmakers, several of whom are pictured on pages 390 and 391 of this issue, are each and every one entitled to a niche in the city's hall of fame. One name should be added, however, that of Frank L. Hopley, secretary of the exposition, who has labored incessantly for months past handling an amount of detail work that would tax a half dozen ordinary men. That he has lived through the ordeal speaks well for his constitution and habits. The trials and vicissitudes that have beset him would have driven an ordinary man to drink, but Frank is not built that way.

President Taft at the Clay Show.

The formal opening of the exposition occurred Thursday evening, but the events of events was the presence of President Taft Saturday forenoon. While not scheduled for a speech, with characteristic good nature he responded to the demand for one, saying that he came merely to view the wonderful variety of clay products that had been made possible by the ingenuity of American clay manufacturers, but found that he himself was one of the exhibits. President Taft ventured the opinion that there is no industry in the nation in which greater progress has been made for the benefit of man than in the development of all varieties of clay products, and further said:

"This is a most important exposition in the development of an industry which while very old in one sense, because it goes back as far perhaps as memory or time, is a marvelous exhibition of the ingenuity of the present day. I am told there is present to do me honor and to protect me from possible danger, the Boy Scouts. I desire to accept their courtesy and their protection. I have no doubt many of them will come to be most expert clayworkers and clay manufacturers, and therefore it is quite appropriate that they should be here. I did not come to make a speech, I came only to express my approval of the exposition of clay products and their development, from resources which are making clay banks more

valuable than gold mines, and which is showing what Americans can-do."

That the thousands of our readers who were unable to visit the Clay Show may get an idea of what the President saw and what they missed, we present in this issue a series of views of the exposition, each of which will bear close study.

No photograph or word picture can do full justice to the artistic constructions in brick which filled the Coliseum, but the following brief descriptions of the displays will give our readers an idea of the new brick architecture.

As the crowds entered the Coliseum, the first thing to catch the eye and call forth expressions of surprise and pleasing comment, was the beautiful four-column Grecian pavilion with its old time bubble fountain sheltered by an artistic terra cotta roof which supported in turn an immense classic Greek vase, a duplicate of the one made for the Delgado Memorial at New Orleans. The base of the pavilion, with three steps on each of the four sides, was in polished terra cotta granite. The columns were beautifully



R. C. Penfield, Chicago.

tapestried in red and buff. The vase was nine feet high in buff standard terra cotta which, with the green of the tropical ferns which filled it, made a pleasing cap for the whole display, which was so exquisitely executed by the Northwestern Terra Cotta Company. Around the base of the pavilion stood eight large vases containing well kept bay trees, which added much to the beauty of the exhibit. There was a variety of color in the vases, one was in red, two in white (cream and white), one in bronze, one in green, one in white granite terra cotta and two in granites.

This pavilion, however, was only a part of the Northwestern Terra Cotta Company's exhibit, and, while one of the striking features of the show, did not overshadow their second exhibit in the slightest degree. This other beautiful display was located but a few paces from the pavillion and consisted of pilasters, cornices and piers in green terra cotta. In two walls running parallel east and west. Across the face of one of these walls was a thirty-foot frieze in old ivory terra cotta of foliage of a tree. Above this, imbedded in a green frieze, was eleven progressive panels descriptive of the process of manufacture. These were highly colored, some taking as many as nine enamel colors. These panels in turn represented the factory, pugging, drafting, mold making, modeling, pressing, hauling by electric transfer cars, burning, fitting, teaming, and at last the building built of terra cotta. In the opposite wall were nine panels of the materials to be used in the present buildings in course of construction in Chicago.

In the center of their space was a paralleled base for a vase similar to the one on the pavilion roof. In this base appeared the seal and name of the company in enamel colors. Several garden seats with tops of terra cotta in imitation of old leather were used by the visitors. An important part of their display was a fifty-foot clay chain so strongly built that it could support 1,000 pounds dead weight. A Northwestern terra cotta pancake was handed out as a souvenir.

But this splendid display was only a part of the great clay show. After studying the pavilion carefully for a time, the newly arrived visitors turned their attention to the great groups of clay products and the eyes usually wandered around in search of the prize brick bungalow which had been extensively advertised as a strong feature of the show. And it was readily visible, too, off to the left center, and it was that way a heavy percentage of the crowd drifted immediately on arrival.

It only took a few minutes, however, to discover that there were many other interesting things to see, and some were at a loss for a while as to just how to go about it to see all and miss nothing, and do it systematically. The wise ones listened a moment to Hand and his band, and then wandered up into the gallery for a general survey of the panorama spread out below, before starting on a thorough tour of inspection.

From the gallery was the easiest and quickest way to get



F. L. Hopley, Bucyrus, Ohio.

a general comprehensive view of the wonderful show spread out on the main floor, and of the crowds thronging the exhibits. And the view from there was a sort of object lesson in the best of all roofing, burnt clay tile. From there one could best see the beauty of that German Brookville green tile on the bungalow roof, and also the display of the Ludowici-Celadon Company, of Chicago, the booth of which was covered with a variety in both style and color of tile, including Spanish, French and combination shingles, in green, red and fire flash shades. Those on the booth were the product of the New Lexington, Ohio, works, while the bungalow tile, from the same concern, came from the Chicago Heights plant. Inside this booth was featured not only roofing, but also floor tile of the same material in green and red, set off with ornamental squares for borders.

Looking down from the gallery one could see the booth of THE CLAY-WORKER, an inviting place to rest, keeping close company with the great paving exhibit and the face brick exhibit of the Chicago Face Brick Association.

The central court was the natural starting point to explore systematically the different exhibits in detail, after taking in a general view of the whole place.

Turning to the right into the first aisle from the entrance one was confronted first with the Brown pyrometers, of which there was an excellent display to interest the clay burner.

Across the aisle was the display of the Plymouth Clay

Products Company, including stock from the Iowa Pipe and Tile Company, and the Lehigh Sewer Pipe Company, of pipes, flue linings and wall coping.

The Mason City (Iowa) Brick and Tile Company had an exhibit of especial interest to farmers. The central feature was a section of silo built up with Dennison hollow clay silo blocks, showing both the methods of construction and the points of superiority of hollow clay blocks as compared to other material for constructing either silos or grain storage bins. They were distributing circulars to those interested, and these should help the good work along.

Another rural exhibit on somewhat the same order was that of the Iowa Brick and Tile Association, which included hollow tile for silo construction as a strong feature, sewer pipe, flue linings, and brick of the kind the farmers are most interested in. These two exhibits should result in material benefit both to farmers and to those making clay products for this trade.

Calgary, Canada, showed a goodly collection of fire brick, fireproofing hollow block, tile and paving brick.

The Thomas Moulding Company and the Tiffany Enameled Brick Company showed a well equipped display of enameled brick, blocks and terra cotta, and also fire brick.

One of the most strikingly beautiful creations was that of the LaSalle Pressed Brick Company, LaSalle, Ill., a colonnade enclosure with three beautiful fireplaces on the inside that kept one guessing as to their relative merits, and a profusion of decorative effects in clay products of which they were justly proud.

The W. S. Dickey Clay Company, Kansas City, Mo., had a display covering three sections in block D, the central and most striking feature of which was an immense fireplace built of fire brick and lighted up true to life. There was a decorative fence wall around it all made up of flue lining, tile, sewer pipe and rustic piers, capped off with flue tops, and a series of big pictures gave a homelike effect to it all. Their souvenir metal paper clip was a good advertisement, the top plate representing a sewer pipe bearing the stamp of W. S. Dickey, Kansas City, Mo.

The entrance way to the display of the W. E. Dee Clay Manufacturing Company, Mecca, Ind., was impressively set off and guarded by two towers of sewer pipe, while inside a strong feature was made of fireproof building block and sanitary castings, manhole and catch basin covers, etc. They were distributing as a souvenir a paper knife and rule appropriately decorated as a reminder of their product.

The N. A. Williams Company had an inviting rest booth with chairs and writing desk for the tired visitor, and samples of Akron sewer pipe and fire brick. Good refreshing cider was served their friends and business acquaintances.

The Art Institute of Chicago showed some beautiful ware from the department of ceramics, but the thing that drew the crowd was in another booth where the sculpture department was at work moulding faces and figures of clay. It was a live exhibit that both interested and instructed.

The Woodland (Ill.) Clay Company featured drain tile of quality, and to prove the quality as well as add interest, showed some tile that had been in the ditch since 1883 and was still in excellent condition. Mr. Anderson distributed a stamp box souvenir and interesting literature about Wyco tile.

The beautiful pergola of the Western Brick Company, Danville, Ill., was entered and admired by every visitor that could get to it, and certainly did its share to make people long for the lasting beauties of a brick home.

Another beautiful thing on the central court was the enclosure made of rustic piers and arches by the Everhard Company, Massillon, Ohio, inside of which was an attractive Caen stone (terra cotta) fireplace.

It was hard to get away from the Blackmer-Post Pipe Company, for in addition to their share in that row of sewer pipe towers they had a very imposing display near the center of the Coliseum which could be seen from all about and immediately suggested bigness of both product and factory.

The Davenport (Iowa) Brick and Tile Company showed a section of a big sewer pipe made of patented hollow blocks that attracted quite a lot of interested attention. Attractive

pencil and knife sharpeners were handed the visitors with the compliments of the company.

The National Roofing Tile Company, of Lima, Ohio, exhibited their tile and had on display a model house with miniature tile roof.

Chicago Face Brick Exhibit.

Those who are enthusiastic over, and have been pleading for, great variety and new things in face brick colors, certainly had a feast for the eyes in the great display of the Chicago Face Brick Association. That is, those who attended the show did, while those who stayed away can never be made to realize all of it by words, and have missed a great treat. The display occupied a whole block and was made up of fourteen sections, seven on each side facing each other across an inner court. This exhibit was made more distinctive by being enclosed with attractive brick walls and arches. A brick walk extended the entire length and the displays were well lighted by means of large electric lights on top of each of

they were grouped in seven double sections under the following heads: The Bonner & Marshall Company, Hydraulic-Press Brick Company, Jenkins & Reynolds Co., S. S. Kimbell Brick Company, Meacham & Wright Co., Thomas Moulding Company, Wisconsin Lime and Cement Company.

Among the panels in the Jenkins & Reynolds Co. group there was a distinctively new one called the "Brazil Rustic," from the plant of the Brazil (Ind.) Face Brick Company. Also some "Hoosier Craft" and "Norfolk Colonial" and some "Moquette," and "Turkestan" from the plant of the Beaver Clay Manufacturing Company, New Galilee, Pa., and these were only a few of the many beautiful panels shown.

In the Meacham & Wright group were many and varied rustics, and red, glazed, brown, dark and yellow shades, arranged with a taste for pleasing effects in the color variations.

It was the same story with the Hydraulic group, except perhaps the rustic effects were not so prominent as the regular pressed face. But the color variations were there.

The Thomas Moulding Company made quite a feature of



Splendid Display of the Chicago Face Brick Association.

sixteen brick piers equidistant apart on the sides of the brick walk. One of the first things to impress the visitor about this and many other exhibits was the great possibilities in porch, yard and landscape work the clayworkers have been neglecting, for there was a variety of piers, walls, pergolas and things that was just about as pleasing as could be imagined. Indeed, most people paused to rave over these before taking in the nature and beauty of the many panels of face brick shown in the different sections.

Another thing that attracted attention and detracted for a moment from the face brick panels was the "Holy Door" brick in one of the sections under a glass case. It was a single antique brick from the "Holy Door" of St. Peters at Rome, and is the property of John F. Combs, Paris and Philadelphia, and was loaned for exhibition on this occasion. Visitors were given a circular with a picture and brief interesting story of the brick and the door from which it came.

It is impossible in the space available to give the names of all the plants from which the different panels came, but

"Artbrique" in their group, and there was also noticeable some beautiful soft gray panels, and some pleasing ones in brown fabric effects.

The Wisconsin Lime and Cement Company had piers of Roman brick to set off the front of their group, and perhaps the most striking panel was of "Old Hickory" brick from the Colonial Pressed Brick Company, Mogadore, Ohio. This brick is rightly named, for the face effect is very suggestive of hickory bark.

In the S. S. Kimbell Brick Company group dark craft brick were a strong feature, and there were red and buff panels with variegated mortar colors that improved the effect. There was shown some excellent corduroy and velour panels from the Claycraft Brick Company, Columbus, Ohio.

In the Bonner & Marshall group, attention of visitors was divided between the Oriental effects in wall and panel construction and a miniature swimming tank section on a table with a patent life rail, the tank rail and all being of enameled brick and terra cotta. The most striking Oriental effect was

produced by using Crawfordsville (Ind.) stock in three shades, set on edge with wide white mortar joints, which made it look considerably Oriental ruggy. Also they showed a very striking photo of the Washington Life Insurance building at Seattle, Wash., built after this same manner.

The Paving Brick Display.

At first it seemed a toss up about which was first to attract the attention of visitors to the paving brick section, where Secretary Blair, of the National Paving Brick Manufacturers' Association held forth, the wonderful pictures of brick paved streets and roadways or the miniature streets and roadways with their green shade tree borders that divided some of the sections. It depended some on which way the visitor came in. But by and by it became perfectly evident that the pictures were the most attractive and wonderful things to the general visitors. They seemed to pull people right into the booths for a closer look, and then Mr. Blair usually made it a point to see that nothing went by unnoticed, and that the interested visitor went away with a booklet in which those remarkable pictures are reproduced, as well as some good logic about street paving.

Another thing that appealed was the slabs of paving brick made into rustic tables and benches. It was something that has been done in concrete, but seemed striking and new as a brick proposition.

The paving exhibit was thorough and educational, show-



J. W. Robb, Clinton, Ind.

ing as it did details complete of approved methods for making the foundation, then the sand cushion and the method of laying and grouting the paving blocks. There was enough of it all, too, to exhibit many different kinds and colors of block in actual paving, as well as the samples for examination.

And here, as in the face brick exhibits, there was variety in color, and some fancy paving was done by mixing the colors in certain sections, while here and there a special feature was made of sidewalk blocks.

The people who stayed longest and inquired closest into the paving brick offerings were city authorities, engineers and others deeply interested in good streets and good roads, and they were not only interested, but they went away convinced that burned clay is the greatest material to be had for surfacing either streets or roads. As an educational and effective advertising proposition it is a pretty safe assertion that the paving brick exhibit took first honors.

The Dunn wire-cut-lug brick were featured strongly in one big section of the paving display. Mr. Dunn handed the gentlemen as well as the ladies who registered in his booth fragrant carnations.

The South End Annex.

Over in the south end annex, or what might be appropriately termed machinery hall, there was a mingling of interesting displays, differing somewhat in character from

those in the main building. Turning the corner as one entered on the east side there were some box car size paintings of a farm before and after draining that not only attracted the crowd, but evidently carried an impressive lesson on the value of proper drainage.

Then as one turned about there was found in the center space a full section of roadway graded up, with sewer pipe conduits, the surface paved with wire-cut-lug brick from the Danville (Ill.) Brick Company, while on the wall facing it was a whole series of object lessons in culvert and sewer construction in the form of big pictures.

The Pacific Flush Tank Company, of Chicago and New York, had an excellent life size display of the Miller flush tank syphon in operation.

Over in one corner of the annex there was shown bath room material and fixtures as it should be. Not only enameled fixtures, enameled floor and wall tile, but also glazed sewer pipe, all put up so as to demonstrate just what it should be and how it should be done.

Strung along the south wall there was a row of sewer pipe towers that had they been made in two rows bordering a walkway might have suggested the approach to some ancient temple or pyramid, and as they were served to impress one both with the bigness of some sewer pipe and the magnitude of the industry as a whole. In this row of towers was noticed the product of Evens & Howard Fire Brick Co. (tower base fringed with fire brick); W. S. Dickey Clay Manufacturing Company, Blackmer-Post Sewer Pipe Company; Lehigh Sewer Pipe and Tile Company; Macomb Sewer Pipe Company; Denver Sewer Pipe Company; Plymouth Clay Products Company; Cannelton Sewer Pipe Company; Chattanooga Sewer Pipe Company; Red Wing Sewer Pipe Company; Southern Sewer Pipe Company, and the Robinson Clay Company.

Between the row of sewer pipe towers at the end and the section of roadway on the other side of the annex was made a trench with sides of the Wemlinger steel sheet piling supported by Kalamazoo trenching braces, while at the end, apparently just having dug this trench, was an F. C. Austin traction drainage excavator. It was a live exhibit, too, and when started up never failed to attract an interested crowd. To complete the setting, Sasgen Bros., of Chicago, showed one of their contractor's derricks in the act of swinging a section of sewer pipe into the trench.

Among the near neighbors of THE CLAY-WORKER booth was that of Astrid S. Rosing, Chicago, with a booth facing two ways. On the front side was shown hollow fireproofing block, flue linings, sewer pipe, drain tile, fire brick, etc., while on the other side a feature was made of jugs and stoneware, including as a special feature that attracted universal attention a line of stoneware faucets for acids. Their metal paper slips and celluloid rules were much in demand.

Starting off in the first aisle to the left of the main entrance the Hocking Valley Products Company, of Columbus, Ohio, had an attractive exhibit of fence piers and panels of their "Greendale" line of rug face brick, and they were distributing neat booklets showing the different textures and shades.

"Brick Panels from Far and Near," was the sign that greeted one in the space reserved by the Clay Products Exposition, and there were several interesting panels of face brick as well as an attractive picture show going on automatically.

C. E. Poston, pioneer in the oriental face brick business, from Attica, Ind., had his exhibit made into a cottage-like effect that showed up very nicely and made one feel at home.

The Building Brick Association had headquarters in an attractive booth and those in attendance there were kept busy passing out interesting literature about building the ideal home with brick.

The Twin City Brick Company, St. Paul, Minn., hit onto a happy idea for variety in display and erected an Irish castle on central court that was admired by all for both material and design.

The Northwestern Clay Manufacturers' Association showed a good line of brick, block and tile from the three states of North and South Dakota and Minnesota.

"Bradford Reds" were prominent and showed up conspicuously in the splendid booth erected by the Bradford

(Pa.) Pressed Brick Company. Mr. Knight handed to the visitors most acceptable glass paper weights advertising their product.

The National Brick Company arranged an excellent exhibit in rustic cottage effect, which made it very cosy and inviting.

The Curtis Brick Company showed the creamy yellow of the native Chicago product, and added to the attractiveness of the display by forming a brick fireplace.

Fireproofing hollow tile was in evidence all around, but the most imposing display of it was the "Natco" product of the National Fireproofing Company, New York. And the imposing pile of samples was set off with a surrounding wall built to show the construction and method of finishing off.

Facing the central court the Pearl Clay Products Company and Kittanning Clay Products Company, of Bradford, Pa., had an excellently furnished rest booth with an attractive brick panel display in the back, as well as samples on the table. The several members of the company distributed tasty memoranda books and made every visitor feel welcome.

The Mason City (Iowa) Brick and Tile Company had one of the most instructive exhibits to be found in connection with hollow clay building blocks. It showed a section of stairway, with floor and wall construction details in just about the right shape to be fully appreciated by a builder.

The Milwaukee Building Supply Company had an open booth with a series of face brick panels and a table of samples.

The Illinois Brick Company had its exhibit of Chicago brick put up so as to give a decidedly homey effect, with an old-fashioned fireplace lighted up on the inside and an outside appearance suggestive of pergola and cottage.

The McLaughlin Building Material Company took lots of space and went in for beautiful piers in oriental rug color effects, and they had a lot of the same in panels. The whole architectural and color scheme was soft, restful and attractive. Their souvenir terra cotta desk pieces for ink well, pens and penholders was one of the best souvenirs given out at the show.

The Hydraulic Press Brick Company devoted one whole booth to "guaranteed enamels." The main scheme was in white, but there were enough in beautiful colors to break the monotony and render the whole very attractive.

The New York and New Jersey exhibit suggested a walled summer garden with a moving picture show going on. They had the picture show, too, and the slogan was "Back to Brick."

Medicine Hat, Alberta, Canada, noted as the breeding place for weather, was right in the midst of things with an exhibit of home products in burned clay that got its full share of attention, and incidentally helped boost Medicine Hat as a coming city. The factories represented were Alberta Clay Products Company, Purival Brick Company, Redcliff Brick and Coal Company. The exhibition was in charge of Charles E. Brown, Industrial Commissioner.

The Brickbuilder, of Boston, Mass., had four booths of bungalow designs that were submitted in prize competition and these received careful attention from nearly all visitors, showing that there is a real live interest in designs for brick homes.

The Chicago Fire Brick Company rung in a change on the fireplace idea that prevailed among the exhibitors by making theirs into boiler door arches. And the walls and piers of fire brick were topped off with glazed wall coping and chimney tops. They presented souvenir paperweights and match boxes.

The Roessler-Hasslacher Chemical Company, New York, showed a large and varied line of glazed pottery and enameled steel art goods, in fact, nearly every product in which their chemicals are used, from railroad signal lights to mugs.

The Denny-Renton Clay and Coal Company, Seattle, Wash., was boosting the home town as well as clay products and helping the cause along by distributing a totem bug to be worn as a boost for Seattle's golden potlatch.

The American Sewer Pipe Company, Akron, Ohio, showed a graphic demonstration of glazed sewer blocks for large sewers and conduits for underground wires. Then alongside this were some samples of sewer pipe, large and small, conduits of different design, a sign saying that 1,000 cars of their

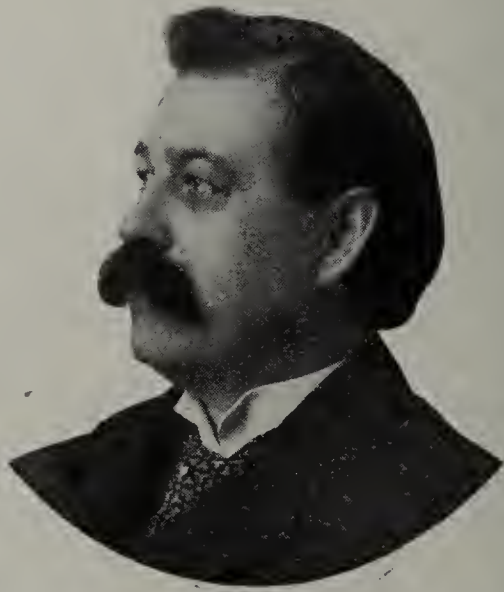
pipe went to Panama, and another stating that Uncle Sam uses no other.

The Duschek Pottery Company, of Chicago, gave actual demonstrations of the work of making pottery, as well as displaying a good line of the finished product. They had a working potter's wheel in one corner of the booth.

No clay show would be complete without it, so the Ricketson Mineral Paint Company made an exhibit of coloring material for the clayworker.

The exhibit of Fiske & Co., Inc., of New York and Boston, showed wonderfully the decorative possibilities obtainable in "tapestry brick." Rich in its design and varied colors, their display gave as a whole a most harmonious piece of work well producing the beautiful textures that give this material the name "Tapestry." The central elliptical panel of tapestry tile and paving brick was a small sized replica of sixteen panels which are now being erected in the New Grand Central Terminal, New York City. The lower panel was a Persian mosaic design in reds, purples, blues, browns and grays. Particularly interesting was the Bricatta spandrels of molded clay in acanthus foliage. This special work was originated by Fiske & Co., and in this they have achieved a success in getting clay character in rough texture molded work. The exhibit was designed and erected by Henry J. E. Ludeman, who is at present at the head of Fiske & Co.'s designing and drafting department.

The Hartford Faience Co, of Hartford, Conn., had an exhibit that exemplified the many decorative uses of polychro-



H. J. Flood, Chicago, Ill.

matic ceramic work for interior and exterior architectural decoration. The exhibit contained beautiful panels, friezes and individual pieces highly decorated in pleasing colors with unusual designs. Among the works exhibited was one that attracted considerable attention for its original handling and fine plastic quality, a faience lantern six feet high in various colors. This was a duplicate of one of the lanterns which were made by this firm for the entrance to the estate of Commodore F. G. Bourne, Oakdale, Long Island. Another piece that attracted considerable attention was a wall fountain that THE CLAY-WORKER reproduced in its cover design last January. This fountain is for the hall of the new Naval Y. M. C. A. at Norfolk, Va. A large number of architects who visited this display were deeply interested in the possibilities which were displayed by an exhibit of a section of rough surface tiles in rich colors worked out into a frieze for the exterior decoration of a building. This exhibit, combined with a set of five designs for faience tile floor was acknowledged to be one of the most original features of the show. This same firm had an exhibit which probably attracted more attention than is usual for any one display of this character, i. e., a group of porcelain cameos for inlaying in decorative metal and wood work. Up to the opening of this show this work had never before been exhibited to the American public. This, therefore, was the introduction of the first successful work of this kind produced in the United States.

Among the specimens exhibited were the door knobs which were used throughout the new Vanderbilt hotel, New York City. These door knobs were laid with round and oval cameos of exquisite design and execution.

The Dennison Interlocking Tile was well featured in a bungalow-like section to show construction and architectural effects, and it was a display that was seldom passed without interested inquiry.

On the table in that part of the booth set apart for N. B. M. A. were samples of marbled face brick from the Sibley-Menge plant that attracted attention and elicited much comment, and alongside was a beautiful picture of the new plant at Sibleyville, Ala.

One of the finest displays at the clay show was that of the American Terra Cotta and Ceramic Company. It was one of the hits of the exposition, and was so attractive that visitors returned to admire it time and again. The central portion of the exhibit was a Pompeian fountain, a replica of the famous Brandeis Fountain, in Omaha, Neb. The niche behind the basin, with the crowned head of Pan and panels



The Denison Hollow Block Display at Coliseum.

of polychrome terra cotta, was exquisite, to say the least. The head of Pan was about eight feet from the base and in the exact center of the display, and so placed that the water coming from the mouth of Pan would drop into the center of the six-foot basin below, supported by two dolphins on right and left center. Through the mouths of these dolphins the excess water runs from the basin to the terra cotta tank or main basin below. The walls and bottom of this tank or main basin were in a beautiful fluid green glazed terra cotta, across the surface of which there seemed to play an elusive shade of peacock blue. The examples of polychrome work exhibited by the American Terra Cotta and Ceramic Company were certainly among the most beautiful color schemes of the entire clay show. One in particular which deserves mention was a panel of an old-time printer at work in his shop. A colored supplement of this was published in the February issue of *The Clay-Worker*. Mr. Gates also had in his exhibit several panels which will later be placed in the new Lincoln Memorial Hall, setting forth in clay the critical events in the life of Abraham Lincoln, two large nine-foot terra cotta vases, a five-piece panel showing a landscape

made with clay colors, and a group of Teco pottery. The handsome garden pottery made at the Gates potteries was much in evidence throughout the clay show, for Mr. Gates furnished two carloads of this ceramic garden pottery, which was divided up among the different exhibitors. A great deal of credit should be given Mr. Gates and his sons for their splendid exhibit. It was through Mr. Gates' efforts that the exhibits of the Chicago Art Institute were secured.

The Clay-Worker's Headquarters at the Clay Show.

To the foot-weary visitor *THE CLAY-WORKER* booth looked like and was a rest station. But it was more than that, as many interested visitors discovered. It was a source of information and education on the decade of progress in the clayworking industry. A big wall chart that had been especially prepared by the United States Geological Survey told graphically not only the progress of the clayworking industry by years, but showed also how it compared with other mineral products of the country. To many it had perhaps not occurred before that our clay products rank far above gold and are generally exceeded in value only by coal and iron. Twice during the decade copper ranked above it, but all the balance of the time the clay products stood out conspicuously in comparison with other mineral products, as was graphically shown by the big wall chart in *THE CLAY-WORKER* booth.

Rush Bros., of Chicago, had an impressive line of ceramic light figures that was instructive in the decorative possibilities of this line of clay products. There were many colors and a good variety of patterns, and nearly everybody stopped to inquire and to learn more about these things.

The Fringe.

In the south end annex, around the edges in the main Coliseum and forming a sort of fringe to the clay show were a few offerings in the line of machinery and appliances for the clayworker.

This fringe started with the Brown pyrometers to the right of the entrance and extended around through the south end annex and down the east side to the northeast corner.

One of the seeming oddities for an exhibition of this kind was a model sawmill and a full-sized table saw and a light planer shown by the American Saw Mill Company, Hacketstown, N. J. It was machinery calculated to interest the contractor and builder.

The American Fabric Belting Company showed samples of woven waterproof belting for the clayworker, and had someone on hand to tell the visitor all about it.

The Main Belting Company was on the job with its "Leviathan" sign out, and was also featuring that universal mule stand for use in turning belts around a corner.

The Ohio Galvanizing and Manufacturing Company showed a great line of steel pallets for the brickmaker and distributed circular matter, telling about them.

H. Paulman & Co., of Chicago, exhibited a Pierce Arrow motor dump truck that attracted interested attention.

The Conneaut (Ohio) Shovel Company had a booth at the north end, where they showed shovels and distributed literature.

The Imperial Belting Company, of Chicago, set off their booth by giving a demonstration of a belt operating in water as proof of the waterproofing qualities of the offerings. And this, as is usual with live exhibits, attracted the attention of every passerby.

The Edgar Allen American Manganese Steel Company showed a good line of gearwheel and other clayworking machine parts made to withstand wear.

There were several drink and candy booths, also a peanut booth, a needle, thread and pen scraper booth, and one devoted to Jean Boetter's pottery. In the basement there was a shooting gallery, candy booth and cane rack in a section known as the "Old Smokers' Corner."

Fifteen trade journals were represented, namely, *Good Roads*, *Municipal Journal*, *Engineering Record*, *Brickbuilder*, *Craftsman*, *Dealers' Building Material Record*, *American Architect*, *Municipal Engineer*, *Better Roads*, *Engineering and Contracting*, *American Contractor*, *Brick and Clay Record*, *American Contractor and Builder*, *Architectural Record* and *THE CLAY-WORKER*.

PERSONAL MENTION.

The Bloomfield contingent had a series of accidents on their way from New Jersey, but fortunately the accidents were all to the train and no one was hurt. Speaking of business with them, C. A. Bloomfield, Bloomfield Clay Company, Metuchen, N. J., says that they have shipped fire clay all winter, but there has been so much frost in the ground that the extra expense incident thereto has eaten up all the profits. Also he points with pride to their hollow blocks as being the very best made.

It was the first convention for Dwight E. Humphrey, of the Deckman-Duty Brick Company, Cleveland, but he felt at home just the same, for he spent part of his school days in Chicago.

C. O. Phillips, of the Twin City Brick Company, St. Paul, Minn., said that it was so dry last year that the drain tile business up their way was dull, and being dull manufacturers sold for too low prices, hoping to force trade. The outlook is better now, though, and he hopes for improved conditions this spring.

There were two Frosts from the sunny end of California, who came in during the snow flurry of Monday morning. But they are Frosts in name only and instead of being in any way chilly are very warm and active boosters of the Los Angeles Pressed Brick Company, which makes a great line of clay products. And they come from a booster town. Los Angeles is now up near the half million mark in population and is already tagged as the metropolis of the west coast. One of the very interesting products of the Los Angeles Pressed Brick Company is roofing tile, in Spanish design and flat shingle. They have three clay working plants and make glazed and enameled brick, fire brick, fireproofing tile, roofing and floor tile, mantel tile, ruffle, paving brick, and then some.

R. I. Dennison, of the Kansas City branch of the C. W. Raymond Company, says that if we do not have a money panic or some equivalent in the form of political disturbance he thinks this will be a great year with clayworking development in that territory. Last year was slow because of poor crops, and that should make the present year much better in comparison if things work out right.

Paul Beer, of Des Moines, Iowa, is chairman and member of a whole lot of committees and things in his home town, among them being the chairmanship of the smoke abatement committee.

Geo. B. Reed, superintendent of the Clearfield (Pa.) Clay Working Company, says that the brick paved street idea is making fairly good progress in their territory and they are looking forward to a good season this year and steady development in brick paving from year to year.

John Berg and others of the Berg Machinery Manufacturing Company, from Toronto, Canada, said that while it has been cold up there, colder in fact than usual, they have not had much snow. There was not snow enough when they left home for good sledding, nor has there been enough so far this winter.

C. A. Snyder, of A. Snyder & Co., Ltd., Portage La Prairie and Gilbert Plains, Manitoba, Canada, says that snow has been light up with them, but the cold has been there in plenty and it will take some time to get all the frost out of the ground this spring. Mr. Snyder says that there is a fair amount of brick building with them, but they have not yet reached the point of giving fireproofing and permanent construction in general the attention it deserves.

H. C. Beckman, of the Progress Press Brick Company, St. Louis, Mo., says that the worst trouble with the St. Louis building brick business last year was in selling brick too low for profit, and he hopes they can manage some way to do better in the matter of prices this year. That is the main thing needed, the volume of business looking good.

There was a fine congenial delegation came in from Omaha, Neb., all in a bunch, and they stayed bunched, too. The bunch consisted of W. Sedgely, L. H. Ouren and S. A. Corneer, of the Farmers' Clay Products Company, and A. C. Burke, John S. Neble and D. A. Hansen, of the Omaha Clay Works. It was such a friendly group that some of them not only doubled up in rooms, but there was also talk of double

pinochle. This delegation was out for both business and pleasure, and while at the convention incidentally placed orders with the J. D. Fate Company for about \$4,000 worth of machinery.

W. H. H. Rogers, Rochester, N. Y., says they are doing a wonderful lot of good sewer work in Rochester now, and this is helping the brick business out considerably, as they take kindly and wisely to the use of brick for sewer construction in their town. It might do some other boosters of clay products for sewer construction good to go up to Rochester and make a study of what is being done there by way of getting pointers to push the good work elsewhere.

C. Fred Foley, of the Independent Powder Company, St. Louis, did a thoughtful and much appreciated stunt by placing a box of Uncle Sam colored pencils on the registration desk, so that all who came could take a pencil and make a mark in the world. The pencils proclaimed that "Independence dynamite tells its own story."

A. R. Root, of the Chambers Bros. Co., Philadelphia, still lays undisputed claim to the fact that he and Secretary Randall are the only ones who have attended the first and every other meeting held by the N. B. M. A.

There is no doubt left in the minds of those who were there through the sessions about Charles J. Deckman being able to make some speech when occasion requires, and being able to hit the bullseye when he does make one.

C. P. Mayer, of Bridgeville, Pa., is not only one of the dependable wheelhorses of the N. B. M. A., but he is one of



John J. Moroney, Chicago.

those progressive, forgeahead sort of brick men that instinctively mixes the right amount of horse sense with scientific study to get good practical results from his efforts, and behind that red vest are more serious and sedate thoughts than the color of the raiment might seem to imply. In other words, he's a comer. Watch him.

The American Clay Machinery Company scores easily as having the biggest bunch of machinery representatives present. Study the roster and count them.

As a pourer of oil on troubled waters and a reliever of tension in strained moments, Treasurer Sibley, with his ducky stories, is an easy pennant winner.

Harvey Haigh, Catskill, N. Y., received from Mr. Sibley while at the convention a much valued picture, showing the new plant of the Sibley-Menge Brick Company, conspicuous in which is a long string of the Haigh kilns.

A. R. Lamport, consulting and constructing engineer, of Mapleton, Kan., says there has been too much careless and reckless building of clayworking plants, followed by a poor crop year, and as a result there are lots of secondhand plants on the market and secondhand machinery. He thinks, though, that conditions will improve this year, especially if crops are good.

Ex-President Charles M. Crook came into the meeting from an extended stay down in Texas with his daughter, and he

likes the Texas country so well that he is thinking seriously of making it his home in the future.

There were seventeen, count 'em, seventeen of the McLaughlin Building Material Company, Chicago, in attendance at the meeting. This was the biggest delegation of all, exceeding that of the American Clay Machinery Company.

W. P. Varney, of the Chicago Hydraulic Pressed Brick Company, extended a cordial invitation to all that came his way to visit their office.

T. C. Lundy, of the Lonsdale Face Brick Company, Knoxville, Tenn., was one of the busiest and happiest men at the meeting. He has a host of friends who are always glad to see him.

The E. M. Freese Company, Galion, Ohio, had the lucky number of seven representatives present, and they were present, too. In a modest way, to be sure, but were busy every hour from arrival to departure.

The registration of G. H. Atherton, Gold Bros.' Brick Company, may be a little suggestive of "gold brick," but it's real brick they make out at Big Stone City, S. D., and they try to make them good, so as to get a little gold balance on their profit account.

W. Overpack, of the Alberta Clay Products Company, comes

is not only one of the best posted men in the brick business, but also has put his knowledge into practice in his home town and plant.

Jim Hoskins, of Terre Haute, Ind., and his fame as a dinner wit are so widely famed that he has to eat about twice as often as the average man, and then decline pressing invitations from his admirers.

THE LADIES AND THEIR ENTERTAINMENT AT CHICAGO.

ALL PREDICTIONS of a big time at Chicago were made good convention week. The visiting ladies enjoyed the convention and the entertainment provided by the local committee immensely. The accompanying group picture of the "girls," taken on the steps of the Chicago Art Institute while on their way to luncheon at Marshall Fields', indicates the spirit of jollity which characterized all their outing trips. They boosted the clay show by carrying pennants affixed to canes, a gift from the Chicago Clay Club. These pennants were prized as souvenirs and were taken



The Boosteresses on the Steps of the Chicago Art Institute.

from the place it is claimed all the naughty weather originates, i. e., Medicine Hat, Canada, but he disclaims responsibility for the snow flurry, and lets Chicago take credit for the nice weather furnished afterward.

Mrs. G. A. Buckley, the lady delegate from Montrose, Colo., came in after the election, but in time to participate in the big social function. She was accompanied by her son, a young giant.

M. R. DeFrance, of the Vanport Brick Company, Pittsburg, Pa., was a hearty advocate of two good things—good brick and the brick salesmen's association.

The Frost Manufacturing Company, Galesburg, Ill., was represented by William Simpson, who distributed some dainty blotters and pleasant words galore. "Will" is an expert in glad hand work.

Paving brick seems to have had a better year of it in Kansas than building brick, and we can understand the why part of this from meeting such men as Claude E. Fuller, of the Buffalo (Kan.) Paving Brick Company. He is a pusher of the kind that does things and does them right.

When one speaks of being up to date in plant equipment one just naturally thinks of Eben Rodgers, of Alton, Ill., who

none by those lucky enough to get them. They also carried them during the auto ride Sunday, which proved one of the most enjoyable trips of the week.

An Incident Not on the Program.

The assistant secretary of the N. B. M. A., Miss Addie M. Wallace, took home with her the most valuable souvenir of the convention, a beautiful Oriental rug, presented to her as a wedding present by Harry J. Flood, of the Chisholm, Boyd & White Company, Chicago. The gift was a total surprise to Miss Wallace, and its presentation afforded one of the most amusing incidents of the convention, and for a time it seemed as if it would precipitate another spirited contest, for rumor had it that Mr. Flood, having read the announcement of the marriage of the assistant secretary of the N. P. B. M. A., carelessly confused Miss Wallace with that happy event, hence the gift. Mrs. Marion Blair, the real bride, hearing of the gift, was at first inclined to claim it for her own, but on being reminded that she had the man, graciously, but somewhat reluctantly, concluded to let Miss Wallace have the rug, so peace and harmony prevailed.

Written for THE CLAY-WORKER.

REVIEW ILLINOIS CLAY MANUFACTURERS, CONVENTION.

THE THIRTY-FOURTH annual convention of the Illinois Clay Manufacturers' Association was called to order by Mr. F. C. Carter, Peoria, Ill., vice-president of the association, at 2:30 Friday, March 8th, in the large convention hall on the ninth floor of the Auditorium Hotel, Chicago. Nearly 250 were present during the opening session and enjoyed thoroughly the papers and discussions.

Immediately upon the opening of the session, Prof. Orton was called upon to make a brief address, and he responded with a most interesting short talk on the condition of the clay industry in general, speaking highly of the association's long and good services to the ceramic world and the example this the oldest of clayworking associations had set during its thirty-four years.

Following a few talks by members of the benefits of their organization, the reports of the standing committees were made. The Legislative Committee stated that a suitable appropriation had been granted by the State Legislature that would permit the erection of a new ceramic building, kilns, etc., and give sufficient apparatus to make this department one of the best in the United States. In their report they stated that it was the intention of the ceramic school authorities to give a short course for burners, lasting three or four weeks, some time next winter.

Following the appointment of the resolution, nomination and legislative committees, Mr. Frank Knight, of Chicago, connected with the National Drainage Congress, gave a very interesting and instructive talk on the work of that association in endeavoring to promote the reclamation of swamp lands and in encouraging others to join in the movement and give their support to increase the use of tile drainage. He wanted individual manufacturers of drain tile to be represented at the National Drain Tile Congress at New Orleans, Louisiana.

Following this excellent talk, there was a general discussion on this subject and the drain tile situation, which resulted in the drain tile men meeting after the session, at which time it was agreed to meet in Chicago in April in the hopes of forming a sectional or national publicity bureau. Mr. Anderson, of Woodland, Ill., has this in charge.

Mr. Eben Rodgers, of Alton, Ill., delivered an exceedingly interesting and important address on "Brick Paved Country Highways in Illinois." Much enthusiasm was created over the paper; the chief points brought out were that brick paved country highways had increased the land values greatly, were of great help to the farmers in getting their crops to the markets, and would last for many generations without repairs or any expense whatsoever.

"The Drying of Hollow Blocks in a Tunnel Dryer," by A. E. Williams, of Danville, Ill., brought out a great many important points that were thoroughly discussed, such as correct height of the dryer, space above cars, method of handling, etc.

"Some Experiences on the Use of Barium for the Prevention of Whitewash" was the title of a paper read by F. M. Wallace, of Champaign, Ill. This paper was the result of very conclusive research work, carried on at the University of Illinois during the past year. It showed the comparative use and result of barium chloride and barium carbonate and the practicability of same. After an interesting discussion the session was closed and the members prepared for the N. B. M. A. banquet.

Second Session.

The second session was called to order at 9:30 Saturday morning. Professor Bleininger, head of the Illinois Ceramic School, read an able paper on the subject "The Ceramic Department of the University of Illinois," in which he told of the progress made in erecting the new ceramic building, and

spoke enthusiastically of the school's work and its intention of making a short course, which would be run in a very practical manner and in such a way as to be fairly comprehensive to the regular burners and workers who have not the means or time to devote to a longer study. This will be invaluable to the clayworkers of Illinois and the surrounding States.

"The No. 2 Fire Clays of Illinois," a paper by F. W. De Wolf, of Urbana, Ill., was a report of the work being done jointly on the subject by the Geological Survey and the Department of Ceramics at the university. This paper was not read as a whole but will be published in full later. It proved so interesting to the members present that it was again taken up after an adjournment to hear President Taft's speech at the Clay Show.

The afternoon session was called at 2:30. After the discussion of Mr. DeWolf's paper, Mr. R. T. Stull, of Urbana, read a paper on "The Method of Laying Out Brick Arches." This paper brought out the point that a great many profitable jobs could be obtained by medium sized yards by paying more attention to cheap production of special shape arch brick.

"Kiln Drafts," by R. K. Hurst, of Urbana, was a resume of work done on several kilns carried on by Mr. Hurst during the past year. So interesting was this report that it was deemed advisable for Mr. Hurst to carry on the work in a broader way under university instruction on yards where the real conditions exist.

"Peculiarities of Some Illinois Coal Measure Shales" was the last paper on the program. This was by Professor Bleininger. In it he brought out many important points, chief of which was the great care needed in choosing from these shales for use in manufacture of clay products, since it takes as long as three weeks to oxidize some of them.

Following the discussion on this paper, the standing committees were appointed. The Legislative Committee remained the same as last year.

The reports of the secretary and treasurer were then read, which showed the association to be in a reasonably good financial condition. The secretary in his report stated that he earnestly hoped that the members who had not attended the convention would send in their dues (\$2.00) immediately, in order that an effort might be made to publish last year's and this year's papers in book form.

In the report of the Resolution Committee, Mr. George Hartwell, former secretary, was tendered a special vote of thanks for his past valuable services. The report also included resolutions of appreciation of the great Clay Products Exposition, the building of country highways in Illinois, Professor Bleininger's valuable work at the university and in associational work, urged the founding of a National Drain Tile Publicity Bureau to work in harmony with the National Drainage Commission and to aid and assist them in their work.

The following officers were elected for the ensuing year: President, Frank Butterworth, Danville, Ill.; vice-president, J. W. Anderson, Woodland, Ill.; treasurer, M. J. Mamer, Campus, Ill.; secretary, A. E. Huckins, Champaign, Ill.

Following speeches by the new officers the convention adjourned.

A BIG ORDER FOR FACE BRICK.

Owen Tyler, whom all those who attended the Louisville meeting last year will remember as the genial toastmaster, has started into the new building season with the biggest order for face brick that has ever been taken by him in Louisville. It was an order for approximately a million face brick for the new city hospital and was secured in competition with many offerings. The brick chosen was that from the Brazil, Ind., plant of the Hydraulic Press Brick Company, Shade No. 601. There is a great deal in the way of substantial building projects in Louisville, and the Owen Tyler office, representing the Hydraulic people in that territory, gets its fair share and expects quite a heavy volume of trade as the building season advances, but they are rather proud of this one big order, for it is something of a record-breaker.

THE N. B. M. A. CONVENTION ANNEX AND ANNEXERS.

WHILE NATURALLY THE majority of the exhibits and the principal efforts of the exhibiting contingent were centered in and around the Coliseum, still there was a fair showing of exhibits and a good bunch of machinery headquarters at the Annex Hotel during the convention days.

The John C. Boss Company had suite 1148, in which was shown blue prints and literature, and there was always present one of their several representatives to extend the glad hand and entertain or talk shop to visitors.

The E. M. Freese Company had suite 1158, where there was someone to do the honors, and a warm welcome was extended to all who came that way.

The Bonnot Company, of Canton, Ohio, was located in suite 1170, and not only had the glad hand extended, but there went along with it a nice memorandum book as a souvenir to take home for future use and reference. The firm was represented by A. A. Oldham, A. W. Aylesworth and Roy G. Smith.

The C. W. Raymond Company, of Dayton, Ohio, had parlors B2 and B3, with both models and literature to interest and instruct visitors; and, being very convenient, their headquarters were among the most popular on the convention floor.

The American Clay Machinery Company had parlor B, right at the getting-off place for the convention hall, and a host of representatives on hand all the time to look after visitors. They simply kept open house and concerned themselves mainly with seeing that everybody had a good time and was properly taken care of.

The Thew automatic shovel doctrine was preached and literature and blue prints displayed in suite C30.

The Standard Dry Kiln Company held forth in room 62, and both here and elsewhere was on the job when it came to the subject matter of dryers. Mr. Outland, their representative, presented the delegates with a substantial leather pocketbook containing a \$2,500 insurance policy.

The Chambers Bros. Company, of Philadelphia, had four personal representatives on the job, and also a live-wire exhibit in Suite 1162. And it was truly a remarkable exhibit, with models of machines in actual operation, being driven by an electric current. It was not only a graphic machinery demonstration, but it was also an impressive reminder of the important part electric transmission is now playing in the driving of clayworking machinery. The four representatives on the job were J. H. Chambers, A. R. Root, Lincoln S. Morrison and W. C. Morrison. The miniature machines were made of aluminum almost entirely and were perfect working models.

What was in some respects the most interesting place of all was the headquarters of the J. D. Fate Company, in Suite 1118, where there was being demonstrated a distinctively new application of electricity in clayworking. It was the application of electricity as a means of lubricating dies, the electric current producing the lubrication from the moisture in the clay. In the center of the room was a box of clay and two trowels connected with the electric light wires. When the writer called, H. R. Sykes and H. J. Votaw were in charge of the demonstrating. They explained that they used a direct, not an alternating current, and that they had discovered that while the positive side tends to attract and make metal stick to the clay, the negative current repels and lubricates. The theory, as demonstrated with the two trowels in the box of clay, is that the current travels from the positive to the negative contact through the clay, and carries the moisture with it to form a lubrication between the clay and the metal of the negative contact. And it did it, too, to the astonishment

of many interested visitors, who experimented by first trying the trowel in the clay uncharged and then turning on the current. Mr. Sykes explained that in practice they attach the negative wire to the die of a machine and the positive to the nozzle, and thus, with a very light application of electric current, are able to so lubricate and lighten the die work that with the same power the machine can turn out from 15 to 50 per cent. more ware. They also have an application of this same idea to cutters, but use knives instead of wires, the wires having too little metal body to give the results that are obtained with blades. The electricity required is about two amperes of 110-volt current. In other words, one can take it from any ordinary lighting system.

And the Fates not only demonstrated; they booked some good orders for machinery. The Omaha delegation placed orders with them for about \$4,000 worth of machinery, and there was enough of others to run the total above the \$10,000 mark before the convention had adjourned and the clay show had gotten in full swing. And then, to cap the pile, they distributed valued souvenirs in the form of pocketbooks containing accident policies of \$2,500 value, paid up for a year, all but a nominal registration fee of 25 cents.

Some of the orders received during the convention were as follows: Complete outfit for the Vincent Clay Products Company, Fort Dodge, Ia. (a 200,000 plant, electrified through-



H. O. Steele, Statesville, N. C.

out, buildings all steel construction, designed by Mr. Goldner); a complete outfit for the Weyburn Brick Company, Saskat, Can.; a complete outfit to Nanaimo, British Columbia, and an outfit to the Bay View Clay Products Company, Washington. Mr. Harley Fate presented the delegates with a leather pocketbook containing a \$2,500 insurance policy.

H. O. Steele had the headquarters for J. C. Steele & Sons, of Statesville, N. C., in Room 1761. He reported a good season, and was very much pleased with the business done at the convention. This company has a new brick machine on the market, which they claim is the very best brick machine in the market. See their ad. on pages 556 and 557 of this issue.

Mr. Albert Potts, of the C. & A. Potts & Co., Indianapolis, wore the smile that won't come off, and felt pleased over the outlook for the coming year. Mr. Potts has a large number of friends in the clay trade, and was much in demand convention week, while Geo. J. Potts is one of the younger annexers who is making friends on his own account.

A one-time publisher once remarked, after looking through The Clay-Worker, that it was the best illustrated magazine in the land. Looking at the splendid illustration in the advertising of the L. E. Rodgers Engineering Company, on page 368 of this issue, we are more than ever inclined to believe the

statement. Those who were at Chicago convention week will agree with us, for Mr. Rodgers made the occasion a joyful one to a host of visitors, who, to a man, will vote him the best of good fellows forevermore.

The Independent Powder Company, of St. Louis, threw scares into the delegates by giving them souvenir sticks of dynamite.

The Atlas Car Company, of Cleveland, O., was ably represented by L. W. Harston, who distributed information about the Atlas line.

The Ohio Ceramic Engineering Company, of Cleveland, O., was ably represented by Mr. Wadsworth. This company makes an excellent line of dryer and clay cars.

The Manufacturers Equipment Company, of Dayton, O., was represented by I. M. Justice, W. A. Sachs and J. L. Schroll, and was busy every minute in the lobbies and their headquarters room, 1122 at the Annex.

The Wellington Machinery Company, of Wellington, O., was represented by R. C. Bennett. He distributed their thirty-third annual catalogue, which made a hit with the delegates.

The Ohio Galvanizing Company, of Niles, O., was represented by A. P. Dougherty and F. F. Bentley. They spent a



W. N. Durbin, Anderson, Ind.

busy two weeks at the convention and clay show. Their display at the clay show brought them a lot of business. This company manufactures a high-grade line of steel pallets that are guaranteed to dry the brick faster than any wooden pallet.

Ed Callaway, of the E. H. Callaway Engineering Company, New York, one of the oldest brick machinery men in the business, was well satisfied with the inquiries he received while in Chicago.

Mr. Geo. Mentz, of Walkill, N. Y., famous for the Mentz brick molds, spent an unusually busy week. His souvenir, a smoked pearl handled patented knife, was one of the best of all the souvenirs given out at the convention and the show.

H. Brewer & Co., of Tecumseh, Mich., makers of a high-grade line of stiff mud machinery, had their representatives, Chas. Burridge and G. S. Brubaker, on the job every minute. Mr. Burridge had a redhot line of stories.

William Simpson represented the Frost Manufacturing Company, of Galesburg, Ill., and spent a busy week telling the delegates all about the Frost engines, boilers and dry pans. He gave out a dainty souvenir, a desk blotter with a picture of a pretty woman.

Hervey and Lambert Haigh, of Catskill, N. Y., prominent members of the N. B. M. A., were well pleased with the business they obtained at the convention. The Haigh kiln has been built on many of the largest brick plants in the country

and always proves a success. Mr. Jno. W. Sibley presented Mr. Hervey Haigh with a picture of their plant at Sibleyville, Ala., showing the large Haigh kiln off to good advantage.

Mr. C. G. Stevenson, of Wellsville, O., head of Stevenson & Co., a firm that has shipped its fine line of clayworking machinery all over the United States, was a busy man convention week. He was pleasant and congenial, and made a hit with his stamp box souvenirs.

The Conneaut Shovel Company, of Conneaut, O., had a display at the clay show of their complete line of shovels. The company was represented by C. W. Joslin.

The Trautwein Dryer and Engineering Company, of Chicago, was represented by Mr. J. O. Trautwein, who reported a very satisfactory business. He secured several orders for dryers during convention week.

Arbuckle & Co., of Rushville, Ind., had three tireless representatives in Messrs. Kelly, Hill and Arbuckle. They were continuously on the job, and secured some nice business.

James W. Hensley, a man who appeals to all because of his quiet, pleasing manner, was on the job every minute during his stay in Chicago, and told the delegates of the merit of the Wellington lines.

The rotund figure of John J. Moroney was bumped into by nearly every delegate to the convention, at one time or another. He fully sustained his reputation as the "King of Ireland." Since the convention he has favored his friends with a St. Patrick's Day card, done in green ink, and bearing this inscription:

"Bring my pipe and fill its bowl,
That I may puff to sooth my soul;
For it is sure to clear my brain
And bring old memories back again."

The Brown Instrument Company, of Philadelphia, were represented by Richard P. Brown, W. H. Gibb, J. W. Lazear and E. C. Engle. Their display at the clay show consisted of a variety of pyrometers and instruments for recording kiln temperatures. Their miniature kiln electrically heated, with the Brown pyrometers in place, was an important part of their display.

Harry J. Flood, president of the Chisholm, Boyd & White Company, of Chicago, was not only busy doing his full share as a member of the Chicago Clay Club, but had a number of inquiries for his fine line of machinery.

The Fernholtz Brick Machinery Co., of St. Louis, Mo., was represented by Mr. Wm. L. Rodgers. This company sells a good line of dry press brick machinery.

Among the late arrivals at the convention was Mr. R. L. Frink, of the Frink Pyrometer Company, Lancaster, O. His company was not able to make an exhibit at the Clay Products Show, for the reason that all of their engineers were out looking after installation work. Mr. Frink devoted his time to greeting his old friends and taking in the clay show.

The Davenport Locomotive Works, of Davenport, Ia., were represented by Mr. Hall, who distributed handsome bronze paper weights to the delegates, with information relative to their splendid locomotives.

The American Pulverizer Company, of St. Louis, was represented by Geo. C. Videtto, who distributed interesting literature on their crushers and pulverizers, both at the clay show and at the Annex.

The Eagle Iron Works, of Des Moines, Ia., were represented, as usual, by that old-timer, L. Aulmann, who has many friends in the clay business.

had a number of able representatives, who spent their time at the Annex and Coliseum. This display at the clay show was one of the most interesting in the entire exposition, and

The Roessler-Hasslach Chemical Company, of New York, showed every product from railway signal lights to door knobs, in which their chemicals are used. Their suffragette teacups were much in demand.

The Dunn Wire Cut Lug Brick Company, of Conneaut, O., was represented by the inventor, Frank B. Dunn, who had a splendid display in the paving brick section of the clay show, and presented the visitors with fragrant carnations.

The Richardson-Lovejoy Engineering Company had the old reliables, Mr. W. D. Richardson and Ellis Lovejoy, on the spot every minute, convention week.

The Anderson Foundry and Machine Works, of Anderson, Ind., had for its representative Mr. W. N. Durbin, secretary of the Clay Machinery Manufacturers' Association. He reported business as substantial.

The Chicago Retort and Fire Brick Company, of Chicago, was represented by Mr. F. A. Guignon, of Ottawa, Ill., and Chas. S. Reid. This company manufactures a high-grade line of fire brick especially adapted to kiln building.

C. Steadman represented the Steadman & Robinson Company, of Greenridge, N. Y. This company has a patented system of burning by forced draft. See their ad. on back cover page.

O. W. Dunlap, of the Dunlap Manufacturing Company, of Bloomington, Ill., button-holed the delegates and told those who did not already know of the fine qualities of the Dunlap screen.

The Chase Foundry and Machine Works, of Columbus, O., was ably represented by A. J. Dunn. This company makes a fine line of dryer cars.

Messrs. F. C. and Edw. Bogk represented the Ricketson Mineral Paint Works, of Milwaukee, and were busy answering questions relative to their mineral paints and coloring materials.

THE NEW GATES RATTLER SYSTEM.

Did you know that our Buttonhole Gates is an inventor? Yes, indeed, he has a new rattler system. Ask the American Ceramic Society boys. It's this way: During the Ceramic Society convention, Mr. Gates wanted to give the members a little entertainment, so he dispatched one of his boys to take a crowd of ceramists down to Terra Cotta, Ill., to visit his terra cotta plant and pottery. When they got off the train they were loaded into a wagon without springs, and rode four miles to the plant. They were so shaken up by the time they arrived there that everything looked double to them. During the return trip the same experience was encountered, so that by the time they arrived in Chicago they were thoroughly convinced Mr. Gates had a rattler system that could give almost any kind of product made out of clay a good, strong test. For the remainder of the week the "Gates Rattler System" was the talk of the ceramists around the lobbies.

HOSKINS AND HIS DRESS SUIT.

The following tells of the experience of one Jim Hoskins, of Terre Haute, at the annual convention of the National Brick Manufacturers' Association. If he were telling this himself in his inimitable way it would read about as follows:

"Well, fellows, I strolls into the Annex Hotel, and I thinks to myself, now, when my wife and I were over here last month, every place you looked was a dress suit, so it is up to 'Jimmie,' being as it is Sunday, to dike myself up in my glad rags and stroll down Peacock alley in the best of form.

"I immediately repaired to me room, got on my best dress suit, and hiked for the strutting pathway. I mosied out of

the elevator, whirled the corner and was soon in the midst of the ultra fashionables. It was Sunday night, and I felt at my best. I walks along and narry a dress suit did I see. I thought that was strange, but I kept walking. I was the only one with a dress suit on, other than the waiters. Finally when I was in the deepest of a brown study, a fellow with a lady came up to me and said, 'Waiter, two bottles of beer, please.' 'Waiter, hell!' I says, and made for the elevator. When I got near to the point of escape, Randall, Jr., met me and says, 'Say, Jim, are you celebrating your wedding anniversary, or were you out in a rainstorm in your other clothes?' Say, that capped the climax. I tore to my room, got on my commons, and say, believe me, I didn't put on that dress suit again until the banquet came off, and I had a terrible fight with myself to do that."

AN ADVERTISEMENT WORTH WHILE.

One of the most important results of the convention held in Chicago, March 4-9, was the placing of \$4,000 worth of advertising in the Chicago Tribune by the Chicago face brick, common brick and terra cotta companies, National Fire-proofing, National Paving Brick Manufacturers' Association and the Building Brick Association of America. The advertisements appeared in an eight-page supplement, Sunday, March 10. Four pages were devoted to articles on brick, tile, sewer pipe, terra cotta and fire-proofing. Every line and sentence in this reading matter was on the merits of clay products. The amount of advertising taken by the different associations was as follows: National Paving Brick and Chicago Face Brick, full pages each; National Fire-proofing, the Building Brick Association and the Chicago Common Brick, one-half page each; the Clay Products Publicity Bureau (sewer pipe), one-third of a page, and the American Terra Cotta and Ceramic Company, one-eighth of a page.

The first page of the supplement contained a large picture of the Clay Products Show, while the remaining pages were well illustrated, setting forth the great advantages of clay products over other building and structural materials. Since the Chicago Tribune has as great a circulation as any of the biggest newspapers in the United States, it is safe to say this amount of advertising could not have been better placed.

THE PRIZE BUNGALOW.

One of the features of the show was the five-room brick bungalow. This was built of brick complete in the north end of the Coliseum in the record-breaking time of four days. The O. W. Rosenthal Company, of Chicago, who laid the brick work, began work Saturday afternoon and had the building under roof Monday morning. The walls were constructed of common brick, faced with a dark rough-faced brick, while the roof was a green glazed German Brookville tile. The interior of the bungalow was complete in almost every detail, a large brick fireplace in the living room being one of its main features. A large amount of space around the bungalow was devoted to a lawn and garden, decorated with artificial grass, flowers and shrubbery, this being enclosed by a substantial brick wall. Attractive vines were spread over the exterior walls and a box of potted flowers in the front upper windows lent beauty to the appearance of that portion of the bungalow. This bungalow was the prize design of a \$1,000 contest carried on by the "Brickbuilder," of Boston, in behalf of the Clay Products Show. The bungalow was erected and offered to the winner of the marble-guessing contest for the purpose of swelling the paid admission fees. Every visitor paying his way into the show was allowed one guess on the total number of marbles in a large carboy placed in one corner of the yard of the bungalow. There were 12,505 marbles in the flask. Mrs. H. C. Lemmon, 9206 Commercial avenue, Chicago, won the prize by a guess of 12,-

502. The Exposition Company, in connection with the brick manufacturers and dealers of Chicago, are to build, at a cost not exceeding \$3,000, a similar bungalow for Mrs. Lemon on a lot she may pick out.

Written for THE CLAY-WORKER:

ANNUAL CONVENTION OF WISCONSIN CLAY MANUFACTURERS' ASSOCIATION.



THE MATTER of railway rates, liability insurance and greater publicity for Wisconsin products were some of the leading questions discussed at the twelfth annual convention of the Wisconsin Clay Manufacturers' Association, held at the Republican House, in Milwaukee, March 5 and 6. The attendance was restricted to about thirty delegates this year, owing to the fact that so many manufacturers attended the convention of the N. B. M. A. and the Clay Products Exposition, which opened in Chicago on March 4.

John Ringle, of Wausau, who headed the association in 1910, was elected president. Other officers included were: Vice president, Oscar Zimball, Sheboygan; secretary, Prof. Samuel Weidman, Madison; treasurer, E. H. Korrer, Fond du Lac.

Committees for the ensuing year were appointed as follows: Railway rates, A. W. Miller, Racine; E. H. Korrer, Fond du Lac; J. H. Hamilton, Grand Rapids. Legislation and education, Prof. Samuel Weidman, Madison; Erwin Fricke, Manitowoc; W. J. Craney, Kenosha. Publicity, F. Vogt, Milwaukee; William Fricke, Manitowoc. Liability and insurance, F. L. Sanborn, Portage; S. Gunther, Port Washington; A. O. Wachter, Sheboygan. Resolutions, Messrs. Brown, Korrer, Mentz. Auditing committee, Messrs. Hilke, Ringle, Mower. Nominations, Messrs. Sanborn, Zimball, Fricke.

More aggressiveness among the men affiliated with the clayworking industry in Wisconsin was asked for by W. J. Craney, Kenosha, the retiring president. He urged the members of the association and others connected with the industry to make greater strides in adopting more modern methods of advertising or otherwise remain in the rear of the procession of clay-making.

"While the last government report does not show that Wisconsin is in the rear, manufacturers will have to make greater strides to reach the front ranks of the procession," said President Craney. "Brick or clay ware has not taken its proper position in this State. The safe and sane building material is burnt clay. Cheap lumber has passed out of our State, and no other person is to blame except ourselves if we allow a cheaper and less staple material to take its place without fighting.

"Instead of forcing would-be consumers of clay products to look for their material, because our methods are so obsolete, we should make efforts to enlarge and advance our industry so that within a short time builders will forget that lumber was ever used for building construction. It has always appealed to me that because of the large lumber interests in Wisconsin, brick or clay ware have not as yet come into their own, but that condition is changing rapidly as building timber gets scarcer and less available."

The committee on liability and fire insurance made an interesting report. There has been talk among the members during the past year of forming a mutual liability insurance company to carry the risks arising under the new Wisconsin workmen's compensation law, which went into effect last September, but the committee did not favor this plan, reporting that they believed it would be more advisable for the members of the association to go in under the law individually if they so preferred.

The publicity committee recommended that the association endeavor to secure the erection of a building on the

Wisconsin State Fair grounds in Milwaukee, where the natural resources of the State may be exhibited. This matter will be taken up with the State Fair Board within the near future, and it is hoped that the building will be ready for occupancy for the 1913 fair.

The committee on railway rates, under the able leadership of John Ringle, of Wausau, the new president, accomplished excellent results during the past year, and secured a ruling from the Wisconsin Railway Rate Commission which greatly reduced rates on brick products. The committee reported, however, that several of the railroads seem loathe to inform the brick manufacturers in regard to this reduced rate, and several instances were cited where manufacturers are being charged the old rate. The reduction was ordered August 11, 1911, as fully explained in the September issue of The Clay-Worker, and went into effect on September 15.

Members of the association were so well pleased with the work of John Ringle, chairman of the legislative committee, that they presented him with a handsome gold-headed cane. It is generally conceded that Mr. Ringle was instrumental in securing the reduction of about one-third on brick rates.

"The Clay Testing Laboratory of the University of Wisconsin," by Prof. F. T. Harvard, Madison, Wis.; "The Preparation of Stony and Other Clays," by C. H. Solfsberg, Aurora, Ill.; "The Burning of Drain Tile and Brick," by C. B. Platt, Van Meter, Ia.; "The Present Outlook for the Clay Industries of Wisconsin," by L. T. Crabtree, Crandon, Wis., and "Bricklaying Schools and Other Phases of Industrial Education in Wisconsin," by C. P. Cary, Wisconsin State superintendent of schools, were the leading papers presented.

An explanation of the intent of the Wisconsin industrial law, passed at the last session of the Wisconsin legislature, with particular reference to the establishment of bricklaying schools, was given by C. P. Cary, State superintendent of schools. It is the intention of the association to make strenuous efforts toward securing instruction in bricklaying in the trade schools of Wisconsin, and the following committee was appointed to carry out the intent of the association: John Ringle, Wausau; A. W. Hilker, Racine, and Prof. Samuel Weidman, Madison.

During the closing session several resolutions were passed indorsing the general plan of industrial education, commending the work of the Wisconsin Advancement Association and giving the support of the association to a proposed exhibit of clay products, which may be held at the Auditorium in Milwaukee. The report of the committee on resolutions follows:

"Resolved, That the Wisconsin Clay Manufacturers' Association heartily indorses the Wisconsin Advancement Association in its work of giving effective publicity to the many natural resources of the State, and especially to the undeveloped resources in agriculture and manufacturing in northern Wisconsin.

"Resolved, That we, as the Wisconsin Clay Manufacturers' Association, favor the establishment of a permanent exhibit of the products of the United States on the Panama canal, incident to the opening of this canal to the world, in so far as this concerns the furtherance of the trade of the United States, South America and the world.

"Whereas, it is desirable that the cost of conducting our conventions be reduced; be it

"Resolved, That the action of the secretary in not securing the services of a stenographer to write up our sessions be concurred in.

"Resolved, That we tender our thanks to the officers of the association and to the others whose valuable and interesting paper contributed to the program.

"Resolved, That the members of this association are urged to bring to the next convention samples of their products for the purpose of forming a complete exhibit of Wisconsin clay wares.

"Resolved, That as the Milwaukee Auditorium is promot-

ing an exhibit of building materials, to be held in the Auditorium in Milwaukee, at some future time, this committee suggests that the association appoint a committee to co-operate with the Auditorium Association, with the object in view of securing as many manufacturers of brick, fire-proofing, roofing, tile and kindred wares, to exhibit their products, also, if possible to bring it about, to have such exhibit when it will be convenient for this association to hold its meeting.

"Whereas, God, in His wisdom, has seen fit to remove from us by death one of our honorary members and our first secretary, Mr. E. R. Buckley, of Chicago; be it

"Resolved, That this association express its sorrow to the bereaved family of the deceased and that this association cause a copy of this report to be spread upon the minutes of this meeting.

"Respectfully submitted,

"Committee on Resolution:

"DAVIS BROWN,

"C. H. KORRER,

"G. B. MENTZ."

It is expected that the 1913 convention will be held in Milwaukee, the time of the meeting to be designated later by officers of the association.

THE NATIONAL CLAY MACHINERY ASSOCIATION.

As usual, the representatives of the clay machinery manufacturers had a busy session or two at the Annex to consider matters pertaining to their branch of the business. The officers elected for the ensuing year are: L. W. Penfield, president, Willoughby, Ohio; J. W. Hensley, vice-president, Indianapolis, Ind.; J. H. Chambers, treasurer, Philadelphia; W. N. Durbin, secretary, Anderson, Ind. The Executive Committee consists of F. W. Bennett, Wellington, Ohio; B. E. Place, Galion, Ohio, and H. H. Fate, Plymouth, Ohio.

The only formal business transacted was the adoption of the following resolution on the death of Charles W. Raymond:

"Whereas, During the past year it has pleased Divine Providence to remove from our midst, Mr. Charles W. Raymond, an original member of the N. B. M. A., and also a constant and interested member of the N. C. M. A., and a pioneer manufacturer of clayworking machinery,

"Resolved, That this Association hereby express its sense of loss and its appreciation of his services to our Association and to the clayworking trade in general, also of his genial fellowship.

"Further resolved, that this resolution become a part of our records and that a copy be sent to his family and to the clay trade journals.

J. HOWARD CHAMBERS, Chairman,

WM. SIMPSON,

J. W. HENSLEY,

Committee on Resolutions of the National Clay Machinery Association."

ARKANSAS BRICKMAKERS HOLD ANNUAL CONVENTION.

The annual convention of the Arkansas and Northern Louisiana Brickmakers' Association was held at Little Rock, February 24 and 25, at the Hotel Marion. Business was finished with the election of the following officers: B. H. Lipscomb, Hope, president; Edward Whitner, Beebe, first vice president; J. R. Randall, El Dorado, second vice president; W. W. Dickinson, Jr., Little Rock, secretary; Miss Malva O'Kelley, assistant secretary.

The following executive committee, to serve two years, was elected: M. L. Case, Pine Bluff, chairman; Oscar Lowe, Gurdon; C. W. Clark, Little Rock; W. W. Dickinson, Sr., Little Rock; M. C. Burke, Fort Smith.

The representatives of the brick companies attending this

meeting reported that their business has been very satisfactory for the past year, with bright prospects for the coming year. A number of subjects in relation to clay industries were informally discussed, as were machinery and different methods of manufacturing, also the economical side as to fuels, management, etc. These annual meetings have done much to advance and increase the output of the different classes of brick each year, in the opinion of members of the association. The members were entertained at dinner Friday night by Mr. W. W. Dickinson. The meeting adjourned to meet in Little Rock during the month of February, 1913, the date of the meeting to be decided by the executive committee.

NORTHWESTERN OHIO BRICK AND BUILDING NEWS.

LOCAL BRICK CONCERNS report a slow movement during the past few weeks, owing to the severe winter weather, which has greatly hampered outdoor work. A volume of building business has been carried on during the good volume of building business was carried on during the month of February, however, in spite of this handicap. New structures of an estimated value of \$236,917 were started during the month, showing a handsome increase over the figures of last year, which aggregated but \$145,725. There is nothing discouraging in present conditions, as there has been a seasonable demand for building brick, and some concerns report a splendid outside trade, with an exceptionally large volume of inquiries, indicating that the early spring building season is likely to come with a rush. The Toledo yards are still closed down so far as the manufacturing end is concerned, but most of them will be in operation as soon as repairs are completed and the weather will admit. Prices on building brick are holding up in good shape, common being quoted at \$7 and all hard at \$7.25. Some concerns say that they are carrying normal stocks, but on the whole it is safe to say that there are but few surplus building brick now in this market.

Paving brick concerns are preparing for a very active season, and the large amount of municipal legislation now under way in various cities and towns would seem to warrant the assumption that trade in this line will be more than ordinary during the coming summer. The same condition prevails as to the sewer pipe and drain tile branch of the business. In fact, clayworking industries of all kinds have much cause for optimism, as the general tone of business appears to be constantly improving.

A number of Toledo brick concerns were represented at the National Brick Manufacturers' Association convention held in Chicago early in March. Among those who attended from Toledo were Manager Kuhlman, of the Ohio Brick Company; Wm. Howell, of the Collingwood Brick Company; Mr. Darton, of the Kohler Brick Company, and Mr. Smith, of the Auburndale Brick Company.

Ames Price, a well-known contracting mason of Van Wert, O., died at his home in that city recently, at the age of seventy years.

The Collingwood Brick Company, of Toledo, which has been closed down for several weeks, for the purpose of making annual repairs and overhauling the plant generally, will resume operations about March 15. The concern reports a normal supply of brick on hand and business dull at the present time.

A special election will be held in Bryan, O., on March 26, to decide a \$60,000 bond issue for paving purposes. If the election carries, the village will have \$175,000 to expend this year in brick pavement for all the principal streets leading into the town. Public opinion is very strong in favor of the proposition. It is thought that this action will result in additional paving on the part of the county commissioners on country roads.

The Enamel Vitriified Brick Company, of Toledo, has removed its offices to 1341-1345 Nicholas Building, where more

commodious quarters have been secured. The concern will begin the erection of a large modern plant in Toledo in the near future.

The Hydraulic Press Brick Company, of Toledo, which recently established an office branch, with rooms in the Ohio Building, reports a nice trade from the Toledo office. The plant of the concern, which has been idle for some time, will be put in operation as soon as the frost is out of the ground, so that clay can be secured.

T. O. D.

Written for THE CLAY-WORKER.

AMONG PHILADELPHIA BRICK MEN.



TWO HUNDRED property owners residing in the neighborhood of Twenty-seventh and Somerset streets have signed a petition, addressed to Director of Public Safety George D. Porter, asking for the removal of the plant of the Lehigh Brick Company, occupying ground belonging to the city, at Twenty-eighth street and Chalmers avenue, on the grounds that the brick plant is a nuisance, and interferes with the proper development of that section. The fight to remove the brickyard from the city owned ground has been waged for several years. The ground upon which the plant is maintained is part of the land which the city took in 1883 for the use of the Cambria reservoir. The reservoir was never built, and the ground, according to statements, was leased for \$5 a month to one William Root, whose widow sublet it to the Lehigh Brick Company. The tract is now valued at \$30,000, and the real estate owners in that neighborhood are insisting upon the removal of the brick company.

The Phoenix Pottery Company, of White Hill, N. J., will fight the suit for bankruptcy brought by several of their creditors. The pottery company disputes several of the claims, and claims it is not bankrupt.

Charles T. Myers, of the Atlantic Terra Cotta Company, reports several good contracts made during the past month. About the most important is the one for furnishing the tile for the large addition to the Bellevue-Stratford Hotel, at Broad and Walnut streets. The amount of tile required for this work amounts to about 1,100 tons, and will consist of the standard gray tile that was used on the original building. The tile for the original building was also furnished by this company. The Atlantic Terra Cotta Company is also supplying the tile work for the addition to the Broad Street Bank, at Trenton, N. J. The bank is adding several stories to its structure in the New Jersey town, and is using a gray standard tile that was used on the former building.

S. B. Dobbs was one of the few Philadelphians who attended the Clay Products Shows at Chicago this month. In addition to viewing the exhibition, Mr. Dobbs expected to stop off at various cities en route in search of orders. The May's Landing factory of Mr. Dobbs' will resume operations about the last of this month. The plant has been closed down for several months, while undergoing repairs, but will again open in full blast this month. It has a capacity of about 50,000 brick, and is under the supervision of Mr. J. H. Remmey. Mr. Remmey is at present in Chicago.

The Bradford Brick Company has added to its large holdings by acquiring the plant of the old Standard Shale Brick Company at Youngsville, Pa. This makes the ninth factory to come under the rule of the Bradford Brick Company. The new plant will be operated under the name of the Youngsville Brick and Tile Company.

The National Fireproofing Company, manufacturing Natco tiles, have received a contract for furnishing their product for the \$1,000,000 addition to the Bellevue-Stratford. The contract amounts to about \$100,000, as the Bellevue-Stratford will use this form of building brick almost exclusively for the interior construction. E. E. Nickson, the Philadelphia manager, has also landed the contract for the work on the West Jersey Homeopathic Hospital.

The United Brick and Clay Products Company, No. 310

Morris Building, has been making extensive improvements and alterations in the two plants at Orviston, Pa., and Milesburg, Pa. At the Orviston factory two new kilns are being installed, with a capacity of 100,000 bricks. A coal mine has been opened on the company's property and a new clay bank dug. They have also built three and one-half miles of standard-gauge railroad track as a spur to their loading points. At the Milesburg factory a new cutting machine and other appliances have recently been installed. From the Philadelphia offices a large contract for the furnishing of bricks for an operation of the Stephen Girard estate has been secured. The operation consists of fifty-four dwellings and the contract calls for red velour and gray velvet bricks. About 700,000 face bricks will be used. The company will furnish a velvet Norman mission stretcher for a large apartment house in Germantown, which, from drawings and plans, would appear to be one of the most beautiful of the many handsome designs manufactured by this company. They are also furnishing an operation of fifty-four houses at York road and Butler street, with a quantity of red Colonial bricks.

QUAKER.

A CANDY BRICK.

A clever bit of advertising was done by the National Paving Brick Manufacturers' Association at the clay show. Every one who registered received a small piece of candy in the shape of the paving brick, showing the lugs and the imprint of the N. P. B. M. A. With this piece of candy was handed a coupon, a chance on a box of candy; after every fifty names a box was raffled off. This made quite a hit with the visitors. The oiled tissue paper around each piece of candy had the following printed on it:

This Is Not a
Vitrified Paving Brick

Eat this little "block" of Candy,
'Tis a morsel short and sweet;
Let it be a reminder, handy,
Of the Modern Brick Paved Street.

With your ticket goes a number,
Which, perhaps, may turn the trick;
You're the one we may encumber
With a load of chocolate "brick."

Compliments of
National Paving Brick Mnfrs. Assn.,
Engineers Bldg., Cleveland
Clay Products Show—Chicago, March 7 to 12, 1912.

WHERE ADVERTISING BEGINS.

Advertising, like charity, should begin at home. It may not always do so, but the fact remains just the same that that is the logical starting place for it. Let your advertising work begin with the sign that adorns the factory buildings or office. And it is a mighty good thing to have them on both. It is like hiding your light under a bushel to have a business and no sign or name on it to tell the passerby what it is. There should be conspicuous and attractive signs on the main buildings and also on the office, for this is the right starting place for advertising.

Then do some more work by seeing that your letterheads and other stationery properly convey to the recipients of it not only your business or firm name, but also the nature of the product you have to offer. Study the problem of stationery as you would a technical problem in manufacturing and strive to get the most out of it in a sensible advertising way.

Then take up your home paper, keep on good terms with its editor and not only carry advertising of your business direct, but help the cause of brick generally by posting him

about the points of interest he can write about for his readers. Cultivate all the home field thoroughly, for that is not only the beginning of good advertising, but it is a worthy place to keep it up with good results if you have a product that is worth while and a community that can use it.

THE CONVENTION OF THE CANADIAN CLAY PRODUCTS MANUFACTURERS' ASSOCIATION.

ALMOST DOUBLE the usual attendance was the gratifying feature of the attendance at the Canadian Clay Products Manufacturers' Association at Toronto, February 14, 15 and 16.

The meeting opened on Wednesday afternoon with Dan A. Lochrie, Toronto, as Acting President. The visitors were welcomed by Mr. C. A. Millar, Toronto, with the customary response from Messrs. McCredie, Lyons, Ont., and Bechtel, Waterloo, Ont.

Prof. A. P. Coleman, of the University of Toronto, one of the leading geologists in Canada, followed with an address on the "History and Nature of Clays" telling how clays had been made by nature through the ages. At the conclusion of the address Prof. Coleman gave the members some practical information regarding clays, in answer to questions asked.

On Wednesday evening a theatre party was given by the Berg Machinery Co., Limited, Toronto, to nearly one hundred members of the association and their friends.

Thursday morning was devoted to a discussion on power plant problems. Mr. Gordon C. Keith, editor of The Canadian Manufacturers, opened with a most practical paper on "Power Plant Economics." This was followed with an open discussion with Mr. A. M. Wickens, Toronto, answering all questions on this subject.

In the afternoon Mr. C. A. Millar opened a discussion on drying brick with a paper on "Artificial vs. Nature Drying," followed by an address on "Efficient Drying," by Mr. Jas. P. Martin, of the American Clay Machinery Co., Bucyrus, O. Mr. Geo. Frid and Chairman Lochrie had a nice little tiff over the comparative merits of different types of dryers, with a general discussion as a result.

Mr. J. S. McCannell, Milton, opened a discussion on business management with a paper on "Organization," with a practical talk on the same subject by Mr. D. M. Duncan, Toronto.

Mr. J. H. Warwood, Toronto, followed with a paper on "Kiln Construction" and conducted a question box on the subject, answering many practical questions.

Thursday evening was devoted to the annual banquet, with Acting President Lochrie as Toast Master.

On Friday morning Mr. Geo. B. Drennan, of the J. D. Fate Co., Plymouth, O., gave an address on "Tile Publicity," followed by a practical talk by Mr. A. L. McCredie, of "Farmers Magazine." This talk started a movement toward advertising tile in an organized way.

The officers elected were:

President—W. H. Freeborn, Brantford, Ont.

1st Vice-Pres.—C. A. Millar, Toronto.

2nd Vice-Pres.—J. W. Ball, Toronto.

3rd Vice-Pres.—Walter Clark, Sarnia, Ont.

Executive—Dan A. Lochrie, Toronto; B. E. Bechtel, Waterloo; J. S. McCannell, Milton; Geo. Frid, Hamilton and David Martin, Thamesville, Ont.

Secretary-Treas.—D. O. McKinnon, editor The Canadian Clay Worker, Toronto.

Auditors—J. S. McCannell and B. E. Bechtel.

It was decided that the executive should appoint four new committees as follows: "Tile Publicity," "Ways and Means," "Technical Education," and "Entertainment."

A resolution of sympathy and condolence with the widow and relatives of the late S. J. Fox, M. P. P., Lindsay, was unanimously passed and the president and secretary instructed to forward same.

Toronto was chosen as the meeting place for the next convention.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



EVERYTHING now indicates that the coming season is going to be a very busy one in the building line. Some thought early in the season that politics would hold back building, but there is nothing now to indicate that such would be the case, in fact this section of the country is of the opinion that everything is settled politically when Mr. Roosevelt announced that he would accept the nomination, but conditions were good even before that announcement was made.

According to the report of contractors the owners of building sites are having no trouble in negotiating loans for building purposes on very favorable terms, and they are figuring on a great deal of work of this class, cottages and flats which are to be built to sell as soon as possible, the builder not figuring on retaining them as an investment. There is also considerable business in sight in the way of houses being built by the people who expect to live in them, and a great many business buildings of various kinds. Also several large hotels and large additions to present hotels are to be built within the next few months.

Brick manufacturers have stiffened up on their prices during the past month. The demand has been good for so early in the year, and considering the great amount of unfavorable building weather in the month, and those who have been offering brick regularly are much pleased with the volume of business transacted. Prices have advanced to \$6.50, f. o. b. cars in Kansas City, and there is every reason at this time to believe that the advance will be maintained for a good while, as it is a very reasonable price, and as low as factories in the gas belt ought to deliver them here. If they can get this price for common brick they can make some money on them, and they are entitled to a season in which to make money, as mighty few of them made anything last year. The only thing that would cause any reduction in the price of brick would be a decided dullness in other markets of the West and Southwest, so practically all the brick from the Kansas field would come here, for the local demand is going to be strong enough this year to take good care of as many brick as usually comes in, and not drug the market in the least.

Kansas City plants are figuring on a good season, and operations are soon to begin in all of them that will be running this year.

Mr. Breen, of the Mexico Fire Brick Co., has been a recent visitor to this market, and reports everything running along smoothly at the plant.

The Fidelity Material Co. has added another room to its suite in the Keith & Perry Bldg., and is getting down to work in earnest. One of the large building jobs landed up to this time was the Almeda hotel, for which they are to furnish every brick used, amounting to about 500,000. They will use the Fredonia face brick principally, but there will be three different kinds of face brick used on the job.

Thomas Eadie has returned from his pleasure trip to Mexico, getting home before the Mexicans became so active with their fighting along the border. He says that they are a people who seem to be more inclined to fight than to work, but he likes their country.

F. C. Nicholson, of the Union Brick Co., Iola, Kas., has been a recent visitor to this city, and announces that their new plant at Gas will be in operation by March 15. This plant is to be as near fireproof as it is possible to make it, and take the place of the one destroyed by fire only a short time ago. They are doing some record breaking work in order to be ready early in the season. The capacity of the plant will be increased some 10,000 brick per day and they will have no trouble selling their output, as they sold enough brick last year to keep the plant running regularly, and it required a pretty lively sales-force to do this in this section of the country in 1911.

K. A. W.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Convention Echoes.

Editor CLAY-WORKER:

I came from the Clay Products Exposition full of enthusiasm and am still wearing the "Booster Bug Button." The fellows who stayed away can not know how much they missed. They are living in the back districts.

Expositions and conventions are promoted, pushed and patronized by the most wide-awake, hustling and successful men in the business, and he who would succeed in any line must know the methods and practices of those who are in the forefront. In these times of close, crowding, cutting competition he only can survive who adopts up-to-date methods, and the best place to learn what these methods are is in conventions and expositions.

Not only must one manufacturer of clay products compete with the other, but clay products must meet the competition of cement, glass, stone, wood and other materials that may be met in the open market. Cement is taking on any and all shapes in its attempt to get in everywhere; the glass interests are great blowers, but it is nearly always easy to see through them; stone is as hard and cold and uncompromising as ever, while everybody is familiar with the proverbial stupidity of the block-head or wooden man.

Burned clay has the good points of all and the failings of none. Let us have more, bigger and better clay products expositions and clayworkers' conventions.

DANIEL W. STOOKEY.

Cedar Rapids, Iowa.

Posies From Ocean Springs.

My Dear Randall—Enclosed find the \$10.00 it is my custom to send you along about the time of the annual meeting of the N. B. M. A., with which please pay my annual dues and get a bouquet for the assistant secretary's table. By the way, the last number of THE CLAY-WORKER was a dandy—a good deal of Gates, but you can never get too much of him to suit me. I know you will have the biggest kind of a big time next week, and it fills me with a little longing. Only a little, however, for while there are many old friends whom I would be only too glad to see, I grow more and more averse to crowds as the years pile up.

With love and best wishes to all the old boys and girls.

Sincerely your friend,

Ocean Springs, Miss.

D. V. PURINGTON.

President Bloomfield Safe at Home and Working Overtime.

Dear Mr. Secretary—I am home again after the strenuous week in Chicago, hard at work trying to make up for lost time. I was really a little behind with my work when I left for the convention, owing to the fact that I had given more time than I should in an effort to help the Clay Products Exposition enterprise, at the earnest personal request of R. C. Penfield. I must confess that I did not enjoy the convention week as much as I have in former years. Never before have I seen an N. B. M. A. convention packed or political methods used as was done in Chicago. I have serious doubt as to the advisability of holding the next convention there. In fact, since my return home, I have heard a number

who are interested say that there must be a convention and clay products show in New York in 1913. This is a matter entirely within the province of the Executive Committee. We may find it necessary to call a meeting to determine what course to follow in regard to the next convention.

I wish to thank most sincerely all of my friends who so loyally supported me for the presidency.

CHARLES A. BLOOMFIELD.

Metuchen, N. J., March 16, 1912.

Our British Contemporary Sends Regrets.

My Dear Randall—Thank you for your letter of the 29th of January. It would be a great pleasure to me if I could pay a visit to the Chicago convention and exposition the week of March 7, but I am holding an exhibition in Manchester at that time, and it will be quite impossible for me to get away. Meeting you and other friends in your country is, I hope, only a pleasure deferred. I am anticipating that we shall, as clayworkers, be able to pay you a formal visit. With all good wishes for the success of your enterprise, I am, with kind regards,

Yours sincerely,

H. G. MONTGOMERY,

London, Eng., Feb. 24, 1912. Editor British Clayworker.

Coal Substitutes in the British Pottery District.

Editor CLAY-WORKER:

English manufacturers as a class, do not follow the progress of new methods of combustion with anything like the keen interest which is manifested in the United States and Germany, but when a crisis like the present great national coal strike has to be faced the thoughts of everybody engaged in industry turn to possible alternatives to coal for heating purposes, and the opportunity comes for those who have kept in touch with new inventions and processes to demonstrate the wisdom of their alertness.

A notable example of success is the producer gas plant, which utilizes material quite unsuitable for an ordinary boiler, and now comes the news that a similar use of waste products can be made with most satisfactory results in a pottery kiln. Messrs. Grimwade, Limited, china and earthenware manufacturers, of Stoke-on-Trent, have been experimenting for over five years with oil and other substances, and, redoubling their efforts under the pressure of the strike, they succeeded on March 10 in perfecting a device which enables them to fire their patent kilns with waste colliery material blended with certain chemicals of high heating capacity.

As soon as the members of the firm had assured themselves of the complete success of the experiments, arrangements were made for 800 of their work people to resume work on March 11. The kilns were fired at midnight on March 10 and experience was such that L. L. Grimwade, the head of the firm, expressed the belief that they will be able to keep the factory going throughout the strike. "The batches of ware taken from the kilns on March 11," he said, "are perfectly satisfactory, and I need hardly say that the work people are delighted at the sudden change in their prospects which the new development has brought. We have adapted the kilns for the process at four of our factories, and I have strong hopes that we shall now be able to keep the works going full swing."

The enterprise of Messrs. Grimwade has naturally aroused great interest in the potteries, and the still unemployed workers devoutly hope that the new system of combustion will be speedily extended.

London, March 13, 1912.

London Subscriber.

There was evidence that the roofing tile end of the trade is coming out of the kinks and will do some hard hustling to good effect in the future.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

HERE was more interest manifested in the Pacific Northwest in the Clay Products Exposition which was held in Chicago than one would at first think. In fact, the agitation for the use of clay products is taking a firm hold on the clayworkers in this section, and, if they would only pull together a little more, better and more lasting results would be obtained. We are sorry to state that the brickmakers of Portland, Ore., did not pull together enough to have the annual convention of the Pacific Northwest Clayworkers in that city, and the convention, which was scheduled for the early part of March, has been called off. It may be yet that the Washington, or rather the Puget Sound, clayworkers will come together in some social or convention way, but definite plans have not as yet been worked out. We have now had these conventions in this section for the last two years, and as everybody was greatly benefited who attended these conventions, we strongly would advocate another convention for this year. It is not too late yet to get together and put this thing through, and if every clayworker in the States of Washington and Oregon would write Secretary C. S. Ridge, of the Washington Clayworkers' Association, Seattle, and tell him that he will attend, the thing will be a sure go.

When the Spokane clayworkers learned that the Portland matter fell through, they got to work quietly and held a good meeting at the Davenport, in Spokane. Among the brickmakers present it was concluded that the present output of the different yards around Spokane is now nearly 20,000,000 brick, against only 3,000,000 four years ago.

Portland has demonstrated that brick is going to be more considered than before. In the specifications of a large sewer, vitrified brick was only specified for the upper part of the sewer, while stone blocks were specified for the bottom of the sewer. After several meetings, the council decided to change the specifications and specify vitrified brick also for the bottom of the sewer. The total estimate for the vitrified brick sewer is \$101,548.

The Industrial Insurance Commission of Washington, which began its work on October 1 last, has adjusted in the four months ending January 31, 2,700 claims, of which 1,500 have been allowed and finally adjusted, and 1,200 cases disallowed.

There are several places in the State of Oregon where a large demand for brick exists, and no local company to supply the demand. Material has been tested at Terrebonne, which shows that good brick can be made of it. Paisley, in Lake county, has also a good opening for a brickyard, and clays tested at Silver Lake have proven a good material for clayworking purposes.

That Vancouver Island, British Columbia, will ultimately have a great many clay products industries is shown again by the discovery of a fine deposit of shale clay on North Pender Island, located just east of the main island. This clay has been tested and will make high-grade vitrified brick and sewer pipe. A company has been formed under the name of the Canadian Vitrified Shale Brick and Sewer Pipe Company, Ltd., with headquarters in Vancouver, to work these deposits, and will build a new plant at once. James Drummond and J. H. Gray are the principal parties interested in the new enterprise. The property consists of eighty-five acres of land, and is situated near Hope Bay.

The paving brick plant of the Denny-Renton Clay and Coal Company, of Seattle, and located at Renton, will commence operations again next week. The plant was shut down several weeks for the annual overhauling and repairs.

The Northern Pacific Railroad, which is building large yards and shops at Auburn, has taken under advisement the installation of a drain tile plant at that point, in order to take care of the large amount of tile used for the proper

drainage of their yard properties. They are figuring either on clay or cement tile.

The Bayview Brick and Tile Company, of Bayview, Wash., is now negotiating for their machinery, and will shortly be in operation. C. B. Mayhugh, who came originally from Ohio, will have charge of the plant.

The Peter Enslee brickyard, at Jacksonville, has been taken over by a new company, principally composed of Central Point business men. The new company has been incorporated, with a capital of \$25,000, under the name of the Jacksonville Brick and Tile Company. SIWASH.

OBITUARY.

Death of E. R. Frazier.

One of the veteran clay machinery salesmen, E. R. Frazier, joined the silent majority March 10, after a lingering illness, which has incapacitated him for business for several months. For many years he has been the Western representative of Chambers Brothers Company, with headquarters in Chicago. He was an exceptionally kindly man and enjoyed

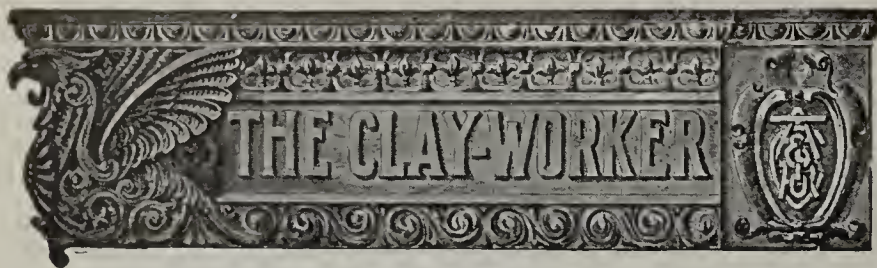


E. R. Frazier, Chicago, Ill.

the confidence of all who knew him. He was a member of the N. B. M. A., and was a faithful attendant at all its annual gatherings, and also was a familiar figure at the various State conventions. He was in his fifty-seventh year, and his untimely death will be mourned by an exceptionally wide circle of friends.

H. E. STEFFLER WINS VULCAN BOILER CLEANER.

A new candidate for trade favors, in the form of an improved soot cleaner, was ably represented by F. A. Moreland, of G. L. Simonds & Co., Chicago, who introduced a novel scheme of advertising, offering as a free gift to some of those attending the convention a complete Vulcan soot blower for cleaning return tubular boilers. The names of those interested were written on cards and placed in a box. Mrs. T. A. Randall on request drew a card from the box, thus determining the lucky individual who proved to be H. E. Steffler, manager of the Steffler & Brown Face Brick Company, Darlington, Pa. Consequently the latter firm will receive a Vulcan soot blower ready to install, free of charge. The blower is valued at \$50.00, and Messrs. Simonds & Co. state that it will save many times that amount every season in the reduction of the fuel bill. They have a booklet entitled "Economical Steam Production," which fully describes the Vulcan, and which they will gladly mail to any of our readers who are sufficiently interested to write them for a copy.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-NINTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
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Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

LVII.

MARCH 1912

No. 3

CURRENT COMMENT.

Paraphrasing the memorable words of the martyred Garfield, we may say that "Justice reigns, right prevails, and the N. B. M. A. still lives."

* * *

If only the active membership had kept step with the actual attendance at Chicago there would be some membership roster to get out for the next annual.

* * *

The drain tile people had an interesting session, too, and proved that good progress is being made and that there is a widespread interest in drainage generally.

* * *

The literature of the B. B. A. is not only good, but it seems to be meeting a felt want, for everyone about the clay show wanted some of it to take home and study.

* * *

Whether they made a source of revenue or not, the fact remains that the "No Smoking" sign at the Coliseum resulted in the ticket takers accumulating a keg full of cigar butts.

* * *

The president helped draw the crowd to the Coliseum Saturday, but the crowd kept coming anyway. In fact, it was not only the greatest show of the kind given, but it was also one of the best attended.

* * *

The people who had seen other building material shows at the Coliseum were among those loudest in their expressed admiration of the clay show, for they said it beat anything that had ever been shown in the Coliseum before.

* * *

When the men lost their wives they didn't know just where to find them, for the local committee kept them on the go nearly all the time. But for the wives who had temporarily lost their husbands there was a hint for guidance

in the assertion of one lady that the first place she looked for her straying "wusser" half was in "Peacock Alley."

* * *

Did you notice how general is the tendency in face brick to rustic effects and oriental colors?

* * *

The architects came, too, and they not only came, but they saw and were much interested, likewise edified.

* * *

Surely after the great showing made at Chicago the brick men have taken home both ideas and inspiration that will result in more local displays of clay products.

* * *

Every time we turn around we learn of some new and useful application of electricity, but it is not to be wondered at when we consider what a swift mover the electric "juice" is.

* * *

That the fireplace is still dear to the hearts of the people was reasonably plain from the fact that many of the exhibits had them, and it only took the admiration of the crowd to clinch the argument.

* * *

Secretary Blair of the Paving Brick Association has not only gotten up a remarkable collection of pictures of brick paved streets and roadways, but he has had them reproduced in excellent shaps in booklet form, so as to spread the evidence of their beauty far and near.

* * *

There would naturally have come some progress anyway during the past twenty-six years, but just the same there is a whole lot to the credit of the N. B. M. A. in the wonderful strides the clayworking industry has made. And there is just as much more good work to be done in the future.

* * *

Those silo block displays were very timely, for the lumber and the cement people are making a great drive in that direction these days, so that it looks like there will be lots of it in the near future, and it behooves the clay men to get after their share of it by boosting this best silo material of all-burned clay products.

THE CHICAGO N. B. M. A. BADGE.

The souvenir badge presented to the visitors by the Chicago Clay Club, a replica of which is shown on the front cover of this issue, is one of the neatest and prettiest of all the N. B. M. A. badges. Those of the members who were unable to attend the convention, but wish to add this "I will" badge to their collection, can obtain one on application to Secretary Randall, a supply having been generously provided for that purpose. Members who have not already paid their dues are requested to do so at once. The fee remains \$3.00, the same as heretofore. The ladies were given souvenir badge hat pins. These, too, will be furnished those desiring them, so long as the supply lasts.

THE CLAY SHOW.

It was not only the greatest thing that ever happened at the Coliseum in the way of a building material show, but it was, first, last and all the time, distinctively a clay products show. There have been other shows, of cement, lumber and building material of various kinds, that resulted in a great conglomeration of things, showing more of the general commercial spirit than of specific and well ordered boosting of some one class of material, but this time it was different, it was a clay products show straight through—there was not enough machinery and allied lines to even make a fringe around the edges. That it was an eye opener and an impressive lesson to the public was easily apparent from the

comments of the visiting throngs. Yes, there was a visiting throng, which was another jewel or feather crowning the success of the promoters' efforts. The crowd began with the opening night and was there in goodly numbers practically all the time, seeing, learning and growing enthused over clay products.

BRICK FACTORY BUILDINGS.

And while you are about this do not forget the subject of brick factory buildings. You may think it is already receiving enough attention, but every little boost helps and every year there is room to turn more people toward brick and clay products for factory building. There are some who heretofore perhaps did not consider their factory buildings of enough moment or importance to justify the use of brick. Therefore, they have used wood and sheet metal, whereas a little urging and proper boosting of brick might soon lead to their building worth-while structures out of clay products. The same woodworking institution that is induced to build a brick kiln may also be induced to build a new addition or rebuild the old part of the plant with brick or brick and steel, especially if proper data is laid before them of the reasonableness of the cost as compared to the quality of results. The brick people have been neglecting some opportunities here that the concrete people have been industriously seizing and the result is that lots of modest factory structures are made of concrete that might well have been made of brick if brick manufacturers had simply given more attention to cultivating the opportunities before them. Make it your business to see that no claim or charge of this kind can rest against you in the future. See every prospective factory builder and every man with an old factory building that looks like it needs replacing, or that intends to build an addition, and present the case of brick and other clay products. If you keep at it long enough and follow it up intelligently and persistently the result will be lots more good buildings and a larger market for building brick and other clay products.

FIRE WALLS AND BOILER HOUSE.

Even in those cases where you may fail to induce a man to build his factory entirely of brick, you will perhaps be able to get him as far on the road as building the boiler house and dividing fire wall between it and the factory proper out of brick.

Here you have the fire hazard strongly in evidence and the argument, backed up by the insurance people, that it is hard for the factory owner to get around. It is difficult for him to get insurance without his boiler and fire room being enclosed with brick and having a substantial fire wall between it and the main factory with fire doors, and even if he should get insurance the rate would be so high as to cost more in a few years than the expense of building a proper boiler house and fire wall to begin with. In fact, this is one place that failure to use brick is evidence that the brick man is not pushing his business properly, because the argument is so strong that no builder even of a modest factory can afford to ignore it when it is put up to him right and fail to build a boiler house and fire wall of brick.

PARTITION WALLS.

And when you are talking with home builders, those fellows that you have persuaded to build with brick instead of lumber or concrete, there is a future line of work that you may as well begin planting the seeds of in the minds of the builders today, and that is, the more extensive use of clay products for partition walls. This is especially true where a feature is made of the fire prevention idea, because consistent building for safety against fire involves not only the building of the outer walls of brick, but also the making of the

partition walls of brick and hollow block and other clay products.

You may have neglected this point at first, being mainly concerned with getting brick in the outside walls of the home builder, but now is the time to take up the other end and to urge the replacing of that old fire trap of a wooden partition with hollow clay block partition walls. It is not only a matter of doing good for the clayworking industry by increasing the use of its product, but it is doing good for the home builder himself by safeguarding him against fire and giving him a house that is better built. There is room here to develop in the future an enormous market for clay products that in the past has been sadly neglected.

THE SELLING END.

The world today recognizes as it never did before the advantages of and the necessity for intelligent marketing. That not only the quickest, but practically the only sure way for an industry to progress and prosper is through enterprising selling. Not the mere working off on the public of something through smooth talking or by catchpenny methods, but the progressive building up of a trade on worthy merits intelligently pushed into public notice. In its highest sense and proper conception it is education of the public.

In the past the clayworking industry has put the burden of its work and study into manufacturing methods, and with such good results, too, that it should lend encouragement to the idea that the time is here now to take up the selling end in the same thorough way. Some excellent work is already being done through the paving brick and the building brick associations. These should have such hearty support as will insure their continuance and enlargement, and also every man in the business should take it on himself to see that the selling end is developed and made to keep step with the manufacturing end.

There are many ways to work and keep the ball rolling. One good one is through the meeting together of salesmen and sales managers. A gathering of this kind can, if it works in the right spirit, take up and handle many things that should result in good to the whole industry, and from meeting one with the other those in charge of the selling end of the business should gain and be able to develop as many worth while ideas as those in charge of the manufacturing. It is quite largely a matter of getting at it and keeping at it, of realizing and not merely recognizing the importance to the industry of the selling end of the business.

This is a theme THE CLAY-WORKER has harped on heretofore, but it is worth a little more harping yet, and we hope to make the music so inspiring that the idea of modern selling methods will soon be as popular as that lilting doggerel about "Kickin' of my dog around."

PROMOTING THE USE OF BRICK.

It is the duty of every man in the building brick business to make a careful and thorough canvas of the opportunities which may be before him to promote and boost in every way practical the use of brick and other clay products, and to get into the game early in the spring before the active building operations start. It is then that he can get the most immediate results, and it is then that more different ideas will suggest themselves and that good ideas will have more weight with the prospective builder who is getting ready to work. Therefore, while we should boost brick all the year around, there should be a little extra effort at it in the beginning and throughout the building season. Every man should make it his business to study over the situation carefully and see if there is not something new he can think of to suggest for further extending the use of brick and other clay products during the year.

Of course, it is taken for granted that it will be urged for home building and for office structures, and already a fair amount of attention has been given to educating the public

in the benefit of brick and other clay products for this purpose. This feature will require continual looking after, but in the meantime cast about for something else to add interest and zest to the work.

TRADE LITERATURE.

The Purington Paving Brick Company, of Galesburg, Ill., has recently issued a handsome booklet in the interests of their paving brick. The booklet is arranged in most attractive form and is profusely illustrated with views of the plant and street scenes of cities in which Galesburg paving brick has been used. The advantages of paving brick made of Galesburg shale are set forth in respect to appearance, wearing capacity, ease of traction and other points. Photographs of streets paved with Purington brick found in Chicago, Minneapolis, Omaha, Council Bluffs, Appleton, Deadwood, S. D., and St. Joseph, Mo., are shown, with the dates of paving and of photographing.

The C. W. Raymond Company have just sent to our desk a copy of their magnificent new catalog, and they have certainly outdone themselves in this publication in endeavoring to give the claycrafters a clear and concise idea of their latest and best equipment. A few bits of information may be interesting. It contains 212 pages and is bound in a semi-flexible cloth cover. The complete edition is 12,000, requiring one carload of paper. This paper in itself is equal in weight to a "999" Special brick machine. The completed book weighs 2½ pounds apiece, or 30,000 pounds complete. Cost of mailing, third-class rate, at 1 cent for each two ounces, will be \$2,400. There are 461 illustrations, 12,000 sheets of gold on the cover, each sheet containing 17 square feet, or enough to pave a little over 28 feet of a 50-foot roadway. It required 90 pounds of ink and 16,000 pounds of type to print it. The binding required 1,064 yards of cloth, or enough to make 355 hobble skirts. The 150,000 sheets of paper, laid end to end, would be 6,600,000 inches, or 550,000 feet, or 106¼ miles. It contains 211,200,000 square inches, or 1,452,835 square feet. If cut into inch strips and laid end to end, it would be 211,200,000 inches, or 17,430,000 feet, or 3,300 miles—the distance from New York to San Francisco. A railroad train traveling past at sixty miles per hour would consume fifty-five hours, or two full days and seven hours' continuous traveling.

PROPERLY CLASSIFIED.

"He is a Napoleon of Finance."

"Why, I didn't know he was wealthy!"

"He isn't, but he is raising a family of nine children on twelve dollars a week."—Houston Post.

SOME SIMPLE SAYS.

Susanna Snooks sings sad, sweet songs, she sees soft summer skies;
Strange sunset shades sift silently—she somewhat silently sighs,
Soliloquizing she strays, sweet songsters shyly sing,
She sees slim spruces' slanting shades surround some sparkling spring.
Still southward silently she strays. She spies shy Simon Slade,
"Stop Simon!" says Susanna Snooks. Still sifts sweet sunset's shade.
Shy Simon six snug, satisfying squeezes slyly stole.
Sussanna snickered. Simon stayed. Sick, silly spooney soul.
Susanna's sire saw some shy, suspicious stranger stray,
Saw Susan say, "Stop, Simon Slade." Saw simple Simon stop.
Stern sire sought some solid stick—serenely, slyly slipped.
Susanna saw. She shrilly shrieked, "Skip, Simon!" Simon skipped.

—Bridgemen's Magazine.

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"GETTING THE MOST FOR A DOLLAR"
has been given as a definition of good engineering such as is done by

**The Richardson-Lovejoy
Engineering Company.**

[See page 549.]

FOR SALE, WANTED, ETC.

FOR SALE.

Regardless of Original Cost.

Fifteen thousand pallets at \$25 per thousand. Good condition. Potts brick machine, with necessary belting, shafting; disintegrator, hoisting drum. Good condition, \$500. Four Koppel clay cars, \$45 each, good as new; 100 rods 16-lb. rails. One blower with grate bars and doors suitable for burning by Boss system. Four steel trucks, 40 horsepower gas engine, 20 horsepower gas or gasoline engine. For full information, write
S. S. BOOTS,
Greenfield, Ind.

For Sale, Wanted, Etc. Ads Continued on
pages 523, 524, 525 and 526.

A QUALITY OF MACHINERY ABOVE ALL OTHERS.

Boost For The
Clay Products
Exposition
of 1913
START NOW

Clay Products Exposition is History Now

Our last announcement in THE CLAY-WORKER was an invitation to the Clayworkers of the United States to visit the Clay Products Exposition and also meet us at our headquarters in Parlor B at the Congress Hotel and Annex. Those who attended the Big Show were mightily pleased. We have been greatly interested in the Exposition because we saw in it a great opportunity for bettering the interests of the Clay Trade. The results prove that our expectation was more than realized, and the many exhibitors reaped benefits in a business way far and away beyond what they had expected. The American Clay Machinery Co. would urge every Clayworker of the country to follow up the good work of the exposition with a renewed effort to promote the use of clay products. The country from coast to coast has been set to thinking about Clay Products, and an aggressive advertising and selling campaign will be doubly beneficial at this time.

In the meantime do not overlook the fact that the "Built Right, Run Right" line of Clayworking machinery will best take care of any betterment you may want to make in the Quantity or Quality of your product. We have new machinery in many departments of our line and solicit any inquiry.

Yours for Clay Products, "First, Last and All the Time."

The American Clay Machinery Co.

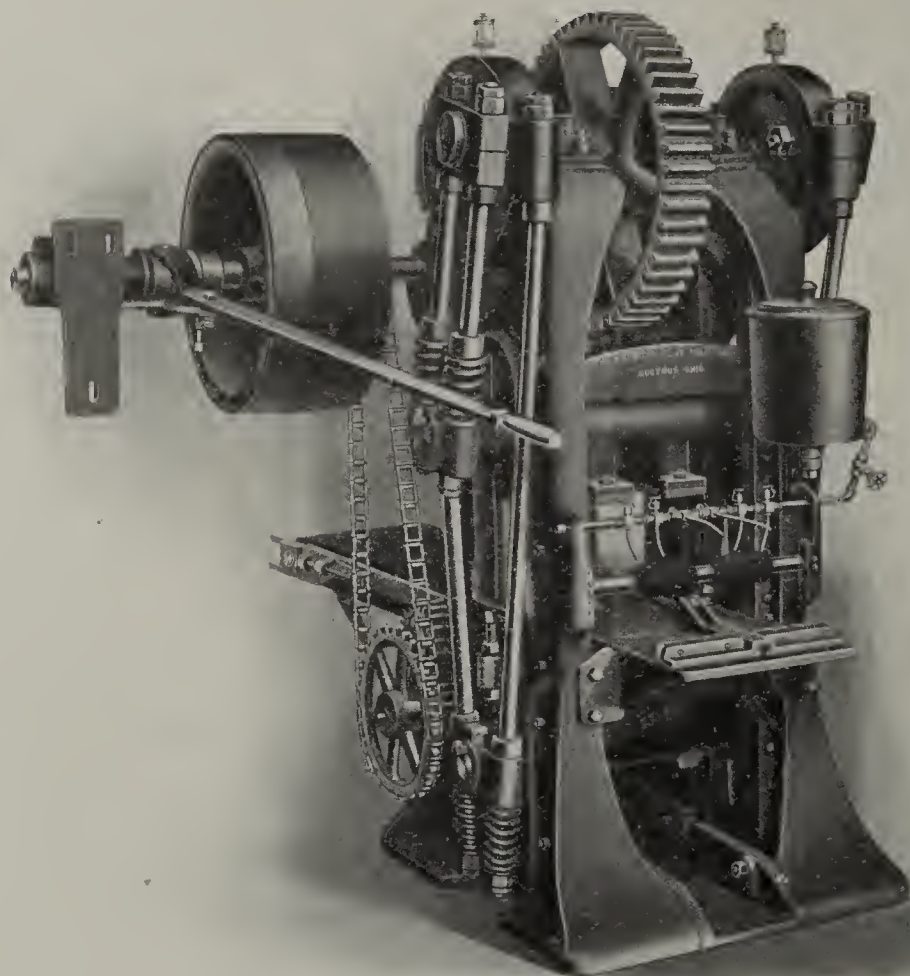
Bucyrus, Ohio, U. S. A.

Much the largest manufacturers of Clayworking Machinery in the world. And much the best.

A QUALITY OF MACHINERY ABOVE ALL OTHERS.

Boost For The
Clay Products
Exposition
of 1913
START NOW

No. 219 Repress



Here is a new candidate for popular favor in the well-known Repress line of The American Clay Machinery Company. While it is new from top to bottom it belongs to a family of represses so well and favorably known that its success should be conceded.

The 219 Double Mold Repress has the lines of quality stamped upon it and in the field of battle, where the days work must be successfully accomplished day after day, it will be found replete with those points of simplicity, convenience and strength which produce results.

The 219 has special advantages in the arrangements for pressing the brick which also add to the strength of the machine. We have provided for a dwell when the pressed brick are being pushed off onto to the off-bearing belt. Following this dwell the lower cross head drops suddenly, which gives a more accurate feed and obviates the brick being carried over the mold. The side rods are provided with necessary springs to relieve strain and many original features are fully told of in our complete description which will be sent on application.

The Old Reliable Eagle

Nothing need be said here regarding the old reliable Eagle Repress. Its record stands as the envy of all presses. Its successes are innumerable. To those who do not know all about the Eagle we will send illustrations and a complete description.

We also build other Represses of smaller sizes and capacities. Let us know what your wants are in this line and we will fully advise you.

We build every machine and appliance for the manufacture of every class of clay products by all processes.

The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.

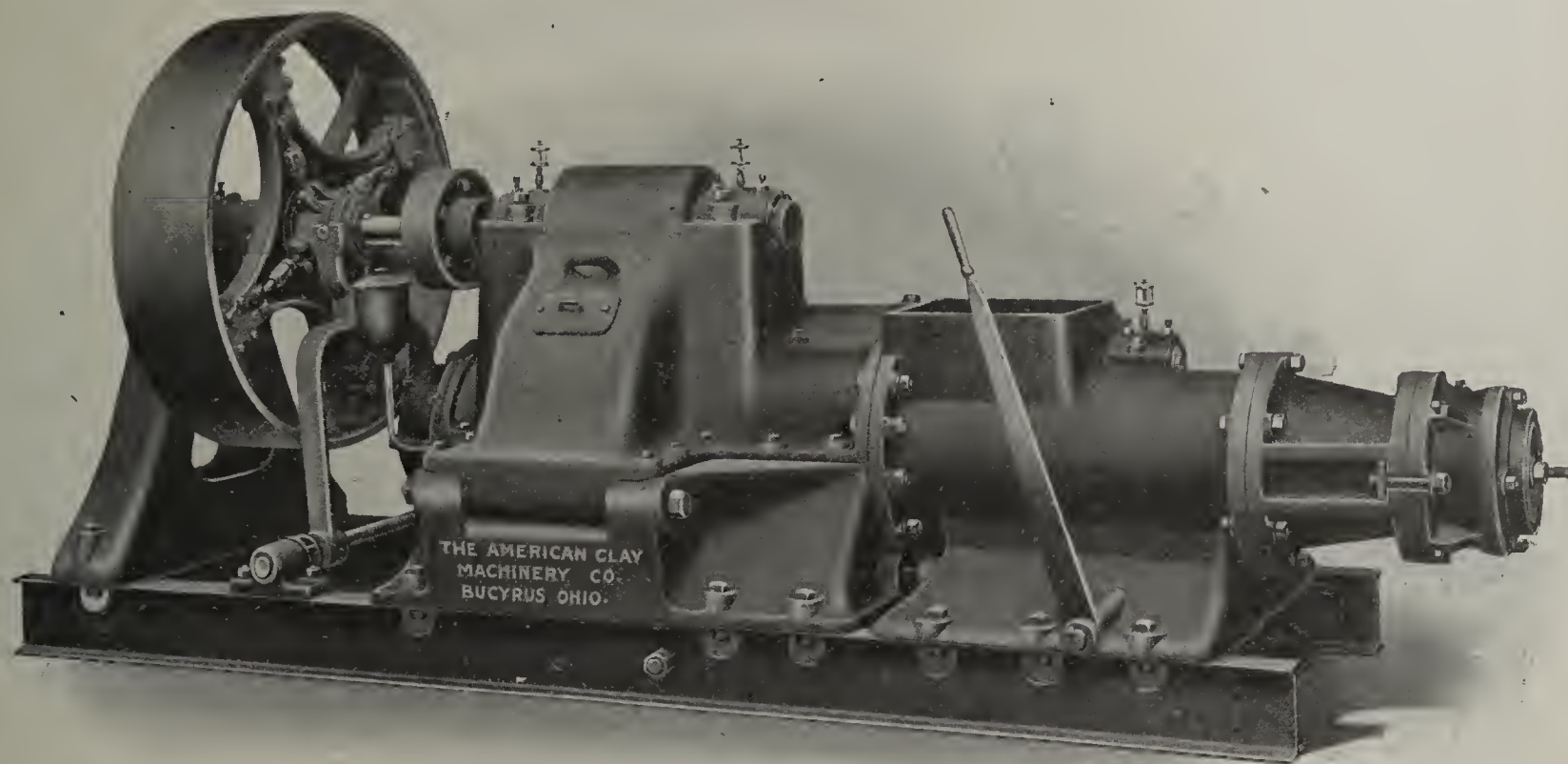
Much the largest manufacturers of Clayworking Machinery in the world. And much the best.



A QUALITY OF MACHINERY ABOVE ALL OTHERS.

Boost For The
Clay Products
Exposition
of 1913
START NOW

World's Greatest Tile Machinery



No. 218 Tile Machine

The World's Greatest Line of Tile Machinery is the absolutely new line just put upon the market by the American Clay Machinery Company. It is making good everywhere and has been installed by the largest manufacturers of Drain Tile and Fire Proofing in the country.

The first of this line was the No. 218, which was a record-breaker from the start. It makes tile up to the capacity of the plant, and that, too, without noise, fuss or waste of power.

The No. 231 and 233 are brothers of the 218, with the same racy quality lines which have won them pedigrees. The one is for those who consider economy in first cost, the other is the big brother of the 218, with a correspondingly wider range of sizes and capacities.

For those who want less capacity our Centennial and Acme, with newly designed augers, will prove satisfactory. These new augers can be installed in your present machine if you have a Centennial or Acme.

Our line of cutting tables, elevators, trucks, cars and other equipment for hollow ware is complete. Write for cuts and descriptions of these machines. We build everything in clayworking machinery and appliances.

The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.

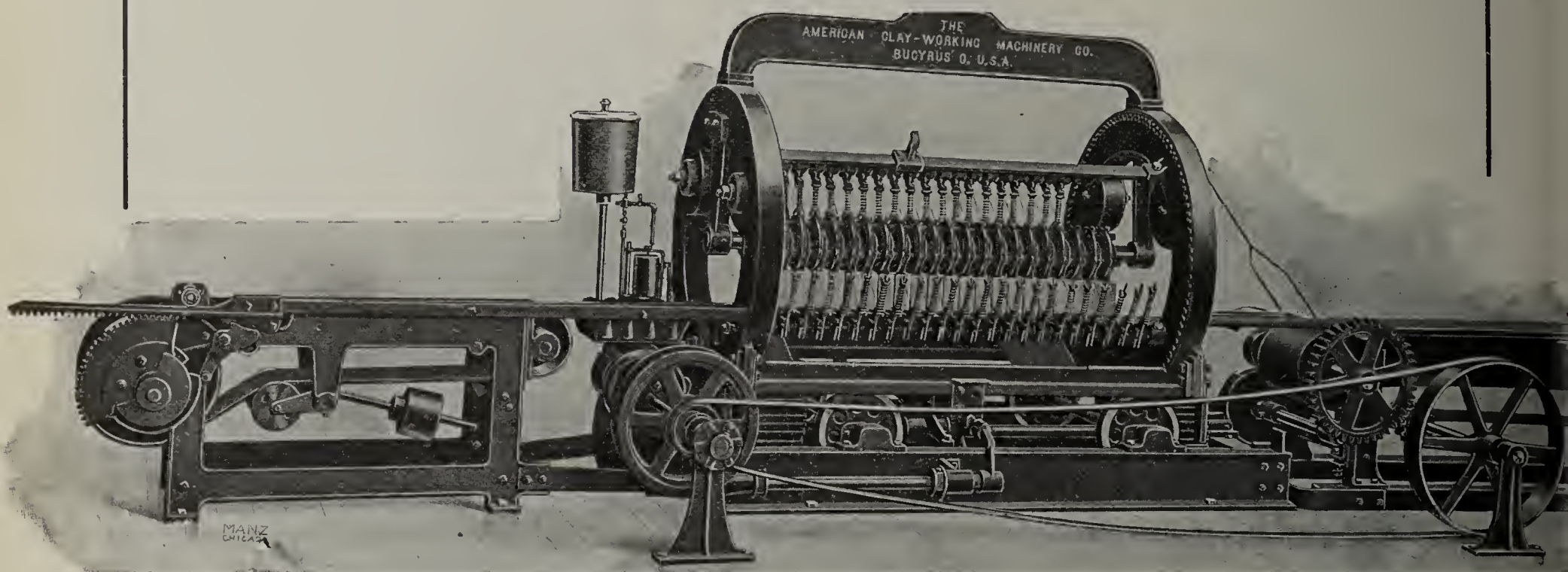


Much the largest manufacturers of Clayworking Machinery in the world. And much the best.

A QUALITY OF MACHINERY ABOVE ALL OTHERS.

Boost For The
Clay Products
Exposition
of 1913
START NOW

Cutting Tables



No. 20 Rotating Brick Cutter

The line of Cutting Tables built by the American Clay Machinery Company has a wide range in style and capacity, but every table is built on a uniform standard of quality.

From the No. 20 Automatic up to the No. 224 Automatic and down to the lesser capacity types there is a complete range from which any manufacturer can select a cutting table that will exactly suit his needs.

This American Clay Line of Cutters is not limited to brick, tile or any other class of clay products, but includes cutters for cutting all kinds of clay products, no matter by what process made.

The design of these cutters is backed by half a century of experience. The construction is all that good material, first-class workmen and a fully equipped modern factory can assure. A full description of any cutter will be sent upon application.

We build every machine and appliance required in every branch of the Clay Trade.

The American Clay Machinery Co.
Bucyrus, Ohio, U. S. A.



Much the largest manufacturers of Clayworking Machinery in the world. And much the best.

A QUALITY OF MACHINERY ABOVE ALL OTHERS.

Boost For The
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THE KEYSTONE OF SUCCESS IN Steam Pipe Rack Dryers

We have a number of vital patents on the Steam Pipe Rack Dryer which are the Keystones of Success in the operation of this type of dryer so far as efficiency and economy are concerned. Those who are using our improved dryer are loud in its praise. It is at once a model of neatness, comfort, light and convenience and in its operation will distribute the heat to a better advantage

and at less cost than any other dryer of the kind on the market. This dryer has been selected by those careful to investigate and has won out in competition with all others. One user says: "We have used your dryer long enough to convince us that its success is complete and its operation will be a decided economy. Brick made one day



are set in the kiln next day uniformly dry throughout entire holding capacity of dryer, which means a considerable saving in burning. We dry with exhaust steam during day and finish with 5 to 10 lbs. live steam during night. Cost of drying with our hot air dryer was 65 cents per thousand. With your dryer it is 25 cents. We believe you have the best dryer on the market."

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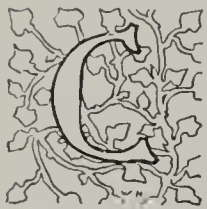
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The American Clay Machinery Co.
Bucyrus, Ohio, U. S. A.

Much the largest manufacturers of Clayworking Machinery in the world. And much the best.

Written for THE CLAY-WORKER.

CLEVELAND BRICK NEWS.



CONTINUED cold weather during the month of February has resulted in a holding up of the building industry in this city. Building permits issued during the month of February were very small in number and value and the continued zero weather prevented those operations now under way from being proceeded with and also prevented new ones being begun.

Cold weather, however, has not prevented the preparation of plans for new structures which will be begun as soon as climatic conditions improve and permit of operating in the open air. In the offices of the architects and engineers in Cleveland a number of new projects are now being considered which will materially swell the building total for the coming year.

One of the biggest operations made public during the past month is a nine-story fireproof hotel to be erected on Superior Avenue east of East 9th Street, on the south side of the street. The building is to be erected by the Madison Realty & Improvement Co., of which Rueben Hitchcock is president. Charles W. Hitchcock and W. C. McClure and W. B. Harvey are members of the company. The building itself is to cost about \$325,000.

Another new project calling for the expenditure of nearly \$150,000 is an exclusive apartment house to be built on the heights by the Euclid Boulevard Company. The building will be of tapestry brick, with terra cotta trimmings. The building's four sides will be treated as fronts and the structure will be fire-proof throughout. It will contain twelve or sixteen suites of nine rooms and three baths each. C. M. White is president of the company which will erect the structure. The building will be the only one of its kind in the exclusive heights district.

Architects Huberty & Summerell have prepared plans for a large brick building for the Cleveland & Sandusky Brewing Company. The structure is to be 125 feet by 60 feet containing six stores on the first floor and apartments above. Contracts will be let within a few days for this work.

The Ulmann Phillpot Company has purchased a new site on Lexington avenue, near East Fifty-fifth street, and will erect a fire-proof building, costing \$40,000. The structure will be 41 by 260 feet in size and will be faced with brick. Plans for a new factory building have been prepared by Engineer Wilbur Wayson.

The Lake Erie Building Supply Company has secured the exclusive agency for this vicinity for the Campbell, Raggle & Block Wall Coping Company's product. It is claimed that the material has been tested in every possible way and makes an absolutely water-tight roof. The Lake Erie Supply Company has taken additional space on the thirteenth floor of the Citizens' Building and has added considerable to its display rooms.

The Osnaburg Brick Company, of Canton, during the past month secured permission from the State to change its name to the Stark Brick Company. Canton, the home town of the company, is the county town of Stark county, and for that reason the new name was chosen.

Several changes took place at the annual meeting of the directors of the Cleveland Builders' Supply Company, held during the past month. Henry Angel, who has been acting assistant general manager for a short time, has been promoted from the position of general sales manager to that of assistant general manager. Robert C. Mitchell, well known in Cleveland as manager of the company's brick department, was appointed to succeed Mr. Angel as general sales manager. Guy W. Moetz has also entered the employ of the company. The Cleveland Builders' Supply Company is the

largest concern of its kind in Ohio and one of the largest in the United States.

A. F. Graham, manager of the Cleveland Builders' Supply Company's branch at West Fifty-ninth and Lorain avenue, fooled some safe-crackers a few nights ago, when they broke into the office to crack the safe. When the burglars tried the safe door it swung open freely. Mr. Graham had taken the money and valuables home with him, thus saving them from the tender mercies of the thieves.

Anticipating better weather conditions, a number of the brick manufacturing plants around Cleveland are preparing to get down to business and turn out a big year's supply of brick. The cold weather and the consequent difficulty in keeping kilns hot has discouraged a number of the plants from doing much active manufacturing during the cold spell. Difficulty was experienced by some who use natural gas, in securing an adequate supply of that fuel. This was due largely to the extra heavy consumption in the city homes during the cold spells. Now that the weather is moderating, however, it is expected that conditions will once more become normal and little difficulty will be experienced in this regard.

Business with the retail brick dealers in this territory is also picking up, and the salesmen are on the track of a number of good orders. The tendency is becoming apparent year by year to use better grades of face brick and to make a good showing on the outside as well as the inside of buildings under erection. The retailers, in fact, look for this to be one of the biggest years in their history.

One of the interesting incorporations announced during the past month is that of the Sharon Clay Products Company, of Brookfield township, Trumble county. The new company is capitalized at \$30,000, its chief incorporators being W. C. Taylor, Charles A. Lytle, A. W. Krouse, Bess T. Krouse and Frank S. Thompson.

A BUCKEYE.

AKRON MACHINERY FOR CALIFORNIA.

The Taplin, Rice-Clerkin Co., Akron, Ohio, have been awarded the contract for additional machinery to be installed by The Los Angeles pressed Brick Co., Los Angeles, Cal.

This company sent a competent representative to the East to inspect all the various types of kilns and clayworking machinery, and awarded the contract to the above firm, not as a matter of price, so much as a matter of merit. The

The same company also manufactures a large line of the This contract, together with a large number of others awarded to the above company, enables them to keep their plant in this department running to its fullest capacity during the next several months.

The same company also manufacture a large line of the celebrated climax stoves, ranges and furnaces, which have been so well and favorably known for more than 40 years, in every section of the world where such apparatus is used.

The company began the manufacture of stoves, ranges, and furnaces in 1865; and in 1872 began the manufacture of clayworking machinery on a small scale, and now have extended it into nearly every branch of the art.

The large number of plants equipped with the machinery, and the successful operation of same ought to be sufficient evidence of their worth and merit.

The Pennsylvania Railroad Company built a concrete tunnel about 3,000 feet long, at Gallitzin, at the top of the Allegheny mountains, about six years ago. This tunnel has been giving considerable trouble for some time past, and orders have been issued to replace this concrete with brick, and the order has been placed with the Bolivar Face Brick Company for vitrified construction brick, same as was furnished for another tunnel built by the Pennsylvania Railroad Company several years ago, which is in perfect condition to-day and has given entirely satisfactory service.

TECO POTTERY

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If you are interested in beautifying your garden or lawn with a really artistic pottery, and with pieces designed by many of the leading architects of the country, your attention is called to Teco Garden Pottery.

Many attempts have been made to imitate this pottery. All genuine Teco bears our trade-mark burned into the bottom of each piece.

Our booklet will be mailed upon request; also, name of our representative in your city where Teco Pottery can be procured.



Trade
mark.

GATES POTTERIES,

225 Gates Avenue, Terra Cotta, Ill.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



MARKET FOR clay products in California is still a little quiet, but many indications of improvement have been noted in the last few weeks, and if the crop situation is relieved by timely spring rains, a good year is well assured. Prices continue firm, and common brick has been advanced to \$7.50 a thousand, 50 cents over the price of last fall, with all indications that this figure will be maintained. Terra cotta and other clay products show little change in price, but better values are expected later on. Building supply dealers are becoming more harmonious through necessity, and the outlook is for a very stable condition in the trade this spring and summer.

Building on a large scale is none too prevalent at present, but local architects report a great deal of big work on the boards. The work on the Panama-Pacific Exposition will soon be started and many of the idle mechanics of the vicinity given employment. Much municipal work on sewers, buildings and other needed improvements is also about ready to start. The general contract for the Sharon estate building has been let, but the sub-contracts have not been announced. This building will be the headquarters of the General Contractors' Association of San Francisco.

Supply firms are being urged by the Masons' and Builders' Association of this city to boost for their own interests by encouraging in every way possible the building of brick buildings and steel frame structures where clay products are used. Already an awakened interest is manifested, and no doubt the clay products companies will see a much stimulated demand the coming season in consequence. Special meetings are being held by the Masons' and Builders' Association for the purpose of considering means for advertising and otherwise exploiting the clay products industry in this State.

The Golden Gate Brick Company has been awarded a big contract by the Standard Oil Company to supply brick for pumping stations in the San Joaquin valley. The same company is also supplying a large quantity of white enamel brick for the three-story Green building, at Modesto, Cal., and 200,000 sandstone brick for the Lemoore Grammar School, at Lemoore, Cal. This schoolhouse will cost \$40,000.

The plant of the Ione Fire Brick Company, at Ione, Cal., has been entirely rebuilt since the fire which destroyed the superstructure of the frame building, a few months ago. The new building is of brick and corrugated iron, and is fire-proof. This company had accumulated a surplus stock of brick before the fire, and was accordingly enabled to care for a normal trade during the rebuilding of the plant. Now manufacturing has been resumed and they are ready to meet the larger demands for the summer building activity.

At a meeting of the supervisors at Placerville, Cal., last month, it was voted to replace the white sandstone being used in the construction of the new El Dorado court house with terra cotta from Lincoln, Cal. The change in building material will mean an additional cost of \$10,000. Defects found in the stone necessitated the change.

Common brick has been reduced in price about 15 per cent. at Fresno, Cal., in order to stimulate building in that vicinity. No reductions in other places have been reported.

The San Diego Vitified Brick and Clay Products Company is a new company recently incorporated in this State. The company has purchased a tract of shale land between San Diego and National City, and will build thereon a factory for the manufacture of sewer pipe, brick, conduits, tile and other clay products.

Articles of incorporation of the Albany Brick and Tile Company, at Albany, Ore., were filed recently, and the capital stock of the concern is set at \$15,000. The incorporators are A. D. Johnson, L. D. Wentworth and J. T. Wentworth. This company takes over the Albany Brick Company, and they expect to begin manufacturing brick and tile by the 1st of April.

The California Brick Company, with a capital of \$40,000, has been organized at Oroville, Cal., by W. E. McKeel and M. T. Crum. The company has secured fifteen acres of land

in the Gridley Colony, and at that place the kilns will be located.

A new plant for the Spokane Clay Products Company is soon to be built at Spokane, Wash.

A clay products company recently incorporated in this State is the Standard Brick and Tile Company, at Redlands.

The Idaho Brick, Tile and Pottery Company has been incorporated at Coeur d'Alene, Ida., with a capital stock of \$100,000, by Wm. Shockley, E. D. Cook, F. A. Rupp and M. F. Storer.

J. Y. Parker, who operated the plant of the Long Beach, Cal., Brick Company under lease last year, has purchased the plant and will put in numerous improvements. He will add blue brick to the output.

San Francisco, Cal.

SUNSET.

Written for THE CLAY-WORKER.

BRICK NEWS FROM THE TWIN CITIES AND THE NORTHWEST.

THE SPRING season is gradually opening, although the severe cold winter seems to have delayed starting beyond the usual time. But a number of the larger jobs are in various stages of getting under way, ranging from starting the plans to figuring the work and letting the contracts. A number of good ones are coming up in the next few weeks, and they will all call for a fairly good quantity of brick.

The brick trade of Duluth has been indulging in the luxury of a price war for a long time. During the summer and toward fall it was worse than it has been during the winter, but prices were very low. Before the cutting started the prevailing price for common brick was about \$7.50. Much of the time since it has been \$6 or less. Recently the members of the trade concluded to stop doing business on nothing, and restored the price to \$7.50.

The stockholders of the Fairmont Drain Tile and Brick Company, of Fairmont, Minn., at the annual meeting, decided to issue bonds for \$30,000 to operate the plant. The stockholders also signed an agreement not to participate in any action such as was brought by two stockholders seeking to recover their stock subscriptions. They hope to limit the action to these two and to allow the new plant to get a fair start. Since securing a suitable bed of clay the prospects for the plant are much more promising.

A party of Canadian builders, members of the Winnipeg Builders' Exchange, visited St. Paul, February 17, en route to the Canadian National Association of Builders' meeting, in Toronto. The St. Paul Builders' Exchange entertained them with a trip around the city and a banquet.

The Builders and Traders' Exchange, of Crookston, Minn., has just been formed. E. W. Vance, of a local brick firm, is vice president of the organization.

At the annual meeting of the Winnebago Drain Tile Company, of Winnebago, Minn., arrangements were made to market more stock, and to thus provide more working capital.

Arrangements are under way to establish a large brick plant near Cannon Falls, Minn. Interests at Wanamingo, Minn., have secured options on some large tracts of clay there, and propose establishing a good plant.

O. L. Burdick proposes a brick company at Ada, Minn. Steenerson Bros., of Pelican Rapids, Minn., are ready to turn in their outfit and take stock in the new concern.

T. WIN.

ALTON BRICK COMPANY

Makers of High Quality Brick for
Roadways and Permanent Buildings.
Repressed and Dunn Wire-Cut-Lug Block.
ALTON, ILLINOIS.

BRICK MOULDS WITH A REPUTATION



You can not purchase a better mould than the one "Mentz" will sell you at a reasonable low price.

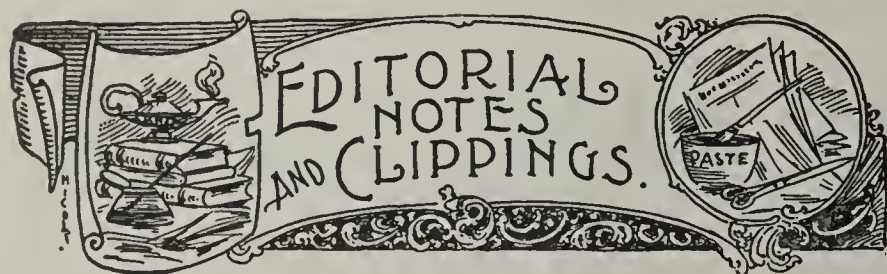
Mr. George B. Mentz has made a life time study of the manufacture and use of brick moulds on his plant near the Hudson River. His close contact with the manufacturers of soft mud brick and the brick business in the East affords him every opportunity of knowing what is required and what is absolutely right. His moulds meet every requirement, and today are far superior to any other mould made in this country.

The general use of Mentz moulds in the great Hudson River and New Jersey brickmaking districts and throughout the East shows their real value. These moulds can be found in the leading soft mud plants in the middle west and in Canada. It is a fact that can be proven that no brickmaker that has given the Mentz moulds a fair trial would be without it.

Mentz Moulds will Save You Money

Write for information.

THE G. B. MENTZ CO.
Wallkill, N. Y.



J. A. McConnell will establish a brick plant at York, Ala.

John H. Brooks, of Beaver Falls, Pa., is erecting a new brick plant at that place.

The Coleman Vitrified Brick Company is installing a large brick plant at Coleman, Texas.

Leon L. Le Clair, of Berlin, Conn., has purchased the brick plant of Jefferson Conklin, of Hartford, Conn.

The Glen Gary Brick Company, of Reading, Pa., has applied for a charter. They will be capitalized at \$20,000.

The Tygarts Valley Brick Company, Belington, W. Va., has been incorporated, with \$50,000 capital stock, to manufacture bricks.

A. J. Keynton, of the Keynton Construction Company, Pensacola, Fla., is in the market for brick machinery, and will be glad to receive prices and catalogues.

The Louisville Fire Brick Company, of Louisville, Ky., has been incorporated, with \$150,000 capital stock, certified in Indiana for \$75,000. K. B. Grahn is president.

William Cash, John Sutherland and A. D. Thompson are at the head of a movement to secure a brick plant at Bay City, Texas, where it is said there is a good opening for such a plant.

The Star Clay Products Company, of Elmendorf, Texas, has under contemplation the installation of a three-mile aerial tramway for the purpose of transporting the clay from the mine to the plant.

The Huntington Clay Products Company, with headquarters in the Robson-Prichard Building at Huntington, W. Va., has purchased a large tract of land near that city on which it will erect an up-to-date brick plant.

The plant of J. W. McMillen, of Milledgeville, Ga., will be enlarged and equipped with new machinery. In order to enable them to make the needed improvements Mr. McMillen is reorganizing his company, making it a stock concern with a capital of \$85,000.

Articles of incorporation have been filed by the Haskins Impervious Face Brick Company, of Sioux City, Iowa. The company is capitalized at \$200,000. L. J. Haskins is president and treasurer of the concern, while J. C. Lockin is vice-president, and E. M. Corbett is secretary.

The Maritime Clay Works, Pugwash, Nova Scotia, are making extensive preparations for the handling of a very much larger output of brick for the coming season. They are to install in a short time a 100-h.p. Corliss engine, with condenser, etc., built by the Robb Engineering Company, Ltd.

At the annual stockholders' meeting of the Everhard Company, held February 21, the following directors were elected to serve during the current year: M. McC. Everhard, president; J. C. Corns, vice president; H. T. Yost, treasurer; F. A. Brown, secretary; Samuel R. Weirich, Carl A. Schmettau, Fred W. Donahoe.

The plant of the Coffeyville Shale Brick Company, of Coffeyville, Kans., which has been shut down for two months, during the installation of a waste heat dryer system, is again in operation, while the new plant of the Denison Clay Company, at that place, is also about completed. At this plant the company will manufacture the Denison patent interlocking block exclusively.

The Acme Roofing Tile Company is to erect a large plant at Des Moines, Iowa, for the manufacture of roofing tile, as the name of the company implies. The men who are interested in the concern are all experts in the clayworking field. Geo. E. Winters, the president of the company, has been connected with the Mason City clayworking industry for a number of years; Fred Stewart, who for many years has been treasurer and business manager of the Shackelford Brick Company, will occupy the same position with the new concern, while Chas. Stolp, who has had forty years' experience in the roofing tile business in this country and in Holland, will be superintendent of the plant. The company is capi-

talized at \$500,000, and no expense will be spared, either in equipment of the plant or the promotion of business.

The Sligo Fire Brick Company, of Pittsburg, Pa., has been incorporated by F. B. Pope, I. C. Bily and C. W. Kulp, of Pittsburg.

The South River Sewer Pipe Company, of North Birmingham, Ala., will make a number of improvements in their plant at that place.

Ray Thompson has filed suit against the Humboldt Brick Company, of Humboldt, Kans., for \$20,000 damages, sustained while working for the company.

The Gillespie brick yard at Hackensack, N. Y., has been leased to Leonard Bros. for the coming season. Both members of the concern have had extensive experience in the manufacture of brick.

The Ridgeway (Pa.) Brick Company's plant, which has been closed down for two months, during the severe winter weather, resumed work the 1st of March, giving employment to over one hundred men.

The Bissett Brick Company, of South River, N. J., has filed articles of incorporation. It will carry on the brick manufacturing business formerly conducted by the late Jas. Bissett, of South River. The company is capitalized at \$100,000.

The plant of the Riverside Brick Company at Hattiesburg, Miss., has resumed operation after being closed down three months, during which time many improvements were made in the plant, and the company is now prepared to take better care of its orders than ever before.

The Adamantine Clay Products Company, which was organized in 1910 at Martinsburg, W. Va., has its new plant in North Mountain about ready for operation. It will manufacture paving block at the rate of 75,000 per day. The officers of the company are Chas. G. Cushwa, president; S. L. Dodd, vice-president, and A. D. Darby, secretary and treasurer.

The E. T. Lewis Co., of Nashville, Tenn., has several men at work on the big \$279,000 city sewer contract at Nashville. They are pushing the same as fast as the weather will permit. The company is busy in the brick department, too. Extensive improvements are being made in the brick plant in East Nashville. New concrete foundations and floors are being put in. New warerooms are also being built.

The Sharon Clay Products Company, of Sharon, Pa., which recently acquired the plant of the Rose Brick Company, at State Line, O., has been granted an Ohio State charter. The company is capitalized at \$30,000, and the incorporators are W. C. Taylor, Chas. A. Lytle, A. W. Krouse and Frank S. Thompson. The company expects to have its plant, which will be equipped throughout with new machinery from the office of The Bonnot Company, Canton, O., in operation by the middle of May, and to have an output of 50,000 brick per day.

At the annual meeting of the Columbus Brick and Terra Cotta Company, held at the home office, at Columbus, O., the officers of the company were elected as follows: L. G. Kilbourne, president and general manager; Felix A. Jacobs, vice president; Chas. Wardlow, secretary, and Ben S. Fisher, superintendent. The stockholders authorized an increase in the capital stock of \$30,000. The reputation of this company as makers of the finest quality of face brick extends to all parts of the country, from Portland, Me., to Portland, Ore., and from Montreal and Winnipeg in the north to Texas and Florida in the south. Some of the orders on its books at this time are for Charlotte, N. C., Chicago, Nashville, Lexington, Ky., Wilmington, Del., Cleveland, Knoxville, Boston, Montreal, Louisville, Sumter, S. C., Bluefield, W. Va., and Detroit. The company owns 231 acres of land containing the finest clay in the country for face brick, and, in addition to its ex-

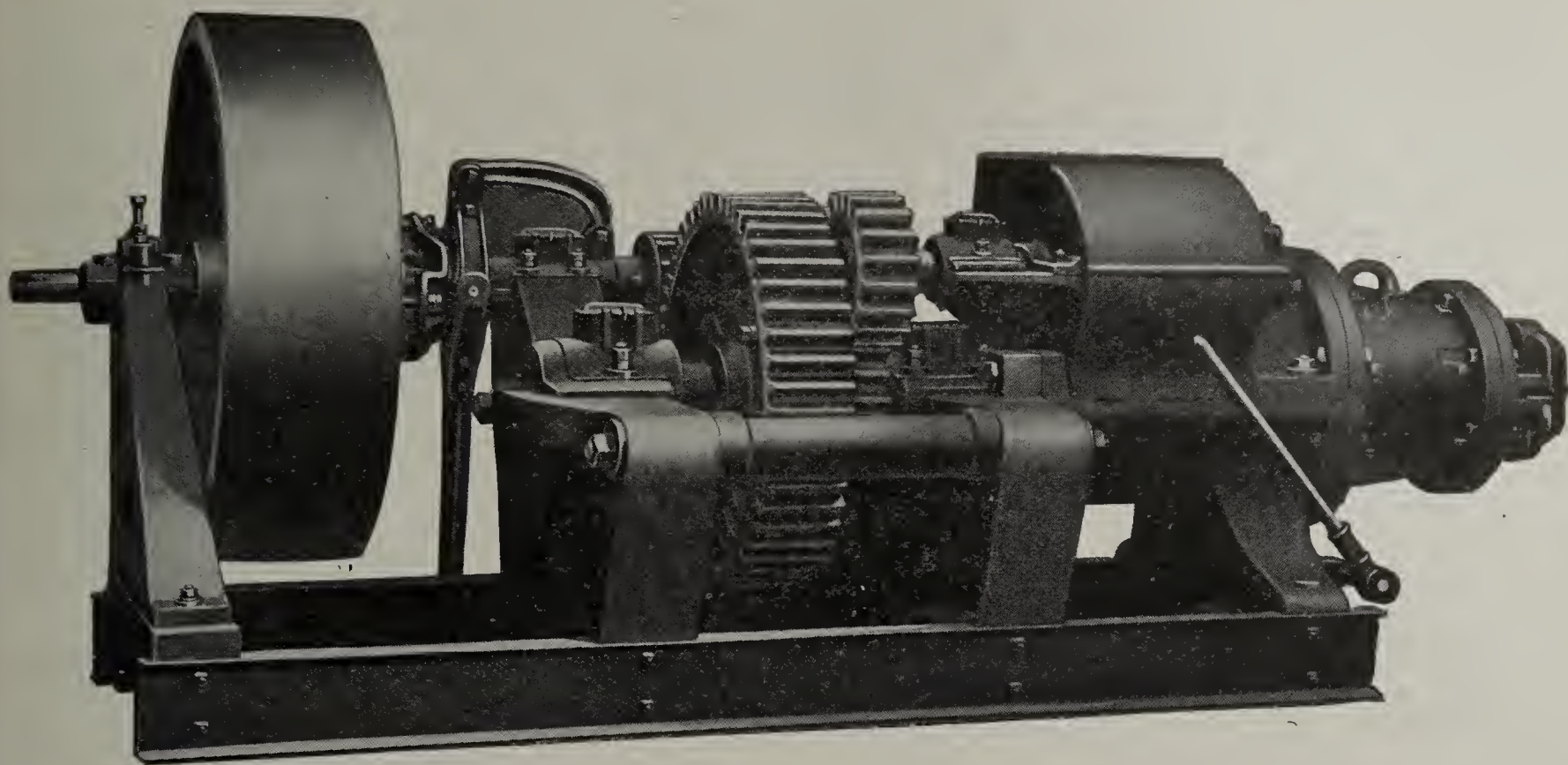
(Continued on page 520.)



PULSOMETERS

costs less to purchase, install and operate than any other type of brickyard pump. They handle gritty water and never need lubrication. Over 26,000 in use for pumping out trenches, caissons, cofferdams, clay banks, sand pits, etc. Write today for our "Pulsometer Handbook. It shows many novel installations and contains data on pumping problems.

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Model "GA" Auger Brick Machine

In general design, this machine is similar to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and avoiding the use of high speed gears. The result is less wear and tear on gearing, less noise, less power lost through gear friction and consequently less expense for maintenance. Owing to the slow speed, the operation is unusually smooth and quiet. There is very little vibration to work loose nuts and keys. It is a reasonable conclusion that an almost noiseless machine will require less care and last longer than one which is continually shaking itself to pieces.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled for the foundation bolts, thus providing a very rigid construction. The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

This type of machine is built in several sizes—further particulars on request.

E. M. FREESE & COMPANY, Galion, Ohio

EDITORIAL NOTES AND CLIPPINGS—Continued.

tensive manufacturing plant, has fifty-two good, substantial houses for its employes.

The brick plant of A. C. Benton, of Corsicana, Texas, was almost wholly destroyed by fire February 17. The plant carried \$27,250 worth of insurance.

W. H. Sunshine, of Johnstown, Pa., recently purchased the property of the W. F. Kelley Brick Company at Somerset, Pa., at sheriff sale on a bid of \$8,000.

Thomas N. Adland, of North Cape, Wis., has purchased the brick and tile plant of C. T. Wilson at Riverside, Iowa, and will at once take possession of the same.

A fire of unknown origin destroyed the oil house and sixteen barrels of oil early on the morning of March 10 at the plant of the Massillon Shale and Fire Brick Company at Massillon, Ohio. The damage is estimated at \$400,000.

Thomas R. Barringer and others, of Florence, S. C., have organized a company to be known as the Florence Brick and Tile Company. A plant will be erected at Pee-Dee, S. C., near Florence, which will have a capacity of 30,000 brick and tile per day.

The name of the Benton Harbor Brick and Tile Company, of Benton Harbor, Mich., has been changed to the Mamer Brick Company. The capital stock of the company has been increased from \$25,000 to \$40,000, and a number of improvements will be made in the plant.

Joseph L. Buckley, formerly resident manager of the Sheridan Brick Company, of Brazil, Ind., but for several years connected with the Western Brick Company, at Danville, Ill., has just completed the organization of a \$100,000 stock company for the erection of a large brick factory at Aledo, Ill. Mr. Buckley will be general manager of the new concern.

The Warren B. Ferris Brick Company, of Columbus, O., recently opened its new display rooms in the Columbus Savings and Trust Building. They made a regular gala affair of the day, including a reception in the evening, from 7 to 10:30, to which the ladies were invited. They are very proud of their display of face brick, which, they claim, is not equaled by any other in that section of the country.

The work on the new plant of the Milton Brick Company at Milton, Pa., will begin at an early date. The plant when completed will have a capacity of 70,000 brick per day, which will be increased later on as the demands for the brick justify. Thomas M. Wilson, the kiln builder of Philadelphia, Pa., will have charge of the construction of the plant, which will include the erection of a Wilson kiln and dryer.

The plant of the Hub City Brick Company at Centralia, Wash., which has been built to replace the one destroyed by fire several months ago, has been completed, and they are now turning out 20,000 brick a day. A new company has been formed and has taken over the holdings of the old concern. H. Allen Turner is president and treasurer; Dan Salzer, vice-president, and Albert Sears, secretary.

John E. Edelmaier, of Hooper, Neb., is at the head of a company that will install a large brick plant near Colorado Springs, Col., in the near future, to be operated under the name of the National Clay Products Company. The plant will have a capacity of 100,000 brick per day, and will be equipped throughout with modern machinery. A contract for a part of the machinery has already been let to the Frost Manufacturing Company, of Galesburg, Ill.

Fire completely destroyed the plant of the Columbus Contractors' Supply Company at Taylor Station, nine miles east of Columbus, Ohio, early on the morning of March 11, causing a loss of between \$50,000 and \$60,000. The fire is thought to have originated from a hot box on an engine in the main building of the plant. The company's fire department had the fire about extinguished when its one line of hose broke, and the fire broke out anew and burned so furiously that nothing was left standing but the brick kilns. In all probability the plant will be rebuilt at once.

The Ed H. Callaway Engineering Company, of 50 Church street, New York City, has been retained as consulting engineers by the Northern Manufacturing Company, of Bangor, Me., for the purpose of investigating, testing and developing a large clay and peat deposit lying north of Bangor, owned by the Northern Manufacturing Company. The clay appears to be exceptionally fine and well adapted to the manufacture of a variety of clay products, and if the investigation and tests confirm this it is proposed to establish one of the

largest clayworking plants in the United States on the property.

The capacity of the Freeport Clay Products and Mineral Company's plant, of Freeport, Ill., is to be greatly increased by the erection of six additional kilns.

The Glidden Brick Company, of Boston, Mass., has been incorporated, with \$50,000 capital, by Ed C. Glidden, Herbert A. G. Lock and Willamena A. Sutherland.

The big storage plant of the Rose Brick Company, at Roseton, N. Y., was destroyed by fire March 13. The origin of the flames is a mystery, but fortunately the building and contents were fully covered by insurance.

W. B. Elliott, of Delmar, Del., has sold his brick plant and twenty-two acres of clay land to the Salisbury Brick Company. The latter concern will build new kilns and place everything in operation early in the spring.

The new plant of the Seco Pressed Brick Company at D'Hanas, Texas, was put in operation the latter part of February. Most of the machinery and equipment for the same were furnished by the Chicago Brick Machinery Company, of Chicago, Ill.

Frank L. Tettemer, manager of the Denver (Col.) Shale Brick Company, died at his home in Denver February 26. He had only been seriously ill for about a week, although he had been confined to his home for three months or more. A wife and one son survive.

Field Bros., of Eugene, Ore., will build a large brick plant between Eugene and Corvallis, and expect to have the same ready for operation within the next ninety days. They will manufacture drain tile and hollow brick, as well as ordinary building brick. Field Bros. will operate this plant in connection with their present plant at Eugene, where they are installing electric power for the operation of their machinery.

The plant of the Sandy Ridge Fire Brick Company at Sandy Ridge, Pa., which was destroyed by fire February 10, will be rebuilt at once, and a larger and better plant in every way will take the place of the old factory. The General Refractories Company is the owner of the property, and J. A. France, of Phillipburg, Pa., will have charge of the building of the plant, which will be fireproof throughout and equipped with modern machinery in every particular.

F. J. Lohmann, of the Parker-Lohmann Brick and Tile Company, of Saginaw, Mich., writes that they are taking up the jobbing of face brick in connection with the sale of their common brick, and would like to get in communication with firms manufacturing face and ornamental brick that can be put into that market without excessive freight rates. Their market includes three of the largest cities in Michigan, as well as numerous smaller towns.

The contract for the erection of the plant of the National Sewer Pipe Company, of Webster City, Ia., has been let to W. J. Zitterell at \$115,000. This includes the construction of the main factory building, the clay sheds, engine rooms, dry rooms, boiler rooms, office building, kilns and smokestacks. There are to be twelve kilns, making the plant one of the largest in the State. The work of construction is to be begun April 1, and will be completed in eight months, or by December 1. Fifty thousand dollars' worth of machinery will be installed. The company is capitalized at \$250,000.

Mr. H. R. Callaway has become associated with his father in the Ed H. Callaway Engineering Company, 50 Church street, New York City, as vice president and assistant chief engineer. Mr. Callaway is a mechanical and electrical engineer, a graduate of the Massachusetts Institute of Technology, and has had several years' practical experience with the New York Edison Company, Walter B. Snow, publicity engineer, Boston, and Gunn, Richards & Co., efficiency engineers and scientific management, New York City, and he is well qualified to assume the first lieutenancy of the Callaway Engineering Company.

F. JULIUS FOHS MINING GEOLOGIST AND ENGINEER

Special Attention Given to Examinations of Clay Properties,
Mines located, Plants designed, and Efficiencies increased.

LEXINGTON, KY.



Barrett's PAVING PITCH



Another Old Pitch Filled Street

The above photograph shows a street in Saginaw, Mich., that was laid in 1893, the joints being filled with Barrett's Paving Pitch. Recent work in relaying the street car tracks shows the 19-year-old pitch still in position and giving entirely satisfactory protection to the foundation.

Such instances as this demonstrate the fallacy of the statement sometimes urged that pitch is unstable and likely to flow away to the gutters in hot weather.

Pitch is, of course, more plastic than asphalt, but this is an advantage, not a defect. Pitch provides ideal opportunity for expansion and contraction. "Every joint is an expansion joint" and the pitch-filled pavement never bulges up from expansion or cracks from contraction.

Unlike cement filler, pitch does not make a monolith of the pavement, and cracks and explosions are accordingly impossible.

Unlike sand filler, pitch gives perfect protection to the foundation against water.

Unlike asphalt, pitch stays watertight year after year, having strong adhesive power.

The brick is readily removed for excavations and can be restored cheaply and quickly, none of the brick being destroyed in the operation.

The pitch-filled pavement is ready for use as soon as it is laid.

No special skill is needed in handling the pitch—the job is always successful.

Booklet on request.

BARRETT MANUFACTURING COMPANY

New York	Chicago	Philadelphia	Boston	St. Louis	Cincinnati	Cleveland
Pittsburgh	Minneapolis	Kansas City	New Orleans	Seattle	London, England	

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ORIGINAL
Boss
SYSTEM

DRYING

The BOSS TEN HOUR DRYER

is completed and has proven to be what every brick-maker is striving for:

A DRYER THAT WILL DRY BRICK
IN TEN HOURS.

Your brick are dried exclusively with the exhaust from the engine that makes the brick. No extra fuel and no extra power required.

A dryer that does not have to be operated at night time.

Requires no expensive dry kiln, and no iron cars.

Cost of drying reduced to less than 4 cents per thousand.

TRIAL TESTS CAN BE MADE ON APPLICATION.

ORIGINAL
Boss
SYSTEM

JOHN C. BOSS COMPANY
Write for catalog.

ELKHART, IND.

ORIGINAL
Boss
SYSTEM

BURNING

Do you want to burn hard coal, culm, lignite, slack or screenings? There is just one way to do it, and that is by using air under pressure, which is

The BOSS System of
Burning Brick

Burns all kinds of Brick and Clay Wares.

Applies to both Up-draft and Down-draft Kilns and

Will reduce your fuel cost fully 40% over the old way of burning.

Kilns last longer and give better service when equipped with the BOSS SYSTEM.
Try it.

ORIGINAL
Boss
SYSTEM

Mention THE CLAY-WORKER.

Classified Advertisements

FOR SALE, WANTED, ETC.

Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

FOR SALE

FOR SALE—Raymond brick machine, twenty to thirty thousand capacity. Duplicate set of gears. Cheap.

RIDGWAY BRICK CO.,
3 1 dm Ridgway, Pa.

FOR SALE, LEASE OR TRADE.

A well equipped tile factory and coal yard. An excellent opportunity and bargain for some live man. Write for particulars. P. J. SPEICHER,

3 1 cm Gaston, Ind.

BRICK MACHINERY FOR SALE.

One stiff mud brick machine, 20 to 30 thousand capacity. One cutting table (automatic). Disintegrator and pug mill. All Steele's make. Address,

COLUMBIA BRICK CO.,
2 4 cm Box 208, Lake City, Fla.

FOR SALE.

One 60 h. p. slide valve engine.
One American Clay Machinery Company's pug mill and brick machine.
One Brewer automatic cutting table.
Write for full information.

PORTSMOUTH PAVING BRICK CO.,
3 3 cm Portsmouth, Ohio.

FOR SALE.

Steam brick yard, capacity 60,000 per day. Inexhaustible supply of clay. Plant includes 90 acres fruit and farm land. Only yard working in this section. Would sell yard and land separate. Orders for brick now coming in.

KEYSTONE BRICK CO.,
3 2 dm Traverse City, Mich.

FOR SALE.

Ideal sand mold brick machine, capacity 20,000 to 30,000, made by Horton Mfg. Co. Cost \$600 at factory. Used but one season. Mold sander, one dozen brick molds, shafting, pulleys and belting. All just as good as new. F. O. B. Farmington, Mo., \$225. Twenty thousand yellow pine pallets 10 by 34, 2 strips across each pallet to prevent warping; \$2.50 per hundred.

TIMOTHY McCARTHY,
3 1 2 pm Farmington, Mo.

FOR SALE—CHEAP.

Two new, up-to-date Patterson throwing wheels. For full information, address,
39 N. Bennet Street,
2 6 cm Boston, Mass.

FOR SALE—One New Departure tile mill, R. H. Used only one season. One steam power Quaker brick machine. For particulars write

E. F. MOCHER,
2 3 cm R. R. No. 6, South Bend, Ind.

FOR SALE OR RENT—Our brick manufacturing plant. Complete and ready for operation. Large drying shed and 5,000 pallets. A bargain for some one, and you had better write.

R. M. JAQUA, Secretary,
2 3 cm St. Francis, Kansas.

FOR SALE—One four-mold Berg dry press, one three-mold Boyd dry press, 80 horsepower horizontal tubular boiler, Atlas heavy duty throttling slide valve engine, cylinder 12 x 22. All necessary pipe and fittings; also pump and heater.

FLANAGAN BROS. M'FG. CO.,
2 2 cm Kansas City, Mo.

FOR SALE—Brick yard. A modern, up-to-date brick yard in live town of 40,000; good market. Capacity, 35,000 brick daily. Plant established five years. Will sell reasonable or lease to good party, as owner is going west. For full particulars address

E. S. KINKEAD, JR.,
427 Second St.,
3 2 cm Lexington, Ky.

FOR SALE AT A BARGAIN.

A modern, up-to-date Dry Press Brick Plant in a thriving town of 8,000 population and within 19 miles of another town of 80,000 population, consisting of one Andrus press, capacity 25,000 per day; 50 horsepower engine, 75 horsepower new boiler, new brick buildings for machinery and good clay sheds, and all other machinery necessary. Is in first-class condition, including three down-draft kilns, each 320,000 capacity; 21 acres of good clay land. Plant located in Ohio river town in Indiana at crossing of C. & E. I. and L. & N. railroads, just outside of city limits. Tracks to kilns from both roads. Good reasons for wanting to sell. Price and terms reasonable. Address

I. B. C.,
2 3 c Care Clay-Worker.

FOR SALE.

A two-kiln brick and tile plant in eastern Iowa.

DE WITT BRICK & TILE CO.,
11 8 c DeWitt, Ia.

FOR SALE.

Twenty thousand second-hand pine pallets, in good condition. Write for prices to

PORATH BROS.,
3 1 d Detroit, Mich.

FOR SALE.

Hercules (senior) soft mud brick machine in splendid condition. Also Wellington sander, turntable and 10,000 pallets. Have changed system.

A. C. OCHS BRICK & TILE CO.,
3 3 cm Springfield, Minn.

FOR SALE.

REBUILT ENGINES AND BOILERS.

Engines—Corliss.

18x42 Lane, & Bodley, 18x36 Ohio Heavy Duty, 16x42 Allis, 14x36 Sioux City, 12x30 Lane & Bodley, 12x30 Hamilton.

Engines—Automatic.

14½x24 Buckeye, 11x16x12 Buffalo compound, 13½x15 Taylor, 13x16 Atlas, 13x12 Harrisburg-Ideal, 13x12 Phoenix, 12x14 Green, 12x12 Armington & Sims, 11x16 Atlas, 8x14 Noyes.

Engines—Throttling.

18x24 Atlas, 14x18 Sinker-Davis, 14x14 Lewis vertical, 12x16 Reed, 12x14 Brownell, 10x16 Bass, 10x12 Atlas, 9x14 Lane & Bodley, 8x10 Erie, 6x8 Industrial.

Boilers—Stationary.

72x18, 66x16 high pressure, 72x18 standard, 72x16, 66x18, 60x16, 60x14, 54x14, 48x14, 44x14, 44x12, 42x12, 36x16, etc.

Boilers—Fire Box.

100, 80, 60, 50, 40, 35, 25, 20, 16, 12, 10 and 8 horsepower, etc.

Boilers—Vertical.

50, 40, 35, 30, 25, 20, 16, 12, 10, 8, 5 and 3 horsepower, etc.

Heaters.

All sizes, open and closed.

Pumps.

All sizes, single and duplex.

Electrical.

30 k. w. generator, direct connected to 8x10 Skinner engine; 20 k. w. generator, direct connected to 8x10 Economic engine; 18 k. w. belted generator.

Miscellaneous.

Saw mills, lath mills, edgers, cut-off saws, resaws, blowers, exhaust fans, tanks, etc. Write for list. Also a full assortment of new machinery. Sole manufacturers of the celebrated "Leader" injectors and jet pumps. Send for circular.

THE RANDLE MACHINERY CO.,
1733 Powers St. Cincinnati, Ohio.

(Continued on next page.)

Classified Advertisements.

FOR SALE

FOR SALE.

20,000 pine pallets, size 34" x 10".
Good condition, used but little. Ad-
dress BOX 2—F. A.,
2 1 d Care Clay-Worker.

FOR SALE—Three thousand pine
pallets, 10 in. by 33 in.; 7 brick bar-
rows, 3 pallet trucks. Price, \$75. Ad-
dress or wire JOS. HICKSON,
3 1 cm Mt. Gilead, Ohio.

FOR SALE—One center crack 30 h.
p. steam engine. Also tile dies for No.
3 Adrain tile machine from 3½ to 12
inches. In good repair. Will sell
cheap. Address BOX 3—J. J. K.,
3 1 dm Care Clay-Worker.

FOR SALE—IMMEDIATE DELIV-
ERY—150,000 brick pallet boards,
5/8 x 10 x 34 inches; also, the brick racks
for air drying for use with same. Low
price and quick shipment.

FERNWOOD LUMBER CO.,
2 2 dm Fernwood, Pike Co., Miss.

FOR SALE OR LEASE—Drain tile
and hollow ware factory in Iowa drain-
age district; 10,000 5-inch tile capacity
daily; 5 down-draft 24-inch kilns. Per-
manent buildings. Modern dryer and
equipment throughout.

BOX 2—BROWN,
2 tf d Care Clay-Worker.

FOR SALE—One No. 48 American
ring pulverizer, \$900. One 9-foot Ray-
mond dry pan, standard, \$450. Both in
good working condition. Three 2-yard
all steel bottom dump cars, 3-foot
gauge, suitable for clayworkers or min-
ing. Two of the cars never used, one
used only a short time. Price for
three cars, \$250. Address,

BOX 2—BURKE,
2 2 d Care Clay-Worker.

FOR SALE.

Will sell part or controlling inter-
est in modern 40,000 stiff mud brick
plant, located in city of 10,000 in the
central west. Up-to-date oil burning
system, new Raymond dryer and
American machinery, with Eagle re-
press. Plant on main line of railroad
running north, south, east and west.
Ten acres of No. 1 shale. Within 30
miles of city of 75,000. No trouble to
sell brick. Will bear investigation.
Can show a good profit. Address

K. C. A.,
3 2 cm Care Clay-Worker.

FOR SALE.

Eight or ten thousand wooden pallets
and doors and grates for two kilns. Will
sell cheap. H. A. GRAVER,
3 1 cm Box 114, Lehigh, Pa.

FOR SALE—CHEAP.

Forty thousand pine pallets, 10 in. by
½ in. by 33 in. In good condition.
BURNHAM BROS. BRICK CO.,
3 3 c Milwaukee, Wis.

FOR SALE.

Lot of pallets in good condition and
brick machinery in fair condition.
Price very attractive.

H. C. MASON,
2 tf dm Henderson, Ky.

FOR SALE.

Soft mud iron Quaker brick machine,
traction engine, mold sander and turn
table; 20,000 pallets, 9 x 32; 3 trucks,
4 wheelbarrows, 3 dump cars. Will
be sold cheap. FRED FREESE,
2 2 cm Monroe, Wis.

FOR SALE.

Tile machinery, 60 horsepower boiler,
30 horsepower engine, E. M. Freese
brick and tile machine with dies from
three to fifteen inches, brick dies and
hollow block dies, automatic table, cars,
wheelbarrows, kiln bands and grates.
Will sell for less than one-third actual
worth. Address,

W. D. MILLER,
2 2 cm Auburn, Ind.

FOR SALE—Brick plant, 25 acres of
clay and shale. Equipped with Cham-
bers machine, dry pan and Virgin
screen. Local market for 2,500,000
brick per year. Canal runs through
entire length of property. Pennsylvania
railroad and P. & R. railroad within
easy access. For further information
call or address

W. M. HAGGINBOTHAM,
2 3 c Mont Clare, Pa.

FOR SALE.

A mining property and brick plant
located at Ralston, Lycoming county,
Pa., on the Northern Central railway.
The brick plant is complete and has a
capacity of 20,000 per day. The coal
property consists of about 3,000 acres
of land, of which about 500 acres are
underlaid with a vein of bituminous
coal and shale of excellent quality for
making brick. The mines are devel-
oped and in working order with a com-
plete electric equipment; capacity 350
tons per day. Besides the power-house
and other necessary buildings, there
are on the property a church, school-
house and over 70 dwellings. The two
plants can be worked together econom-
ically. For particulars inquire of IR-
VING ELTING, president, Poughkeep-
sie, N. Y., or JOHN B. ALLISON, sec-
retary, and general manager, Roaring
Branch, Pa.

2 3 cm

FOR SALE—Good red pressed brick
plant, built in 1905. Paid up capital,
\$100,000. In active operation. Majority
of stock will be sold at bargain. Reason
for selling given on application.

SPHAR PRESSED BRICK WORKS,
3 3 dm Maysville, Ky.

FOR SALE—Soft mud machine, pug
mill and disintegrator, made by Ameri-
can Clay Machinery Company, used one
year, fine condition; 30,000 chestnut pal-
lets. Gone out of business.

RED STAR BRICK CO.,
2 1 cm Warren, Pa.

FOR SALE—One No. 48 American
ring pulverizer, \$900; one 9-foot Ray-
mond dry pan, standard, \$450; both in
good working condition. Three 2-yard
all steel bottom dump cars, 3-foot gauge,
suitable for clayworkers or mining. Two
of the cars never used, one used only
a short time. Price for three cars, \$250.
Address BOX 2—BURKE,
2 2 d Care Clay-Worker.

\$200,000 BRICK PLANT AND CLAY
LANDS TO BE DISPOSED OF AT
ONE-SIXTH THEIR VALUE.

This plant is located in New York
state and is the only plant of its kind
within a radius of 100 miles. Consists
of ten down-draft kilns with 1,200,000
capacity, two dry presses, complete
stiff mud outfit consisting of Freese
(Mammoth) machine and cutter, dry
cars, etc.; 100 acres clay land owned
outright; power plant in good condi-
tion; water supply on the premises.
Excellent reasons for selling and at-
tractive terms to the right party.

C. E. BENNETT,
1 tf dm Wellsboro, Pa.

FOR SALE.

Books for brickmakers. Inexper-
ienced workmen will find them a source
of valuable information. "Brickmak-
ers' Manual," \$3.00; a practical treat-
ise on the every-day details of brick-
making. "Clay Glazes and Enamels,"
\$5.00; tells how to glaze and enamel
brick and gives valuable recipes. "An-
alyses of Clays," \$2.00; a valuable ref-
erence book, giving analyses of well-
known clays of this and foreign coun-
tries. "The Clayworkers' Handbook,"
\$2.00; a manual for all engaged in the
manufacture of articles from clay.
"Clays," \$5.00; their occurrences, prop-
erties and uses, with special reference
to those of the United States. Any or
all of these books mailed postage pre-
paid on receipt of price. Write for
list of other valuable books for clay-
workers. Address,

T. A. RANDALL & CO.,
Indianapolis, Ind.

Classified Advertisements—Continued.

WANTED—POSITION

WANTED.

An experienced kiln man. Must come well recommended. No booze fighter wanted. J. A. JIMERSON, Ruston, La.

2 2 d

WANTED.

Competent brick yard engineer, familiar with Andrus press.

CENTRAL SHALE BRICK CO., Fullerton Bldg., St. Louis, Mo.

3 1 d

WANTED—A competent and practical man to take charge of small fire brick plant. Address

BOX 3—W. B. R..

Care Clay-Worker.

3 1 d

WANTED—Face brick burner who has had experience with producer-gas-fired continuous kiln. State experience, monthly salary and references.

OHIO MINING & M'F'G. CO., Shawnee, Ohio.

3 1 d

WANTED—Position as superintendent. Understand burning and making of dry press and wire-cut brick, installation of brick machinery and construction of kilns for coal or oil. Best of references. Address

BOX 3—A. J. K.,

Care Clay-Worker.

3 1 dm

WANTED—Man to operate auger brick machine and automatic cutting table and take charge of the making of brick, producing maximum quantity of high grade face brick. State experience, monthly wage and reference.

OHIO MINING & M'F'G. CO., Shawnee, Ohio.

3 1 d

WANTED—Position as superintendent or plant manager of stiff mud brick works. Have had 16 years of experience in manufacture of paving brick and plant construction. Can furnish satisfactory reference for honesty and ability and do recommend myself. Address

BOX 2—F. P. N.,

Care Clay-Worker.

2 3 cm

WANTED—Position and possibly a conservative investment by chemical and mechanical engineer who has had ten years' experience as superintendent of a fireclay factory and as department manager in large machinery and supply house. Best reference as to character and ability.

BOX 3—H. O.,

Care Clay-Worker.

3 1 cm

WANTED—Position as superintendent or head burner. Know any kind of kiln and have No. 1 references. Address BOX 3—MANITOBA, Care Clay-Worker.

3 1 c

WANTED.

Position as superintendent or burner on building brick plant. Thorough in all branches.

M. C. WILLIAMS,

701 N. Gibson,

Princeton, Ind.

1 2 cm

WANTED—Situation as superintendent. Strictly sober, 20 years experience. Dry press, stiff or soft mud brick or drain tile. Specially qualified to remedy kiln troubles and get uniform burns. Results or no pay. Address,

BOX 2—A

Care Clay-Worker.

2 1 cm

WANTED—Head burner for vitrified shale and fire clay face brick and paving brick plant. Preference given to man combining practical experience with technical education. In reply give complete qualifications, salary wanted, past positions filled and employer's name. Address BOX 3—COAST, Care Clay-Worker.

3 2 cm

WANTED—Position as superintendent by a practical man who thoroughly understands the manufacture of clay goods in general. Can make good. Will prove ability on reasonable terms. Situation desired with firm making brick and tile or a general line. Address

BOX 3—J. T. R.,

Care Clay-Worker.

3 1 cm

WANTED—Position as superintendent; at present in charge of large paving and face brick company. Would like to connect up with a large progressive concern where services of high grade men are needed. Would invest small amount as guarantee of good faith. Gilt edge references. Address

BOX 3—J. O. W.,

Care Clay-Worker.

3 1 d

WANTED—Superintendent wishes re-engagement. Efficient in every branch of the trade. Have been superintending plants for 15 years; know all makes of machinery, up and down-draft and continuous kilns. Guarantee to handle plant at least possible cost in fuel and labor. Would take charge either on salary or contract by the thousand. Address BOX 2—EXPERIENCE, Care Clay-Worker.

2 2 c

WANTED.

Situation by man who understands the trade in all its branches. enamel brick, building brick, all colors, paving brick, pottery wares. Can mix my own glazes. Am also familiar with sanitary wares. Thorough knowledge of all kinds of kilns and machinery. Can handle men. Can build plant at small cost if necessary. Address

BOX 3—H. W. H.,

Care Clay-Worker.

3 tf d

WANTED—TO BUY OR SELL

WANTED TO BUY—Second-hand nine-foot dry pan, eight-foot wet pan and Johnson brick machine. Good order. BOX 3—FIRE BRICK, Care Clay-Worker.

3 1 c

WANTED—To sell all or part interest in new, well equipped soft mud brick plant. Manager needed. Number of large buildings to be erected soon. Thriving town in central Ohio, and 18 miles to nearest competitor.

MARYSVILLE CLAY M'F'G. CO., Marysville, Ohio.

3 1 cm

WANTED.

One hundred and fifty second-hand double-deck brick dryer cars. Must be in good condition. State lowest cash price.

CALHOUN CLAY M'F'G. CO.,

Fullerton Building,

St. Louis, Mo.

2 2 c

MISCELLANEOUS

GOOD OPENING

For pottery, farm drain, sewer or roof tile; have the clay for each. Gas, oil or wood for fuel. Some local capital could be interested. Write

J. I. HEY, Secretary,

Marshall, Texas.

2 2 c

CASH FOR YOUR PLANT OR BUSINESS.

No matter where located. If you want to buy, sell or exchange any kind of real estate or business anywhere, at any price, address

FRANK P. CLEVELAND,

965 Adams Express Bldg.,

Chicago, Ill.

10 tf d

WANTED.

Agents in the following cities: Boston, New York, Chicago, Kansas City, Seattle, Pittsburg, Cincinnati, Atlanta, Mexico City and Hamilton, Ont. to sell one of the best lines of dry and wet pans, pug mills and distintegrators on the market. Line is well known, having been manufactured for 30 years. Literature and terms to proper parties.

BOX 3—P.,

Care Clay-Worker.

3 3 dm

Classified Advertisements—Continued.

MISCELLANEOUS

WANTED

To correspond with parties interested in a large deposit of fine pottery clay, already successfully tested.

WILLIAM FLEMING,
3 1 cm Athens, Ga.

FOR SALE—One combined smooth roll crusher and disintegrator, used only a month. Also 25 horsepower gasoline engine.

FIRST NATIONAL BANK,
2 1 cm Elbow Lake, Minn.

AN OPPORTUNITY.

A well equipped front brick plant in a good southern city desires to increase its business. A satisfactory party with \$10,000 to invest will receive a good position. Particulars furnished on application. Address

BOX 12—LON,
12 3 d Care Clay-Worker.

TO LEASE.

A dry press brick plant located on the C. & O. R. R. and Kanawha river. Natural gas and plenty of clay which will make fancy brick, coke oven tile, shingle tile, etc. Clay brought to crusher by aerial twin rope tramway, operated by gravity. Address,

BOX 1—W. A. B.,
1 3 cm Care Clay-Worker.

TO LEASE.

Stiff mud brick plant fully equipped, good location, plenty of water, red clay, sand and fire clay. Can make all kinds of front brick. Freight rate in Illinois, Iowa and Missouri. Must be a practical front brick maker. Will lease for royalty or per cent of profit. Give references, age, nationality and experience. Address,

BOX 1—PRODUCTS,
1 3 c Care Clay-Worker.

FACE BRICK AND TILE MANUFACTURERS.

Selling agency desires to communicate with factories wanting representation in Jersey City, Newark and vicinity. Address BOX 2—N. J., 2 1 cm Care Clay-Worker.

See additional ads under Table of Contents.

A Burning Question!

HAVE YOU TROUBLE
With Hot and Cold Spots When
Burning Up Draft Kilns?

I have a very simple and inexpensive method of securing a uniform burn throughout the entire kiln. Equally good as a fuel saver.

It will pay you well to write for information.

ROBERT TWELLS,
WALNUT HILLS, ILL.



Newton Portable Brick Handling System

This system gives you the advantage of three men taking the place of nine, as here shown. Above is a photograph of elevator and staging in operation, saving you six men over old way of passing and tossing brick; same advantage taking brick out of kiln. Send for circular and special information.

A. C. NEWTON,
Pat. Aug. 9, 1909. CRESCENT, N. Y.



SWITCHES FOR SALE.

Right and left-hand one, two and three-way switches of various gauges, radius and weight rails at special prices. THE ATLAS CAR & MFG. CO., Cleveland, Ohio.

See additional ads under Table of Contents

Clayworkers' Supplies

Geijsbeek Engineering Co.

Blake McFall Bldg.

PORTLAND, OREGON

Write for prices and circulars.

Cutting wires, cutting tables, wheelbarrows, trucks, dryer cars, pyrometric cones, pyrometers, recorders, watchman clocks, cost system cards, clay diggers and any other supplies used on clayworking plants.

PATENTS

secured in the United States and foreign countries. TRADE MARKS registered. Investigations, opinions and advice in regard to patentability and infringement.

WATSON & BOYDEN

Patent Attorneys

918 F St., Washington, D. C.

THE BEST LOCATION FOR CLAYWORKERS

The raw materials of kaolin, ball clay, stoneware clay, slip clay, saggar clay, feldspar and silica are all found in various parts of the Southeastern States, in ample quantities to supply the largest possible demands.

Fuel is Ample and Cheaply Supplied in the Southeast.

In 1908 the U. S. Geological Survey estimated that the four states of Georgia, Alabama, Tennessee and Kentucky contained an available supply of coal, totaling over 69½ billion tons, and the average price at the mine in 1909 for the four states was \$1.15 per ton, the fuel and coking values of this coal being unsurpassed. Natural gas is also available in some sections at extremely reasonable rates.

Close investigation will satisfy interested parties that the Southeast is the best location for such industries. Write

M. V. Richards, L. & I. Agent

Southern Ry., Room 1369,
Washington, D. C.

Chas. S. Chase, Western Agent

Room 700 Chemical Bldg.,
St. Louis, Mo.

YOU CAN'T FADE THEM

RICKETSON'S MINERAL PAINT WORKS,
MILWAUKEE, WIS.

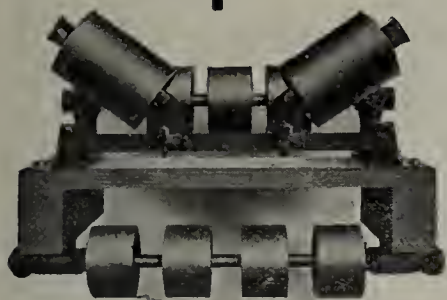
RICKETSON'S PURE MINERAL COLORS

The "Red Brick" brand. Brilliant in tint; easy to mix, go farther than any other and none like them

Cement, etc. Red, Brown, Purple and Black.

for Brick, Mortar, Mortar Colors

Improved Belt Conveyors



For carrying all kinds of material, gritty and otherwise. Gradual, uniform curve of belt secured without complicated parts.

Bearings thoroughly lubricated and *dust-proof*. Economy and satisfaction—nothing to get out of order.

We manufacture Complete Handling Equipments.

H. W. Caldwell & Son Co.

Western Ave., 17th-18th Sts., CHICAGO.
Fulton Bldg., Hudson Terminal, No. 50 Church St., New York.

The Department of Clayworking and Ceramics

Established by the Legislature
in 1902 at the

New Jersey State College,

RUTGERS COLLEGE.

NEW BRUNSWICK, N. J.

Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

C. W. PARMELEE, B. Sc., Director.
W. H. S. DEMAREST, D.D.

Chicago Retort & Fire Brick Co.

"AJAX"
**Fire Brick for
Building Kilns**

GENERAL OFFICE:

837-839 Commercial National Bank Bldg.,
CHICAGO, ILL.

'Phone
Randolph 3601.

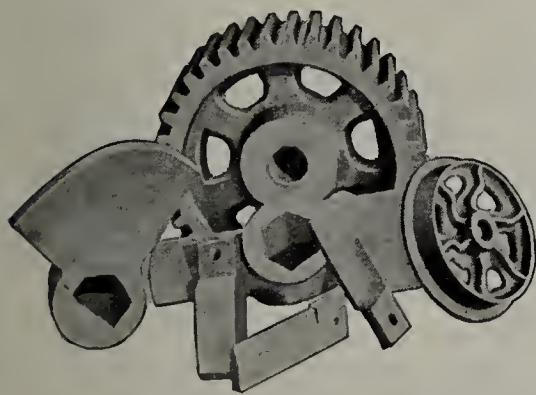
KILN FLOOR TILE

THE RECOGNIZED STANDARD OVER 50 YEARS.

ANY **FIRE BRICK** ANY
SIZE SHAPE

Write Us
Now

Evens & Howard Fire Brick Co.
St. Louis, Mo.



Chilled Brick Machine Castings

All wearing surfaces hardened.
Save time, prevent frequent
shut downs.

Let us refer you to other users.

The Wallace Machine and Foundry Co.
LAFAYETTE, IND.

Kilns Driers Processes

JULIUS J. KOCH

Consulting Engineer

for

Clayworking Industries

3325 Caroline St. St. Louis, Mo.

If...

**You Want
to Sell
or Buy...**

Second-hand Clayworking Machinery, Tile Mills, or anything pertaining thereto.

**If...
You Want
a Man**

for any position or a position in any connection with the Clayworking Trades use the

**For Sale
and Want
Columns
of...**

**The...
Clay-Worker.**

RATES

For all transient advertisements, such as "For Sale," "Wanted," etc., the rate is 25 cents a line per insertion. Average of seven words to line. Head line counts as two lines.

The Best, Quickest, Cheapest
Method of Securing Results.

\$2.00 THE CLAY-WORKER, \$2.00
ONE YEAR, (IN ADVANCE)

Anchor Brand Colors

For Mortar Cement and Brick.

BROWN, BLACK, RED AND BUFF.

Strongest and Most Durable.

Manufactured by

C. K. WILLIAMS & CO.

EASTON, PA., U. S. A.

Correspondence solicited.

Chattanooga Paint Co.,

Chattanooga, Tenn.

Manufacturers of

Red Oxides for Brick-makers' Use.

**Eclipse
Mortar Colors,**

Red, Brown, Buff, Black.

Clinton Hematite Red

The highest grade of
Red Oxide of Iron for

BRICK COLORING

Also all shades of
MORTAR COLORS

Get the genuine, with the
"Little Yellow Side-Label"

Clinton Metallic Paint Co.,

CLINTON, N. Y.

GABRIEL & SCHALL

P. O. Box 1712. 205 Pearl Street.
NEW YORK.

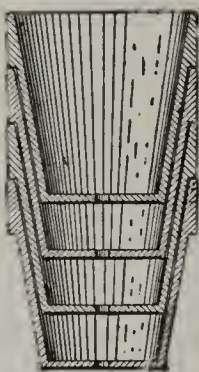
Sole Importers in the United States of the

Precipitated **G & S** Carbonate
of Barytes

The only preventative for scum and discoloration on Facing Brick and Terra Cotta, neutralizing the Sulphate of Lime in the Clay and Water.

Circulars and Particulars on Application.

Mention The Clay-Worker
When Writing to Advertisers.



Make Money

WITH THE ONLY SUCCESSFUL

Flower Pot Machine

(PATENTED.)

No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "

Write for Circular and prices.



The Rockwood Mfg. Co.,

1801 English Ave.

INDIANAPOLIS, IND.

Something New in Brick Kilns and Brick Dryers

Patented April 14, 1903, and September 8, 1903.

ANY KILN OF THE MORRISON OR WINGARD TYPE CAN EASILY BE
CHANGED INTO THE DENNIS DOUBLE DOWN DRAFT KILN.

County and State Rights For Sale.

The kiln walls are battered, furnaces are built "within the walls," avoiding expense of outside furnaces and the loss of heat by radiation, while the battered side walls and double arches form a perfect brace, each holding the other in position. In proportion to capacity, these kilns can be built for less money, burned with less fuel, and water-smoked and burned in less time than any other kiln upon the market, except continuous kilns, the heat throughout burning, is under perfect control, and these kilns will burn with perfectly satisfactory results, soft mud, stiff mud, dry pressed, or paving brick, burning practically all hard. I have kilns built under this patent of capacities ranging from 100,000 to 500,000 brick, and should be pleased to furnish names of users to prospective buyers.

Plans for round and square down-draft kilns. Also plans for drying off round kilns by taking the heat from a burning kiln to a green one without the use of a fan. Wood burning kilns changed into coal burners and to down-draft kilns or up-draft kilns arched over like down-draft kilns.

Write for printed booklet and testimonials.



Double Up and Down Draft Kiln.

ADDRESS

F. W. Dennis

188 Bermuda St.,
NORFOLK, VA.

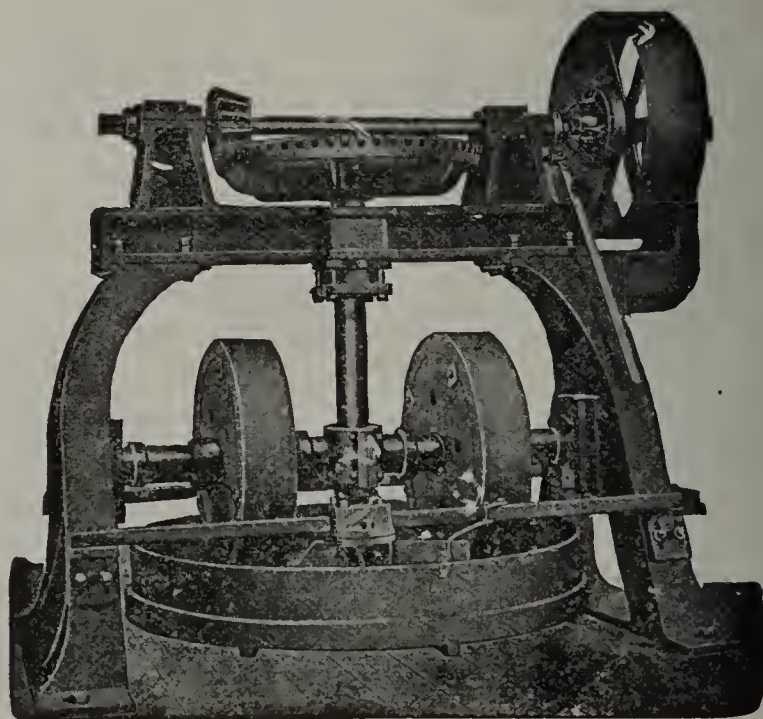
PHILLIPS & McLAREN CO.

PITTSBURG, PA.

Builders of
Pittsburg Standard
Dry and Wet
Grinding Pans
for Brick, Terra Cotta,
Sand, Cement, Ore,
Refractories, etc.
Also
Rock and Ore Crushers.

When writing for Prices state
kind of Clay or Material to be
ground and capacity desired.

Eastern Office,
Stephen Girard Bldg.,
Philadelphia, Pa.



MANGANESE.

BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

NATIONAL PAINT AND MANGANESE CO.,
LYNCHBURG, VA.

MINERS AND GRINDERS.

ANTON VOGT TO BRICK AND TILE MAKERS

I correct faults in burning and change old defective kilns. Twenty-seven years' experience in American practice.

I sell plans and plain details of construction, for my down-draft, 30 ft. Combination Brick, Drain Tile and Sewer-Pipe Kiln. I refer to satisfied Users.

For my special Cheap Brick kiln, I do not sell plans, but will lay it out, you build it and I will oversee the setting and burning, showing you

Satisfactory Results Before You Pay Me.

Both kilns have my Novel, Cheap and Indestructible Removable Grate, making a grateless coal-saving furnace. You can use it on any Down Draft Kiln.

Inquire about my labor-saving, patented Sewer Pipe Turner and Device, increasing capacity of press, making large pipe.

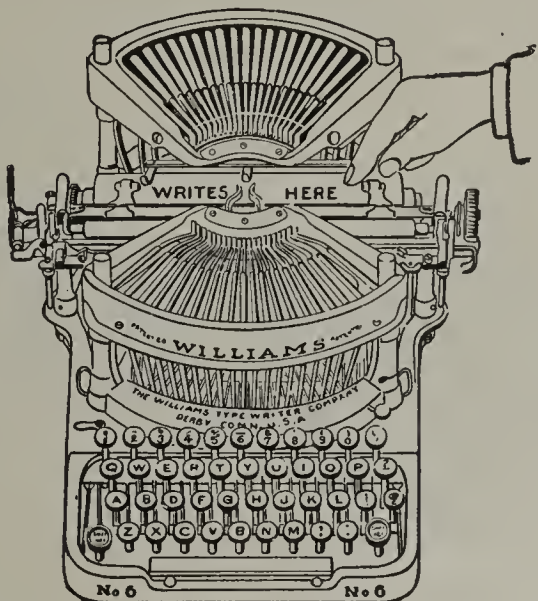
ANTON VOGT, Lewis, Iowa, U. S. A.

SEEING

Saves the beginner time when learning

Saves the learned time when beginning.

New
Number
Six
Visible
Writer



Saves time, energy, worry and money.

Gives speed, simplicity and beautiful work. Single shift. Strictly visible writing.

Old machines of any make taken in trade.

The Williams is sold under a positive guarantee and on easy terms.

If you want the best value in a typewriter ever offered, write us.

Williams Typewriter Agency,

Indiana Agency, 221 East Ohio Street, Indianapolis, Ind.

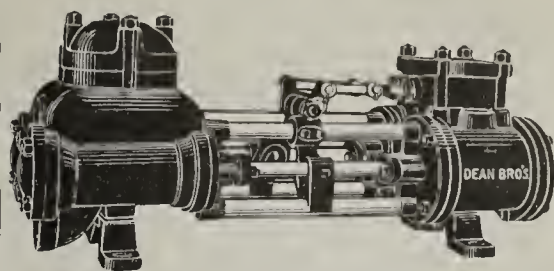
Home Office and Factory,
Derby, Conn.

Old Machines Taken in Trade.

\$2.00

THE CLAY-WORKER
ONE YEAR (IN ADVANCE)

\$2.00



DURABLE DUPLEX PUMP.

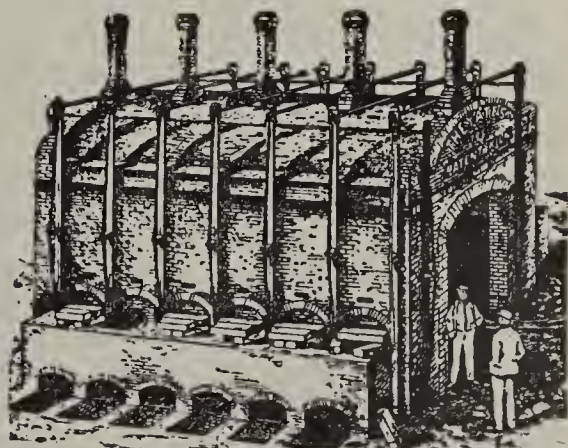
PUMPS FOR ALL SERVICES
AND ALL PRESSURES.

JET AND SURFACE **CONDENSERS**

Send for Catalogues.

DEAN BROS. STEAM PUMP WORKS.
INDIANAPOLIS.

NOT IN THE PUMP TRUST.



The Yates Patent Down-draft Kiln. Also Continuous.

If you want to pay dividends, build modern kilns as good burning is the keynote to success. Sixteen of my kilns are in operation at the Shawmut Vitriified Paving Brick Works, Shawmut, Pa. Come and examine results for yourself. Also refer you to D. W. DeRosay, General Manager Corry Brick & Tile Co., Corry, Pa. Other references given if desired.

ALFRED YATES,
SHAWMUT, PA.



OVER 65 YEARS' EXPERIENCE

TRADE MARKS
DESIGNS
COPYRIGHTS & C.

Anyone sending a sketch and description may quickly ascertain our opinion free whether an invention is probably patentable. Communications strictly confidential. HANDBOOK on Patents sent free. Oldest agency for securing patents. Patents taken through Munn & Co. receive special notice, without charge, in the

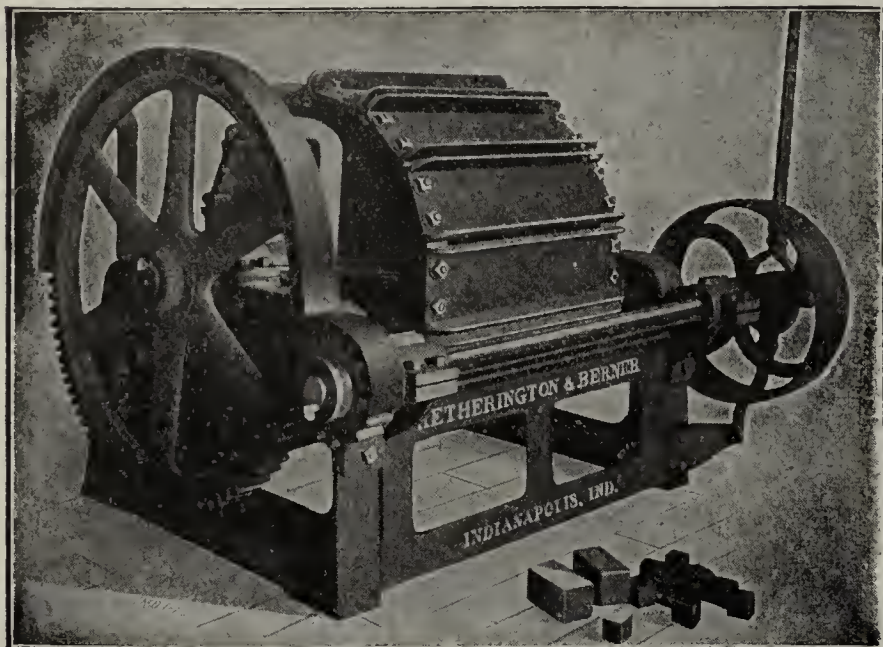
Scientific American.

A handsomely illustrated weekly. Largest circulation of any scientific journal. Terms, \$3 a year: four months, \$1. Sold by all newsdealers.

MUNN & Co. 361 Broadway, New York
Branch Office, 625 F St., Washington, D. C.

The STANDARD RATTLER FOR TESTING PAVING BRICK.

Every municipality and every manufacturer of paving brick should have a Standard Rattler and thus be able to make frequent tests of brick and block.



This Rattler is designed in accordance with the requirements of the National Brick Manufacturers' Association's specifications, and is skilfully constructed of the very best materials for the purpose, insuring the greatest efficiency and durability. It meets every requirement.

Easy to Operate, Easy to Fill, Easy to Empty, and is in fact *The Standard Rattler*. For prices, etc., write

Hetherington & Berner,
Indianapolis, Ind.

Books for Brickmakers

These Books Will be Mailed, Postage Prepaid, to Any Address
in the United States or Canada,
on Receipt of Price.

BRICKMAKERS' MANUAL	Morrison & Reep	\$3.00
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CLAYS; THEIR OCCURRENCE, PROPERTIES AND USES	Henrich Ries	5.00
BRICKLAYING	Owen B. Maginnis	2.00
VITRIFIED PAVING BRICK	H. A. Wheeler, E. M.	2.00
TABLES OF ANALYSES OF CLAYS.....	Alfred Crossley	2.00
BRICKLAYING SYSTEM	Frank B. Gilbreath	3.00
KILN RECORDS	W. D. Richardson	1.00
PRACTICAL FARM DRAINAGE	C. G. Elliott	1.50
ENGINEERING FOR LAND DRAINAGE	C. G. Elliott	1.50
TILE UNDERDRAINAGE	J. J. W. Billingsley	.25

Sold By

T. A. RANDALL & CO.
INDIANAPOLIS, IND.

The —
ROESSLER-HASSLACHER
CHEMICAL COMPANY,
100 William Street,
NEW YORK.

As a Preventative of Scums Use
CARBONATE OF BARYTES
R. & H. PRECIPITATED.

Oxide Tin,
Oxide Cobalt,
Red Oxide Iron,
Green Oxide Chrome,
White Oxide Antimony,
Black Oxide Manganese, and
all Chemicals used by the Clay Trades.

Mention THE CLAY-WORKER

WHEN WRITING TO ADVERTISERS,

Mention THE CLAY-WORKER.

Have You Ever Considered the Improvements in Burning Clay Wares

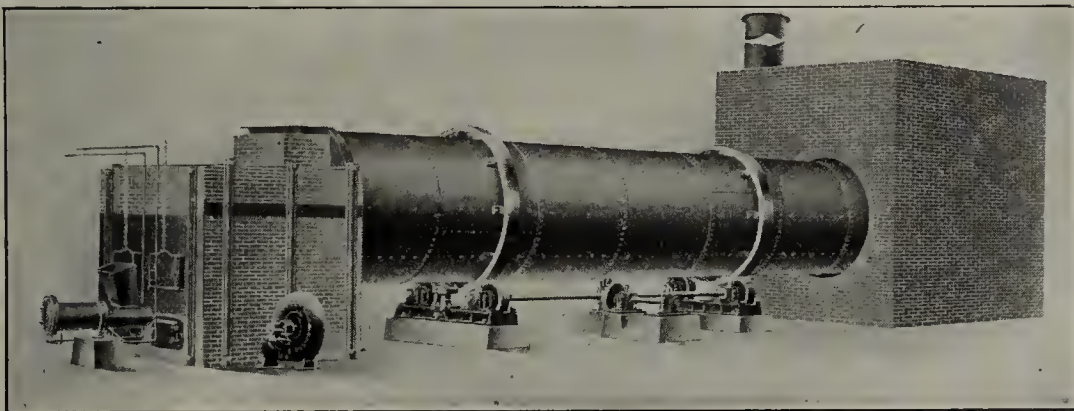
Since

TATE, JONES & CO., Inc., entered the field with a complete system for Oil Burning?

Knowing that many Clayworkers hesitate to try oil as a fuel for burning their wares, we have adapted a form of contract covering a trial equipment which is liberal in its terms, effective in demonstration and not expensive.

Write us for contract conditions, stating fully your kiln conditions, and cost of fuels in your vicinity.

Manufacturers of Oil Burning Equipment. **TATE, JONES & CO., Inc.,** Pittsburgh, Pa. Chicago Representative: G. E. Luce, 518-519 Fisher Bldg.

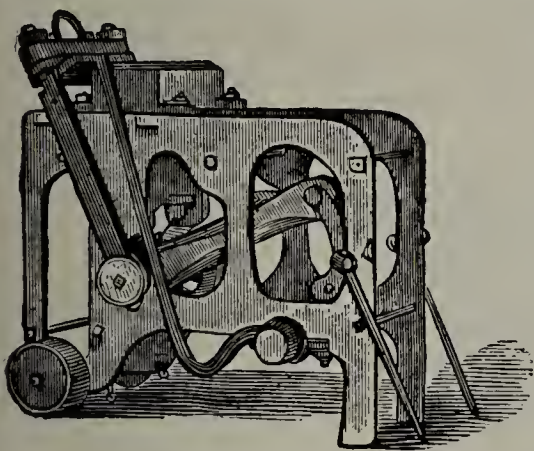


CLAY DRYERS

Increase Capacity of Dry Pan.
Produce Uniform Brick.

Send for Catalog C. B.

AMERICAN PROCESS CO., 68 William-Street, New York

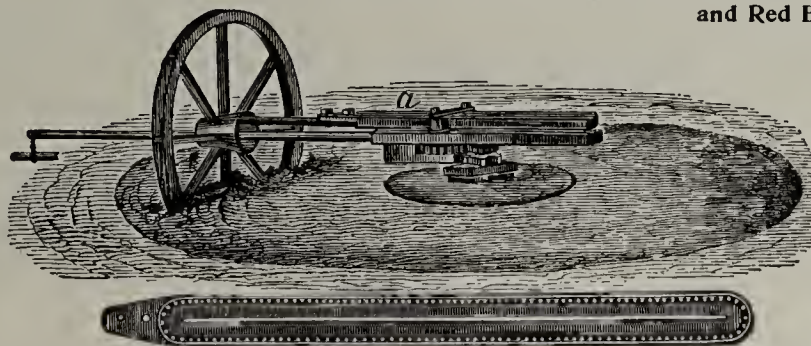


RED BRICK PRESS.

Philadelphia Brick Machine Works.

Fire and Red Brick Presses All Sizes. Machinists and Engineers.

Manufacturer of All Kinds of Machinery Used in the Manufacture of Fire and Red Brick.



These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

Send for Circular and Price List.

GEORGE CARNELL, 1819, 1821 and 1823 Germantown Ave. and Fifth St., PHILADELPHIA, PA.

INDIANAPOLIS ENGRAVING & ELECTROTYPING COMPANY.

We originated and are the exclusive users of the *Indeeco* process for making HALFTONES - ETCHINGS AND Color Plates. Guaranteed to give unqualified satisfaction

DESIGNERS-ARTISTS-ILLUSTRATORS

Services of our Advisory Department - *Gratis*

341-349 E. MARKET ST.

PHONES - MAIN 153. NEW 51

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The only publication in the world devoted to the interests of the Mantel, Tile, Grate and kindred goods industries.

\$1.00 PER YEAR.

Full of interesting trade news. Address

THE MANTEL, TILE AND GRATE MONTHLY

Suite 407 Arcade Bldg., Utica, N. Y.

Advertise in the "MONTHLY"

It's the best trade paper in the world to reach the dealers in Mantels, Tiles, Grates and kindred goods, as well as Architects, Contractors, Builders, etc.

For advertising rates address

THE BRAMWOOD COMPANY

State Life Bldg.

INDIANAPOLIS, IND.

SALT GLAZED BRICK

The Best in America
Are Made by

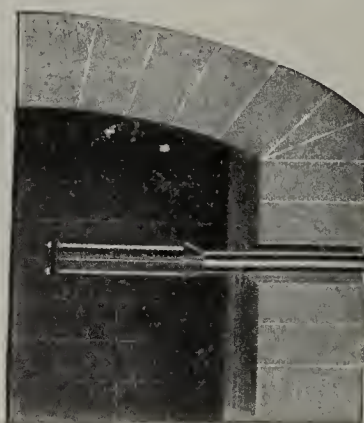
The Hocking Valley Fire Clay Co.

Nelsonville, Ohio.

**Light, Medium, Dark Shades
With Heavy, Smooth Glaze**

Some Good Territory Unassigned. Write Us.
Annual Capacity, 12,000,000.

PYROMETERS



For measuring the temperature of kilns, do away with guess-work. For temperatures to 3000° Fahr.

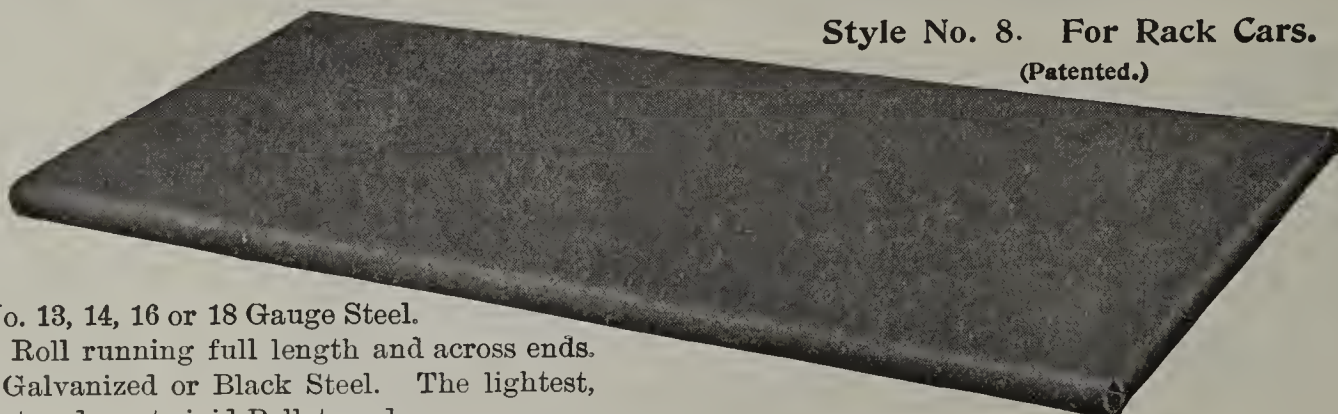
The Brown Instrument Company,

311 Walnut St.,
Philadelphia, Pa.

Pittsburg. Chicago.

"OHIO" ROLLED EDGE STEEL BRICK PALLET.

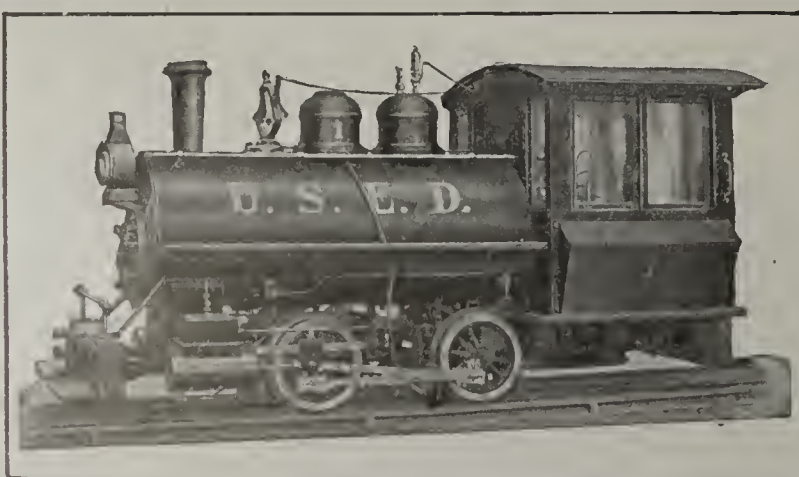
Style No. 8. For Rack Cars.
(Patented.)



Made from No. 13, 14, 16 or 18 Gauge Steel.

5/8-inch Roll running full length and across ends.
Either Galvanized or Black Steel. The lightest, strongest and most rigid Pallet made.

THE OHIO GALVANIZING AND MANUFACTURING COMPANY, Niles, Ohio.



DAVENPORT LOCOMOTIVES

For CLAY HAULAGE.

Small Size Reasonable Cost

Built especially for the use of clay-products manufacturers, for hauling clay or shale from pits or mines to plant.

Write for particulars.

Davenport Locomotive Works

Davenport, Iowa

BRANCH OFFICES

St. Louis, 654 Pierce Bldg.

Chicago, 12 & 14 So. Canal St.

Minneapolis, 107 Third Ave. No.

New York, 30 Church St.

Seattle, 617 Western Ave.

F. H. Hopkins & Co., Montreal, Que., Canadian Representative.

The **profits** on your investment—**your dividends**—**depend** as much, if not more, on the **result-producing merits** of **your kilns** as upon your material, your machinery or freight rate.

We have been in the kiln building business for over twenty years; six years ago we perfected and marketed

THE IMPROVED FLUE SYSTEM KILN

and have been busy ever since, winter and summer, building it for progressive BRICK, SEWER PIPE and DRAIN TILE firms.

It has burned every class of clay goods, and has **SATISFIED** (get that?) every patron.

We will construct new kilns, remodel unprofitable kilns to our plans; or we will sell working plans and specifications on very reasonable terms.

Inquiries solicited, promptly and cheerfully answered.

GEORGE E. SNOWDEN & COMPANY

New Cumberland, West Virginia

The Effect of Heat Upon Clays

By Prof. A. V. Bleininger.

This book contains valuable information on burning and drying, told in a plain and practical way, and is invaluable to the burner or superintendent. It is very comprehensive and should be in every clayworker's library.

Price \$2.00

SOLD ONLY BY **T. A. RANDALL & CO.** Indianapolis, Ind.

A Complete Line of Clayworking Machinery

INCLUDING

STEAM SHOVELS AND DREDGES.

Ask for our latest Catalog, and write us or wire us for anything you need on any kind of Brick or Tile Plants.

Scott-Madden Iron Works Co., 404 S. Fourth, Keokuk, Ia.

IN DRYING CLAY
WARES WE HAVE
HAD THE LARGEST
AND MOST VARIED
EXPERIENCE OF
ANYONE IN
AMERICA.

OUR DRYERS
GET RESULTS.

TRAUTWEIN DRYER
AND
ENGINEERING CO.



WE MANUFACTURE
COMPLETE, EVERY-
THING NEEDED
FOR DRYER
INSTALLATIONS.

WE ARE ENGINEERS
FOR CLAYWORKING
PLANTS.

417 So. Dearborn St.
CHICAGO.

MODERN CLAY- WORKING ENGINEERS

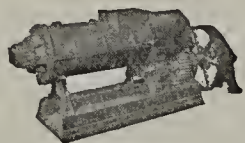
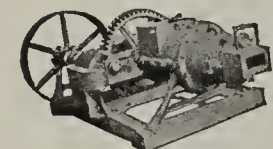
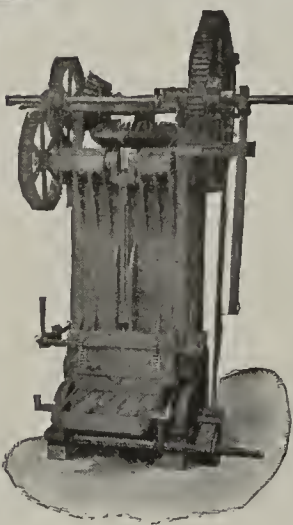
And Builders
of Complete

BRICK MAK- ING PLANTS

For Either
Soft or Stiff-Mud
Processes.

Steam Power
50 Thousand
Animal Power
20 Thousand

We Build the
Most Complete
Line of Yard
Supplies and
CRUSHERS



THE HENRY MARTIN BRICK MACHINE MFG. CO.
LANCASTER, PA., U. S. A.

Get Our Big Catalog.

JUST PUBLISHED. BRICKLAYING SYSTEM

By FRANK B. GILBRETH.

Ancient as the art of bricklaying is, there has never been a real book on the subject before. Indeed, astonishingly little has ever been written about brick masonry, and, so far as the economics of the subject is concerned, nothing has heretofore appeared in book form. It is a large subject, and one of growing importance in spite of the advent of concrete. In fact, scores of concrete buildings are faced with brick, or have brick curtain walls.

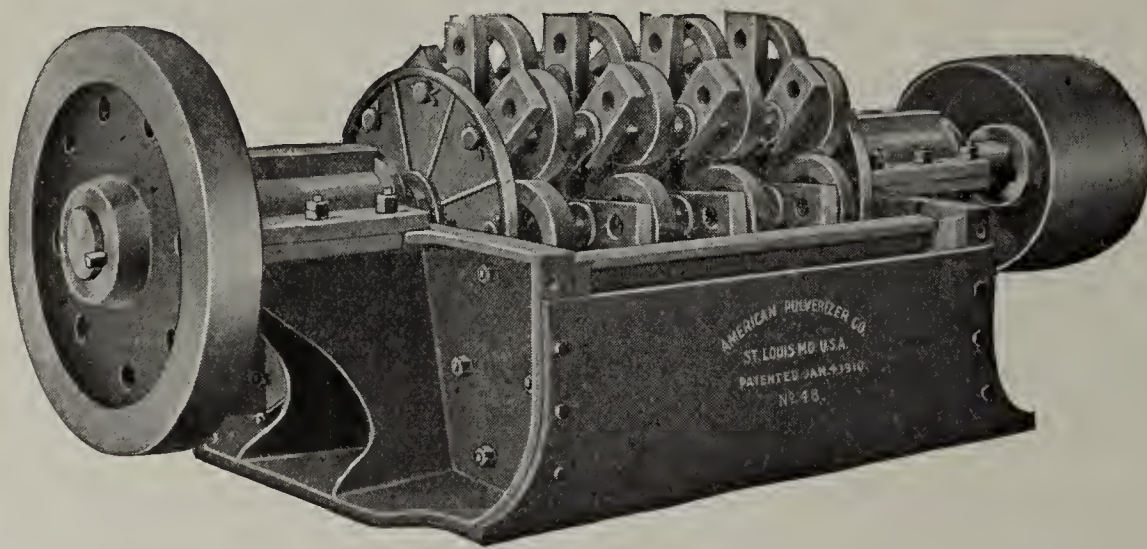
Gilbreth's "Bricklaying System" is a book whose 330 pages are filled with rules and hints for his foremen and bricklayers, designed to increase the output of the workmen and to enable men of moderate skill to do difficult work in the best manner. There are 73 charts showing different bonds, ornamental and plain, some of which would be exceedingly hard to execute were it not for the methods explained in the text. To the architect, 73 ornamental charts alone will prove of great value, for practically none of them can be found in any other book, and no other book has more than 8 different bonds.

Among the many labor-saving devices and methods in this book, none is more worthy of comment than what Mr. Gilbreth calls his "packet system" of handling bricks. The bricks are piled on small wooden trays or "packets," loaded on to wagons, hauled to the work and delivered to the bricklayers. This handling in units has worked a remarkable reduction in cost on Mr. Gilbreth's own work. Incidentally, by keeping tab on the number of empty "packets," the exact output of each bricklayer is recorded, which itself is a stimulus that works wonders in the output of the men.

The "fountain trowel" is another money-saving device. Space prohibits mention of more.

The book is now off the press, and ready for distribution. Its size is 6x9in., 330 pages, 167 illustrations and 73 bond charts. The price is \$3.00 net, postpaid.

T. A. RANDALL & CO., Publishers,
211 Hudson St., Indianapolis.



**The More Machines
WE SELL**

**And The Longer
THEY ARE USED**

The more we learn
from users of their
superiority.

Being Superior, means
it's the

BEST and CHEAPEST

Sioux City, Ia, Nov. 5th, 1911.

American Pulverizer Co.,

St. Louis, Mo.:

Gentlemen—We have your No. 48 Pulverizer at work grinding our material, consisting of shale, blue and yellow plastic clay carrying a good many hard stones. We aim to mix all these clays together, but at times we will get a batch of each by itself, and we will say that our yellow plastic clay is a pretty hard grinding proposition, as it is very sticky and always wet. We are making brick 2½ in. by 4 in. by 8½ in. at the rate of 90,000 per day.

We think your Pulverizer a great machine, and know that it will grind the clay finer than any machine we have ever seen, and at the same time give the tonnage. Would say that 90% passes through a screen with wires 1-16 in. apart. We formerly used dry pans, but could not grind fine enough and get the tonnage. We also tried a steam-jacketed Pulverizer, but this would not work, as it clogged

up and gave us so much trouble that we discontinued its use, having satisfied ourselves that a hammer-mill cannot do our class of work. We feel warranted in recommending your machine to shale brick manufacturers as being a superior Pulverizer.

Yours very truly,
SIOUX PAVING BRICK CO.

Chicago, Jan. 17, 1912.

American Pulverizer Co.,

St. Louis, Mo.:

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THE NORTHWESTERN TERRA COTTA CO.

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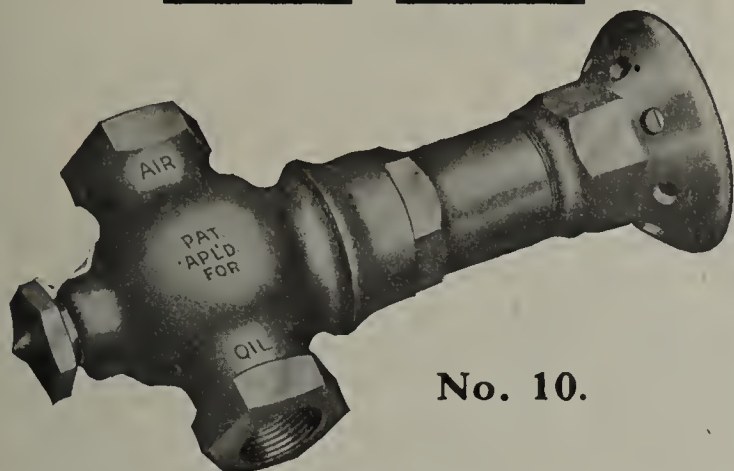
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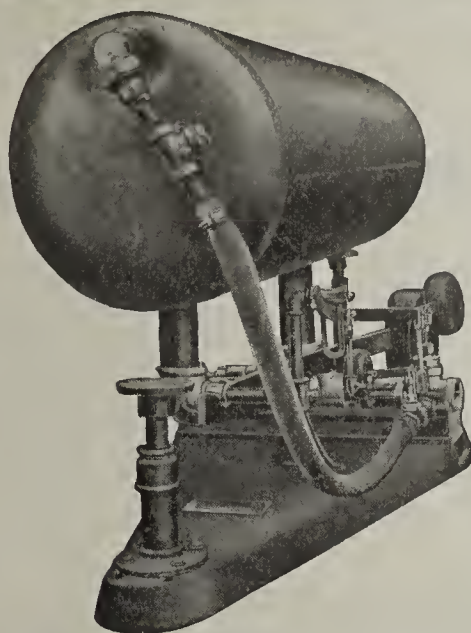
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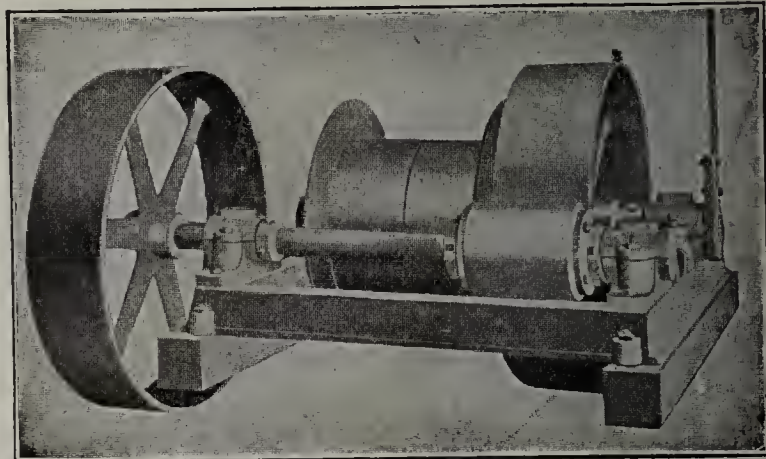
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Mr. Buhrer is to be heartily congratulated upon the all round excellence of his quick-burning system, the adoption of which I recommend to all clayworkers really interested in the progressive advancement of their works.

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Simply sign and return the attached coupon. Do it
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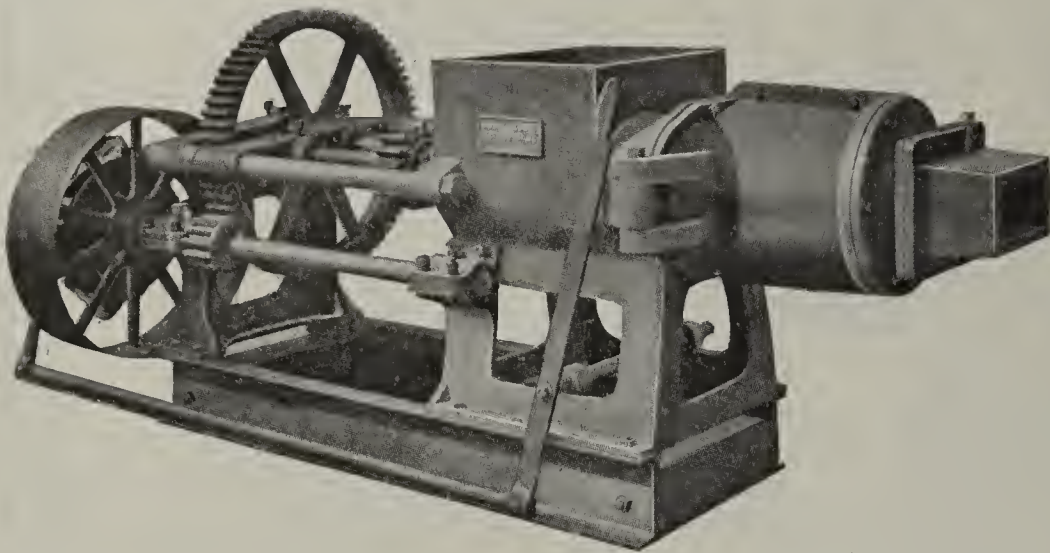
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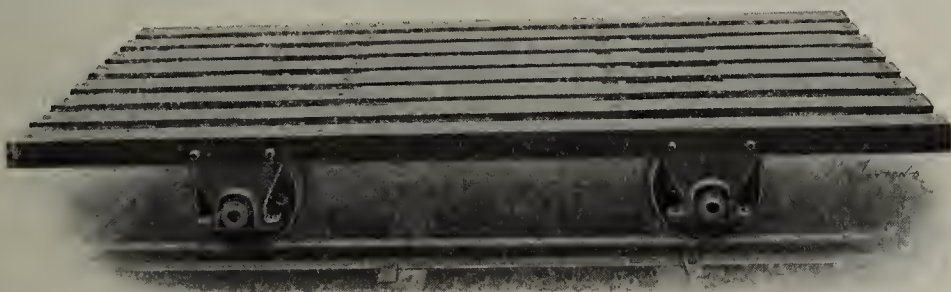
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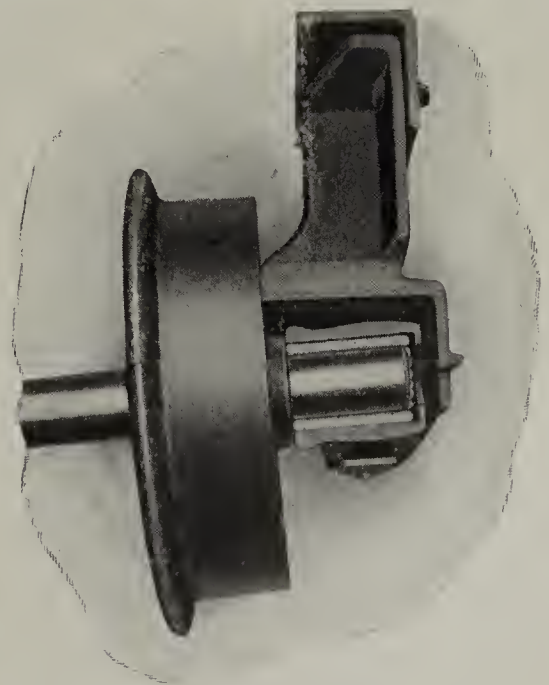
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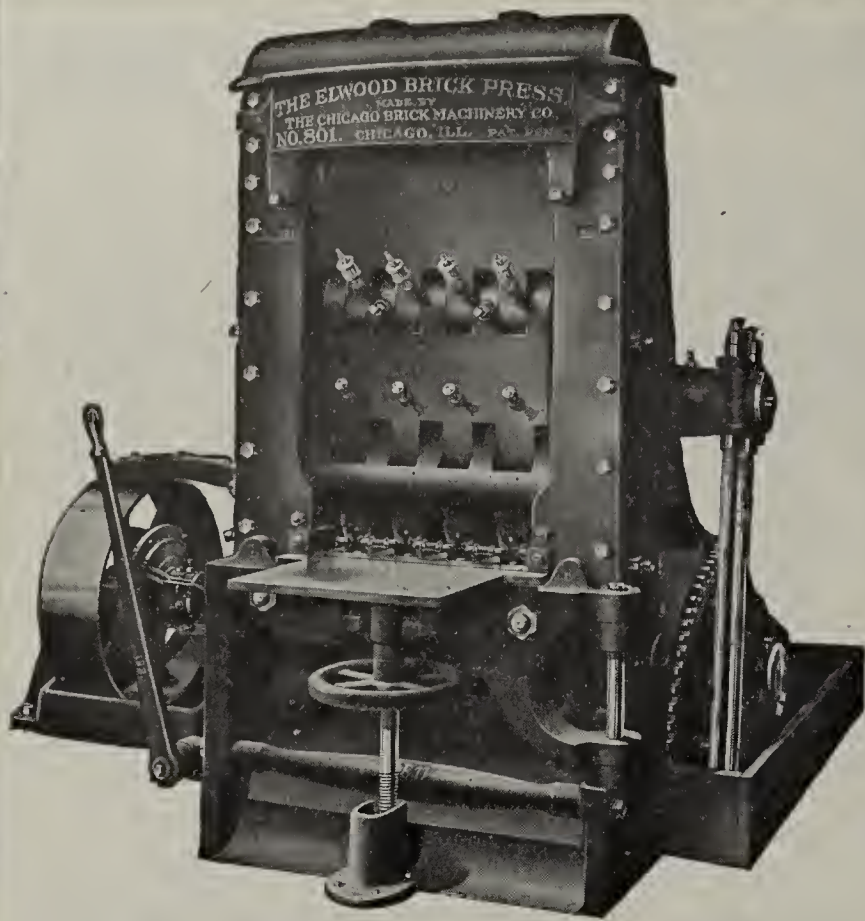
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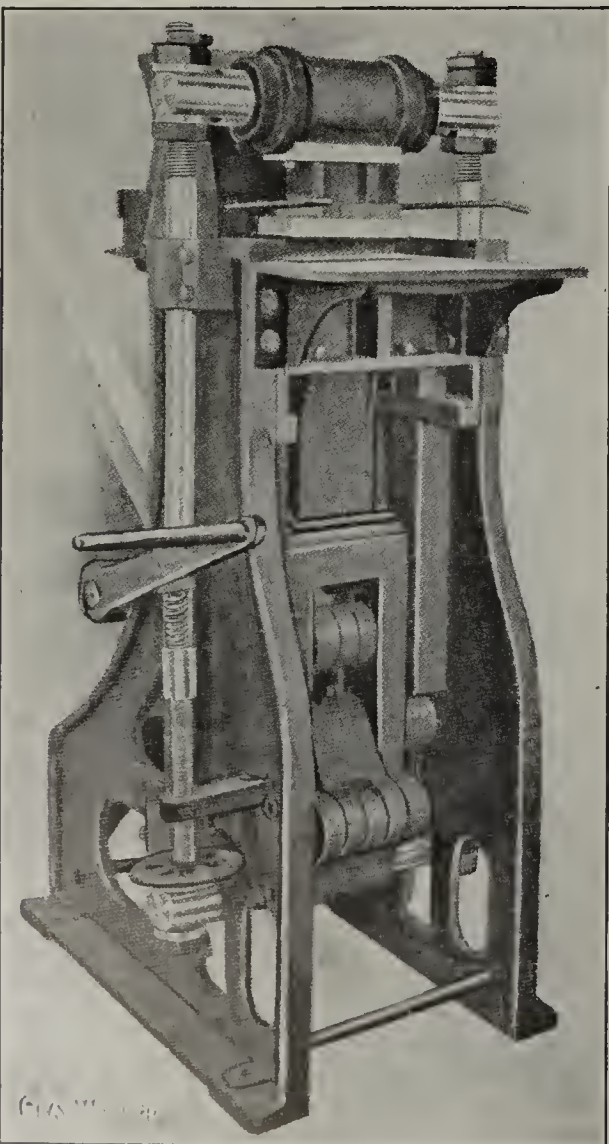
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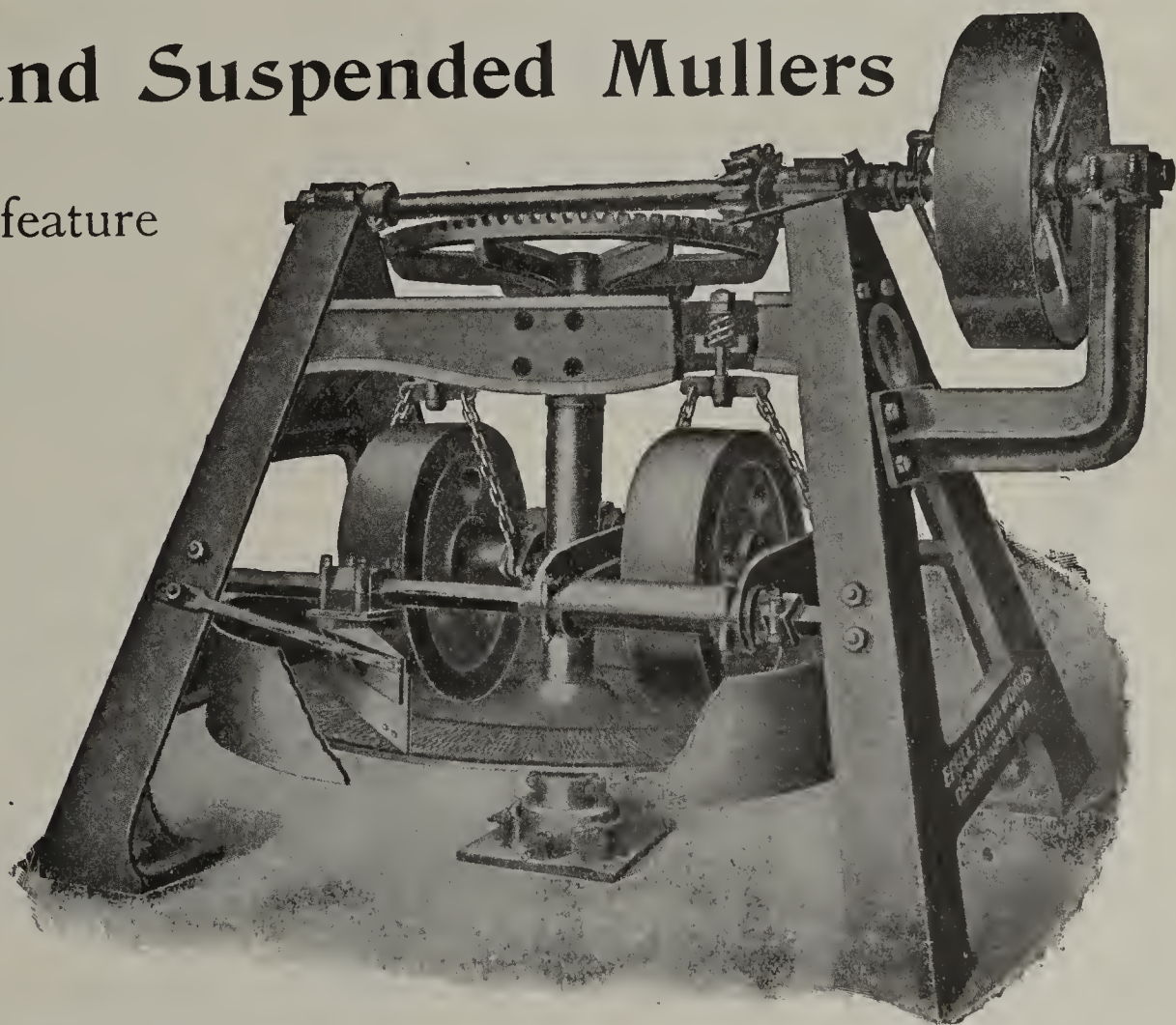
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THE EFFECT OF HEAT UPON CLAYS

It contains valuable information on burning and drying, told in a plain and practical way, and is invaluable to the burner or superintendent. This comprehensive book should be in every clayworker's library.

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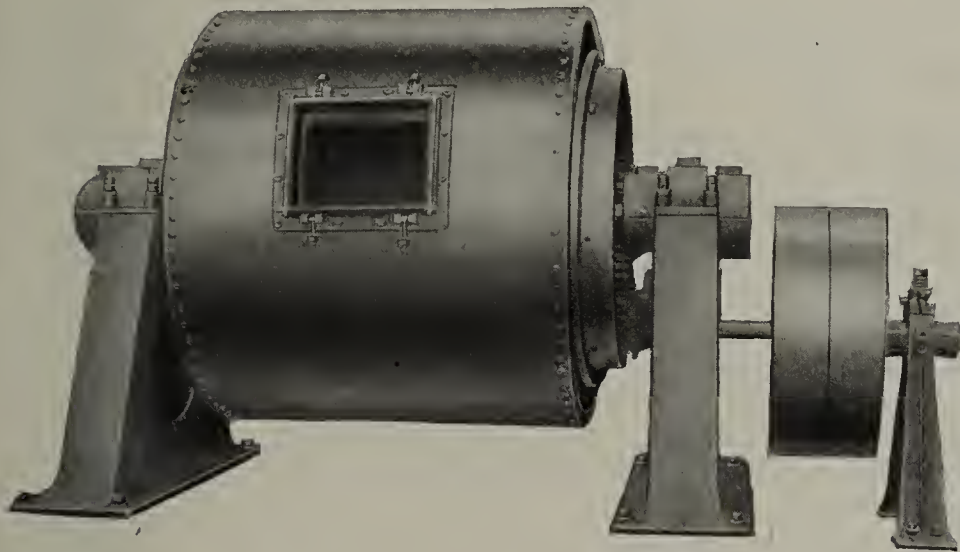
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We manufacture a complete line Electrical, Porcelain, Tile, Clayworking, Clay Washing and Refining Machinery.

COMPLETE INSTALLATIONS A SPECIALTY.

We lay out your buildings, placing the necessary machinery in same in the most approved manner, furnishing boilers, engines, motors, etc., and turn same over to you ready for use.

Our 35 years of experience in this line has made us experts and our engineering department is always at your service and if you have any knotty problems, submit them to us.



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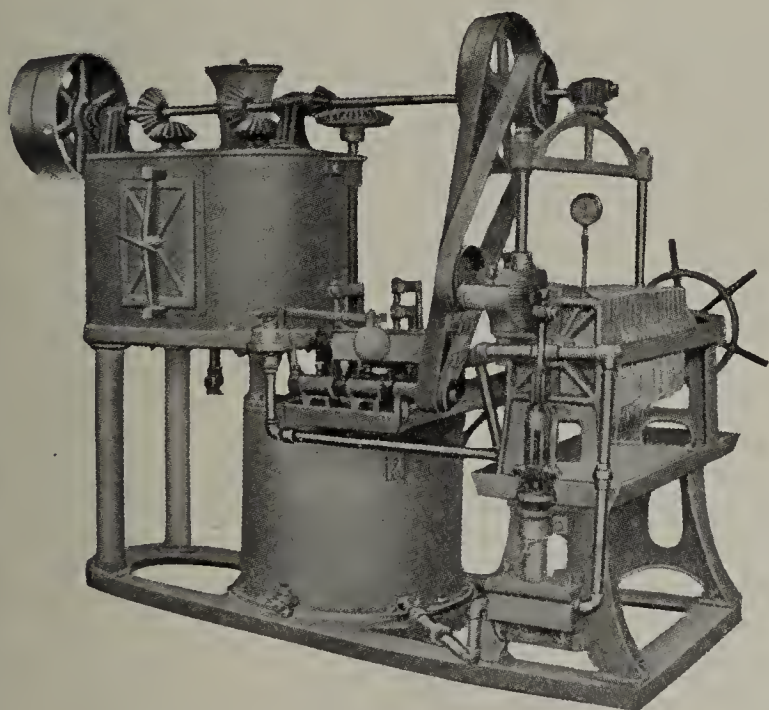
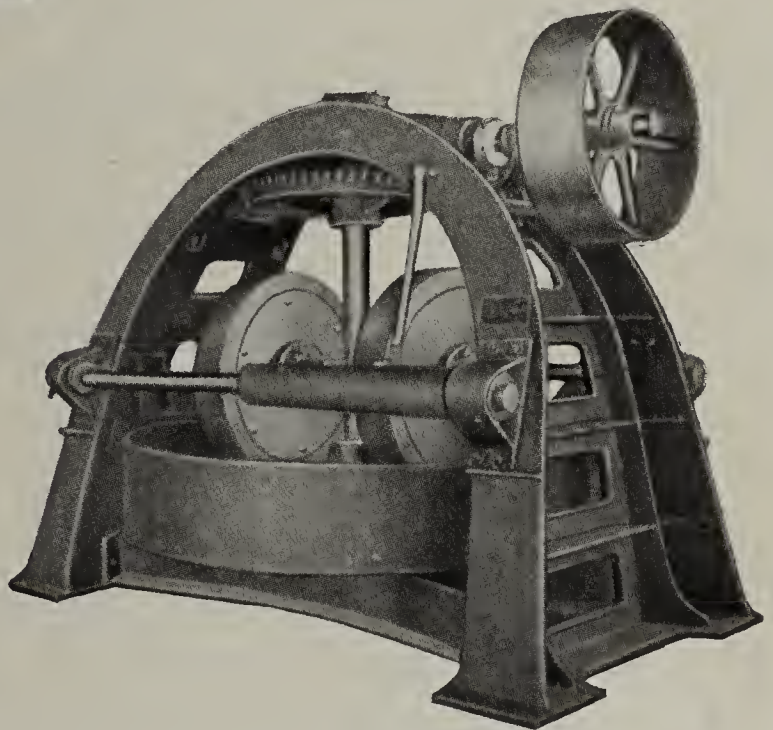
These mills are made in 4 sizes; 2 ft. 6 in., 3 ft. 6 in., 4 ft. 6 in. and 6 ft. 8 in. We call your attention to the large bearings and substantial housings with the internal gear drive which not only insures life to the machine but makes it very compact and durable.

The 6 ft. 8 in. mill is fitted with hardened and ground roller bearings which reduces the friction to a minimum, thus being a great saver in fuel and power.

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Crossley's Wet or Dry Pan

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General Machinists and Founders

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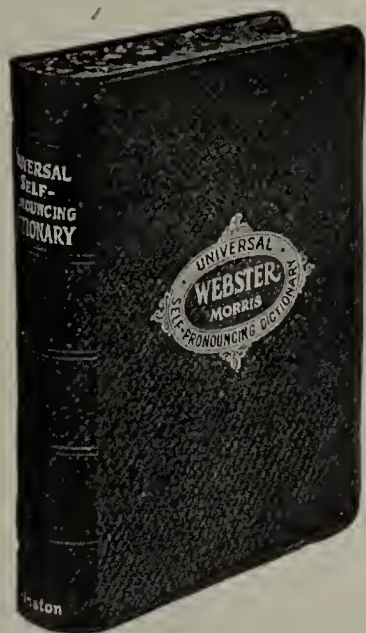
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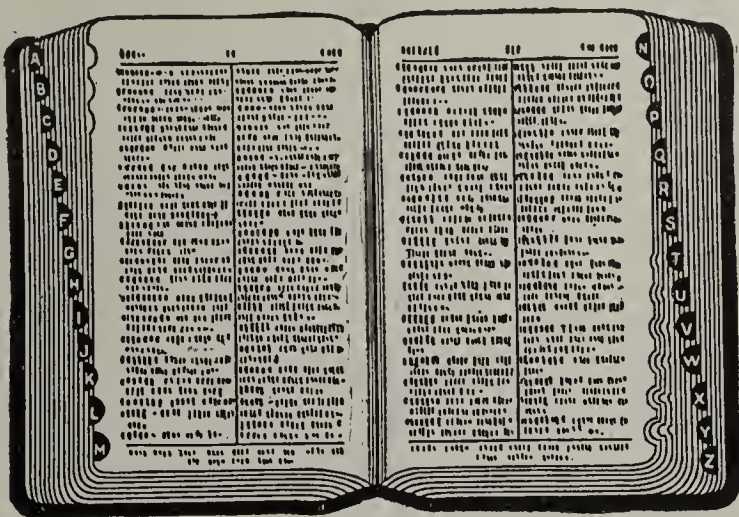
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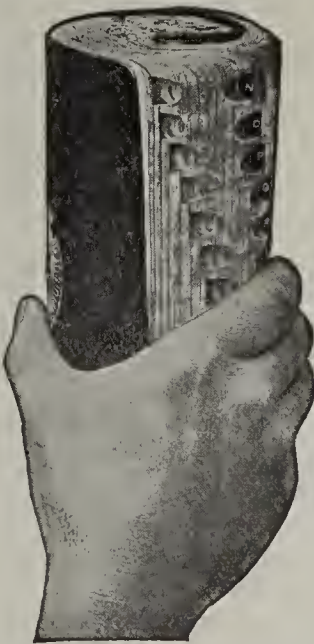
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1911	{	Sterling Brick Co.,	Olean, N. Y.
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Over SIX miles of Wire-Cut-Lug Brick pavement were laid within the State of New York in the year 1910 and over TWENTY miles in 1911. More than ONE HUNDRED MILES of this pavement have already been contracted for 1912.

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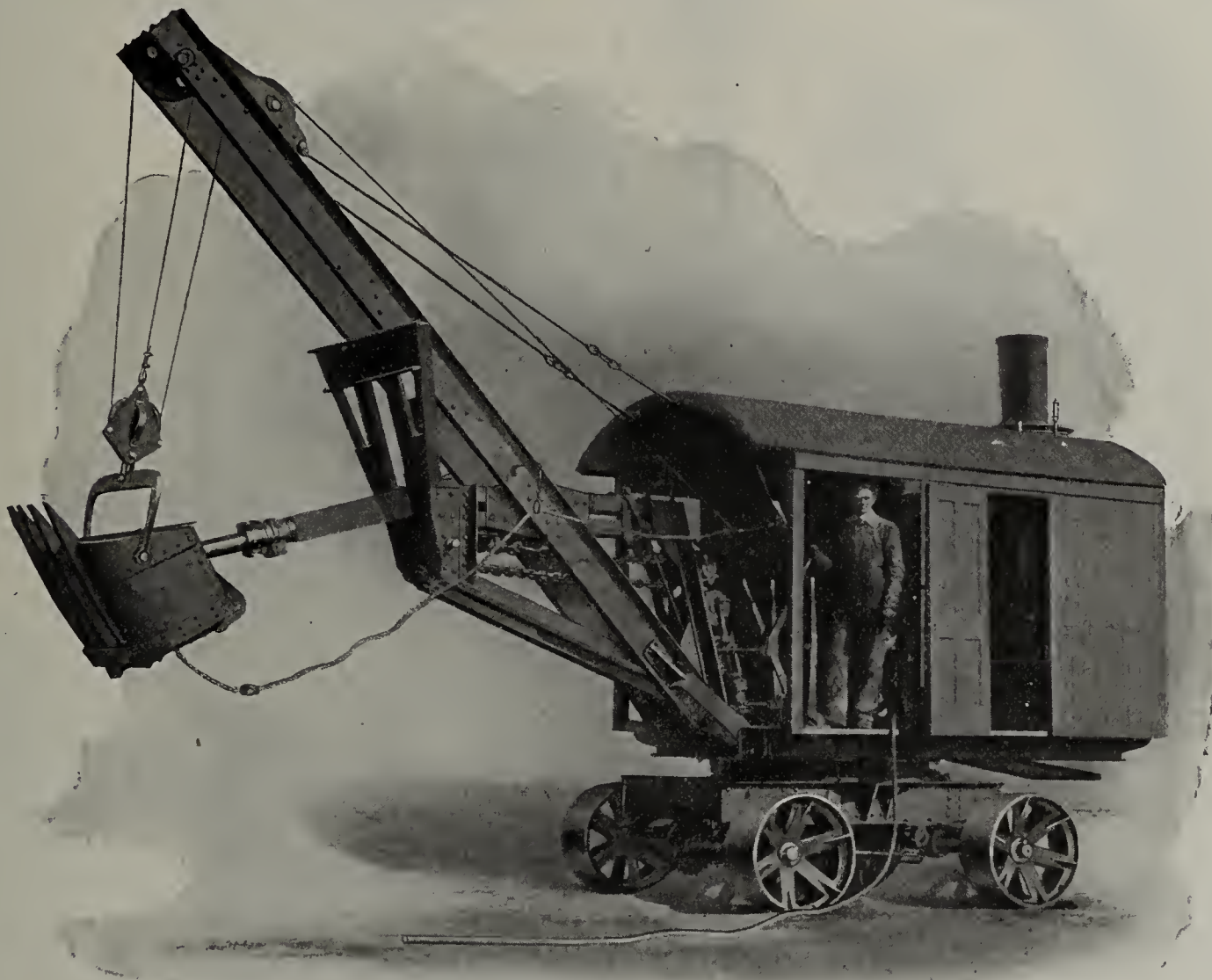
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THEW Shovels are not like others. They possess features of design not found in other shovels, features that are valuable as to convenience and economy of operation. Several hundred are now operating in brickyards and every one is giving satisfaction.

WE REFER YOU TO ANY OWNER OF A THEW SHOVEL ANYWHERE



Type No. 0 Thew Shovel—Mounted Upon Traction or Car Wheels.

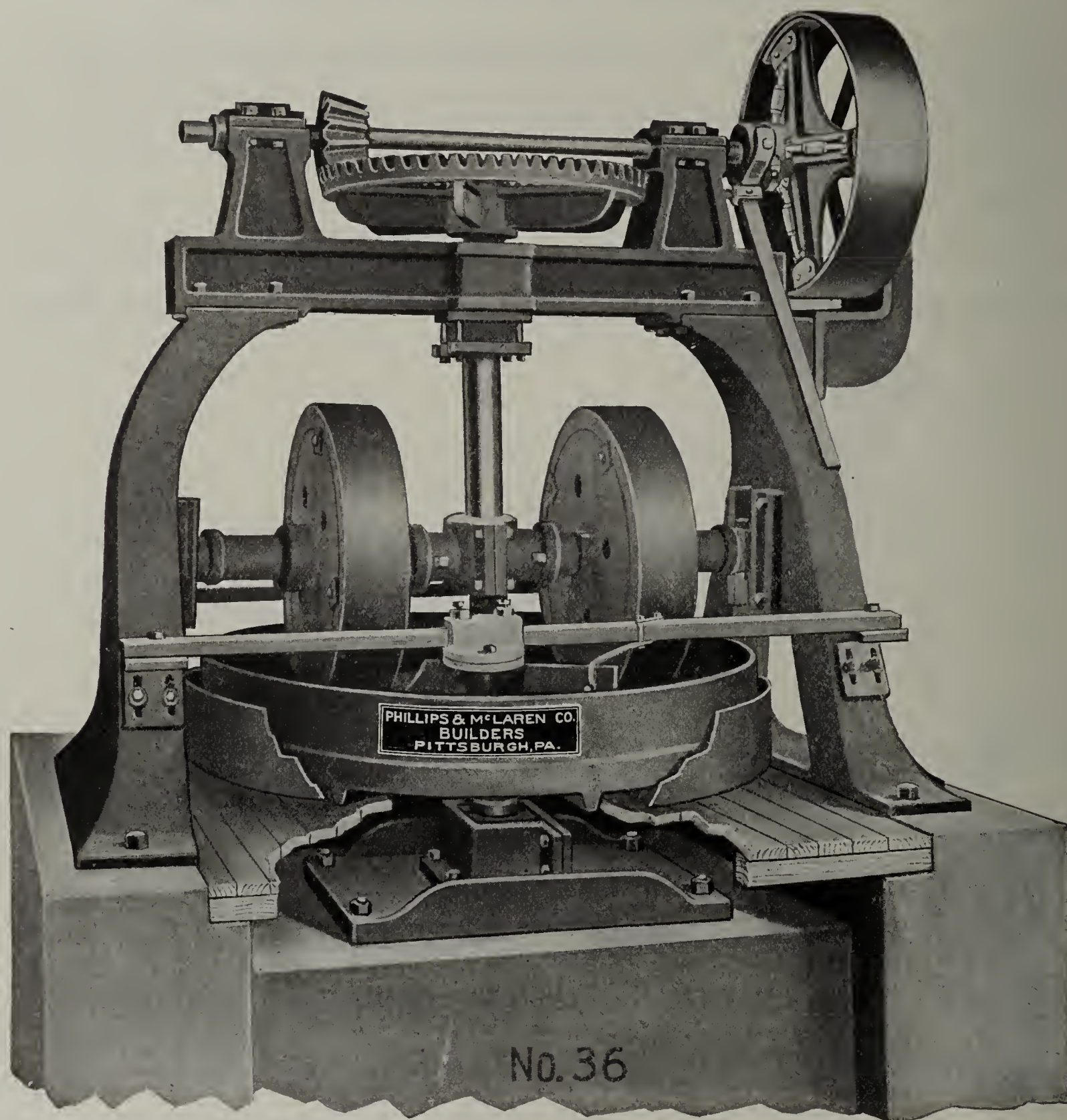
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Type 0,	15 Tons,	$\frac{5}{8}$ yard dipper;	capacity 100 M brick for ordinary clays.
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These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

The Brickmakers' Manual, by R. B. Morrison and J. A. Reep. Price \$3.00.

An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryers, kilns, etc.

The Clayworkers' Handbook, by the Author of "The Chemistry of Clayworking." Price \$2.00.

A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport, Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting or Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

Modern Brickmaking, by Alfred B. Searle. Price \$5.00.

It contains well-written chapters on the nature and selection of clays and other materials used, general brickmaking, the different processes, machinery, kilns, setting and burning, various products and uses, and sources of difficulty and loss.

Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

Clays: Their Occurrence, Properties and Uses, by Heinrich Ries. Price \$5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

Bricklaying, by Owen B. Maginnis. Price \$2.00.

This book contains extensive explanations of the most improved modern methods of bricklaying, and is the current practice and experience of the best authorities, making an invaluable work of reference for architects, engineers, contractors, builders and mechanics.

The Effect of Heat Upon Clays, by Prof. A. V. Bleining. Price \$2.00.

A book of valuable information on burning and drying, told in a plain, practical way, and invaluable to the burner or superintendent.

Bricklaying System, by Frank B. Gilbreth. Price \$3.00.

A book whose 330 pages are filled with rules and hints for the foreman and bricklayers, designed to increase the output of the workmen and enable them to do difficult work in the best manner.

Vitrified Paving Brick, by H. A. Wheeler, E. M. Second Edition. Price \$2.00.

A review of present practice of the manufacture, testing and uses of vitrified paving brick.

Tables of Analyses of Clays, by Alfred Crossley. Third Edition. Price \$2.00.

Including analyses of chemically pure clays, well-known common and pressed brick clays, paving brick clays, fire clays, shales, etc., both in this country and abroad. A valuable book for those desiring to compare their clays with well-known and standard clays.

Kiln Records, by W. D. Richardson. Price \$1.00.

To establish a successful system of burning, observations and records should be made regularly, carefully and conscientiously, and this can be done to best advantage by the use of Mr. Richardson's Kiln Records.

Engineering for Land Drainage, by C. G. Elliott. Price \$2.00.

Giving instructions for laying out and constructing drains for the improvement of agricultural lands intended for the use of those who are charged with the responsibility of making plans for and executing drainage improvement.

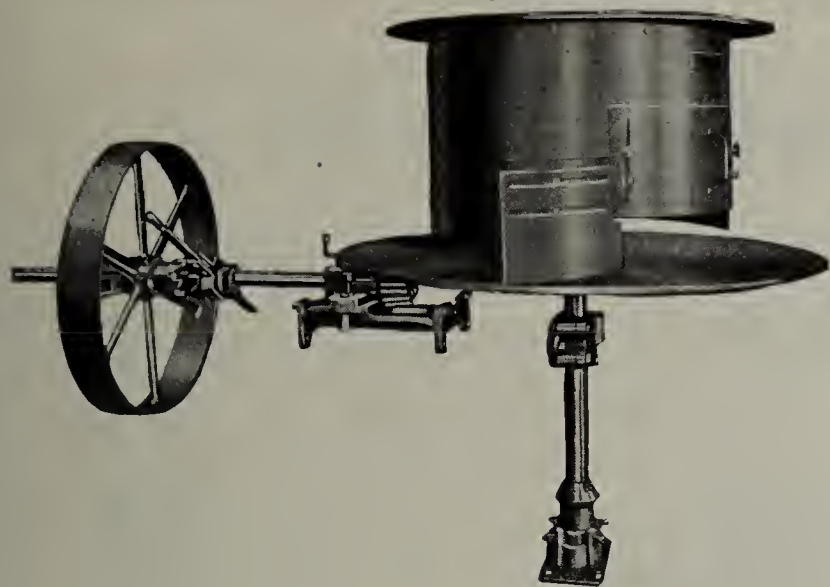
Practical Farm Drainage, by C. G. Elliott. Price \$1.50.

A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

Tile Underdrainage, by J. J. W. Billingsley. Price 25 Cents.

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distributing among tile users. In lots of 100, \$2.50; in lots of 1,000, \$20.00.

T. A. RANDALL & CO.,
Indianapolis, Ind., U. S. A.



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Increase the capacity of your
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UNIFORM FEEDING

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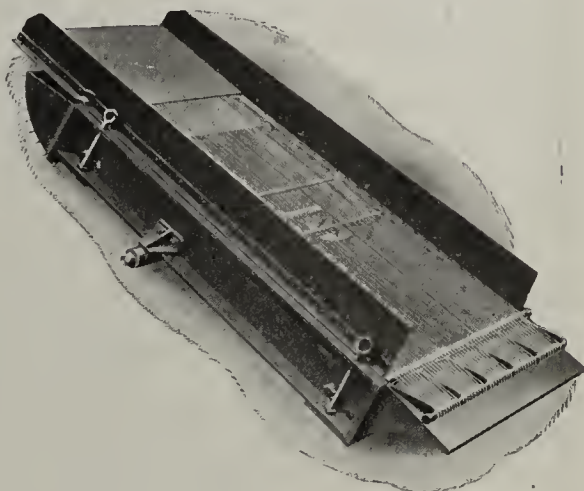
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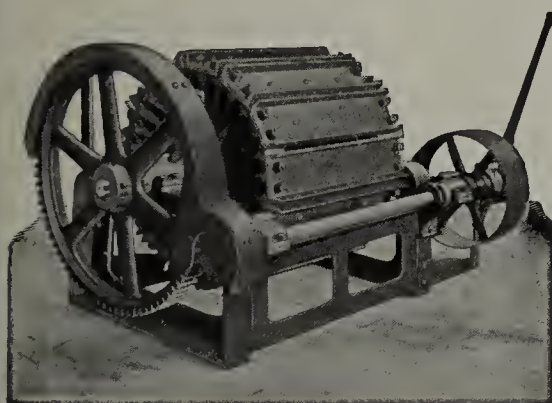
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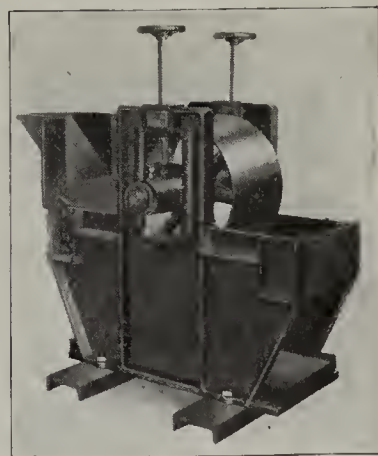
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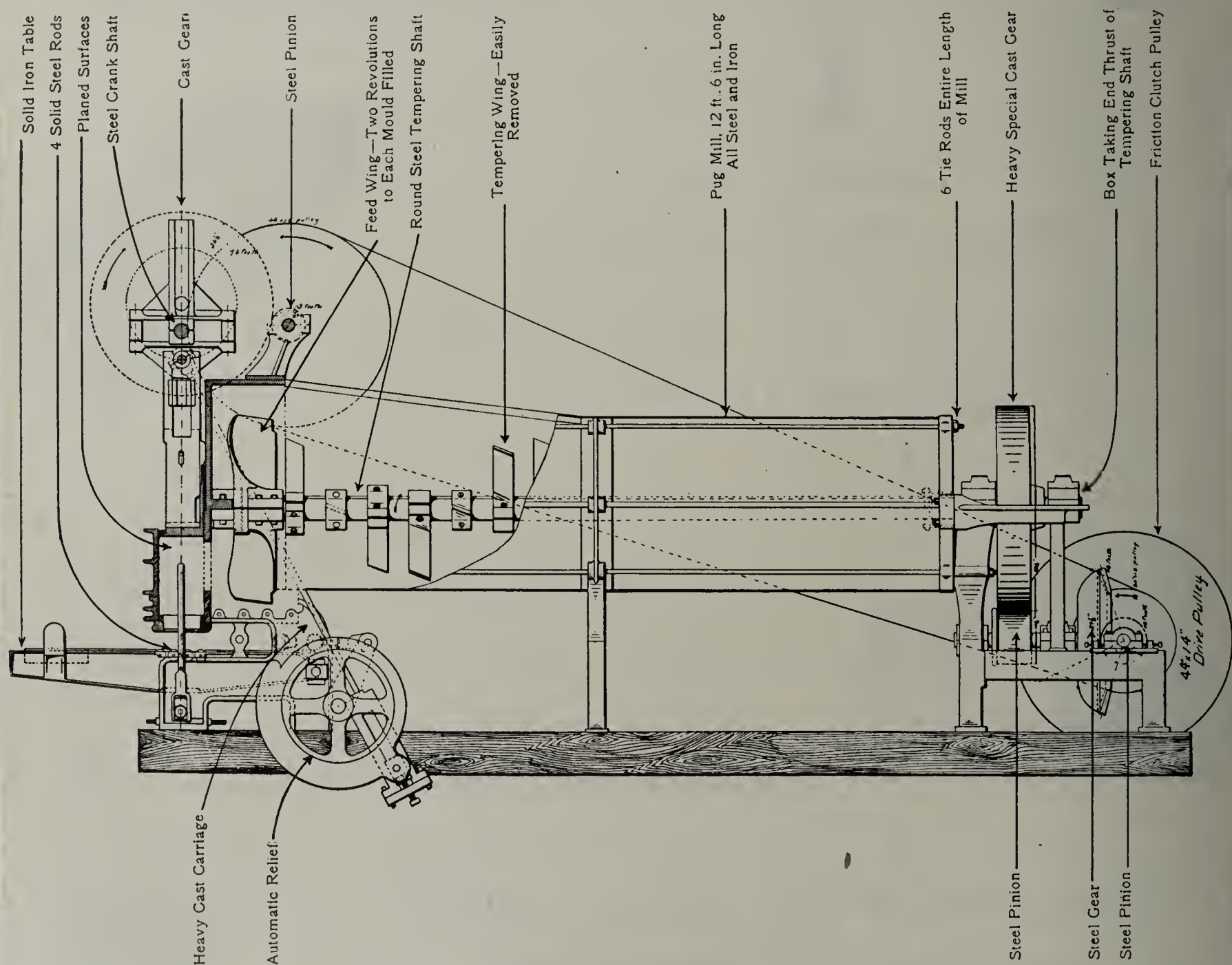
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If interested in new machinery, make a careful comparison of the good points in this machine, then try finding them in other machines. You can't do it.

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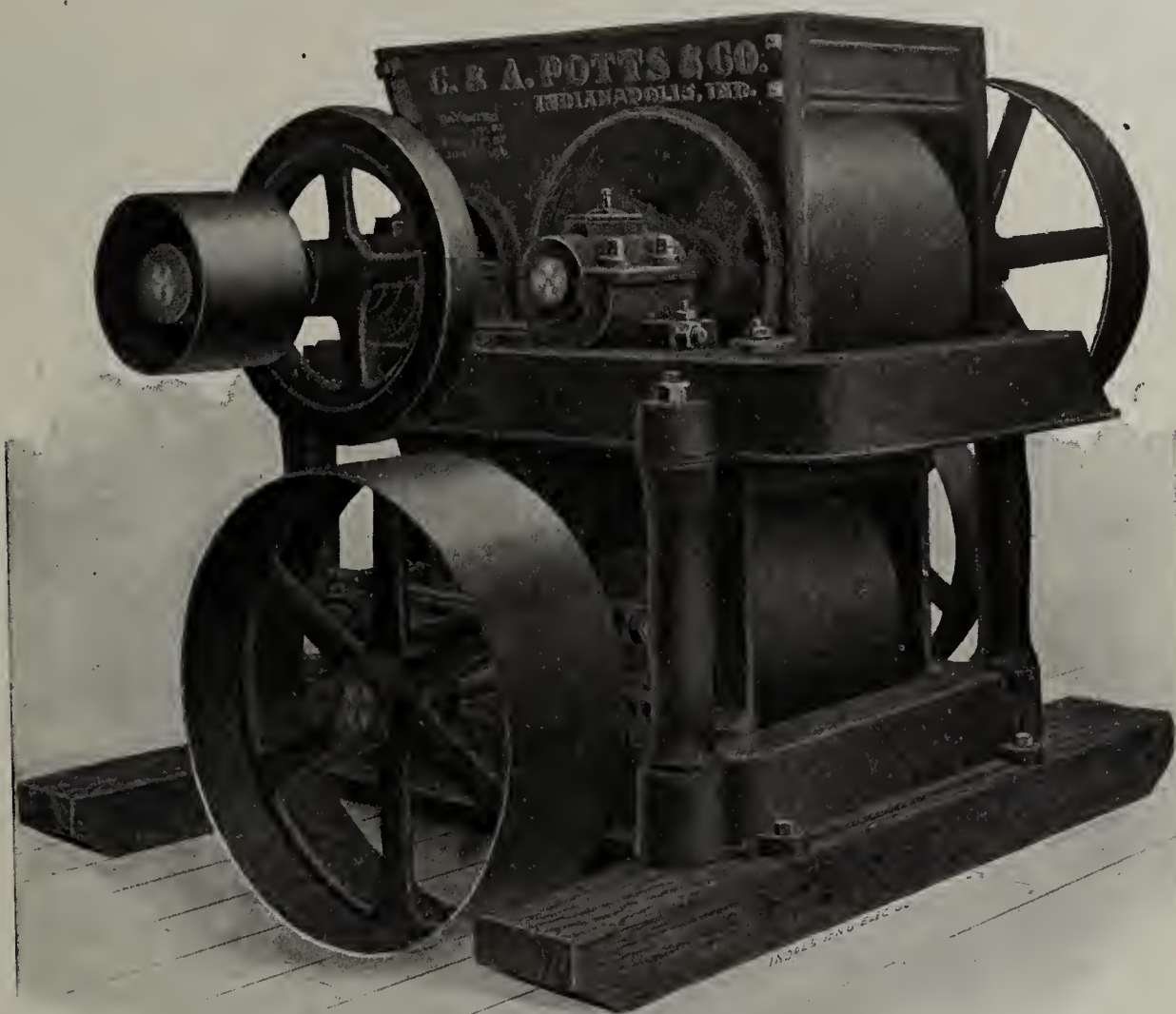
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CRUSHING MACHINERY

OUR SPECIALTY

Years of experience with this line has enabled us to meet all demands and solve problems of all kinds.



Disintegrators, any capacity desired.
Compound Disintegrators and Crushers.
Smooth Roll Crushers, most improved pattern.

If you have a grinding plant which is not satisfactory, let us know your troubles, we can help you. All machines built of good material extra heavy for work intended. All rolls made from special iron thoroughly chilled.

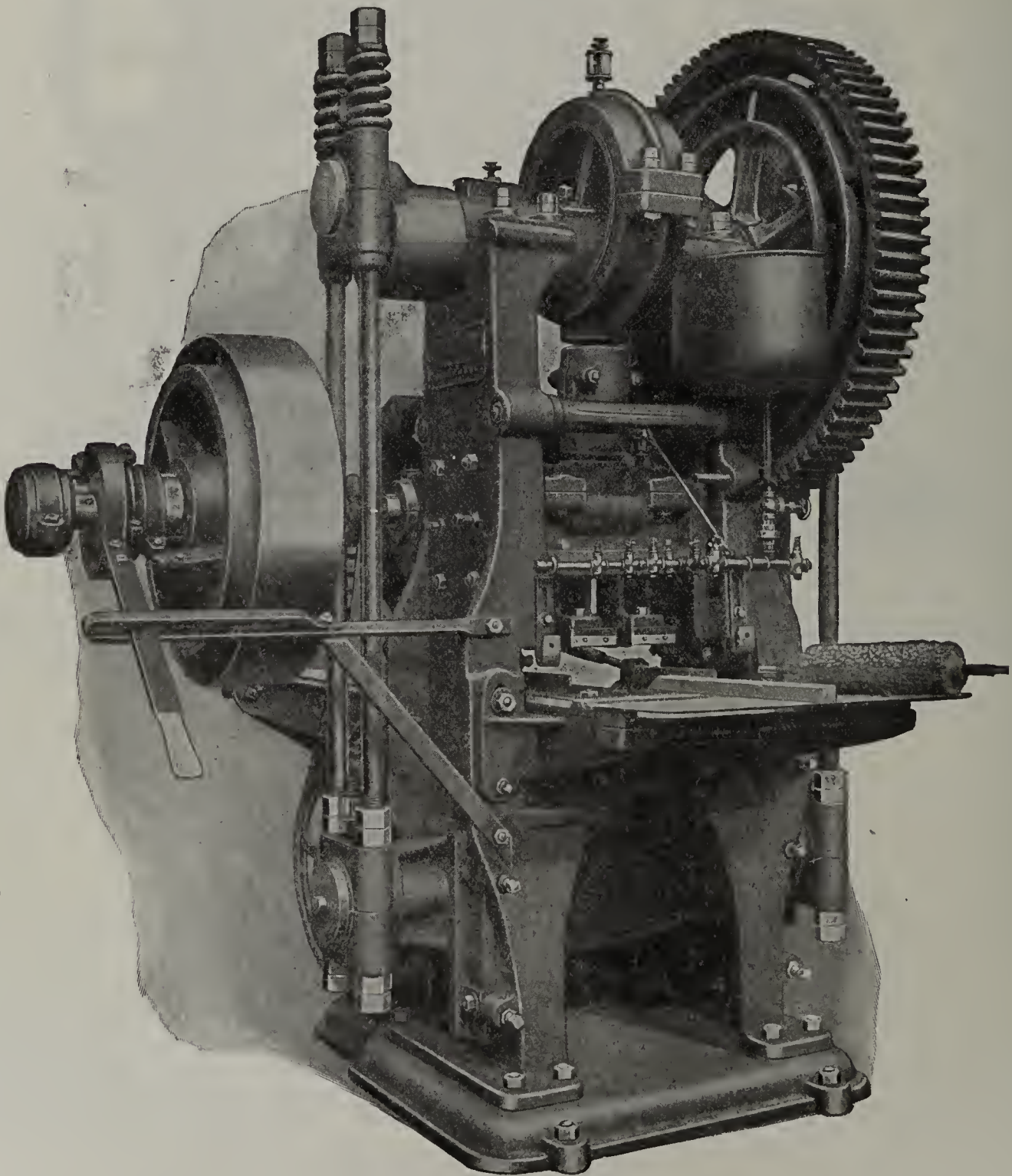
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CANTON REPRESS IS THE BEST BECAUSE

It runs continuously with smooth rotary motion.
It has no toggles or other fast-wearing and trouble-making parts.
It has our **chilled** die box which will outwear any steel die box ever made.
It has accessible and convenient method for changing thickness.
It is preferred by brickmakers and we can prove it.



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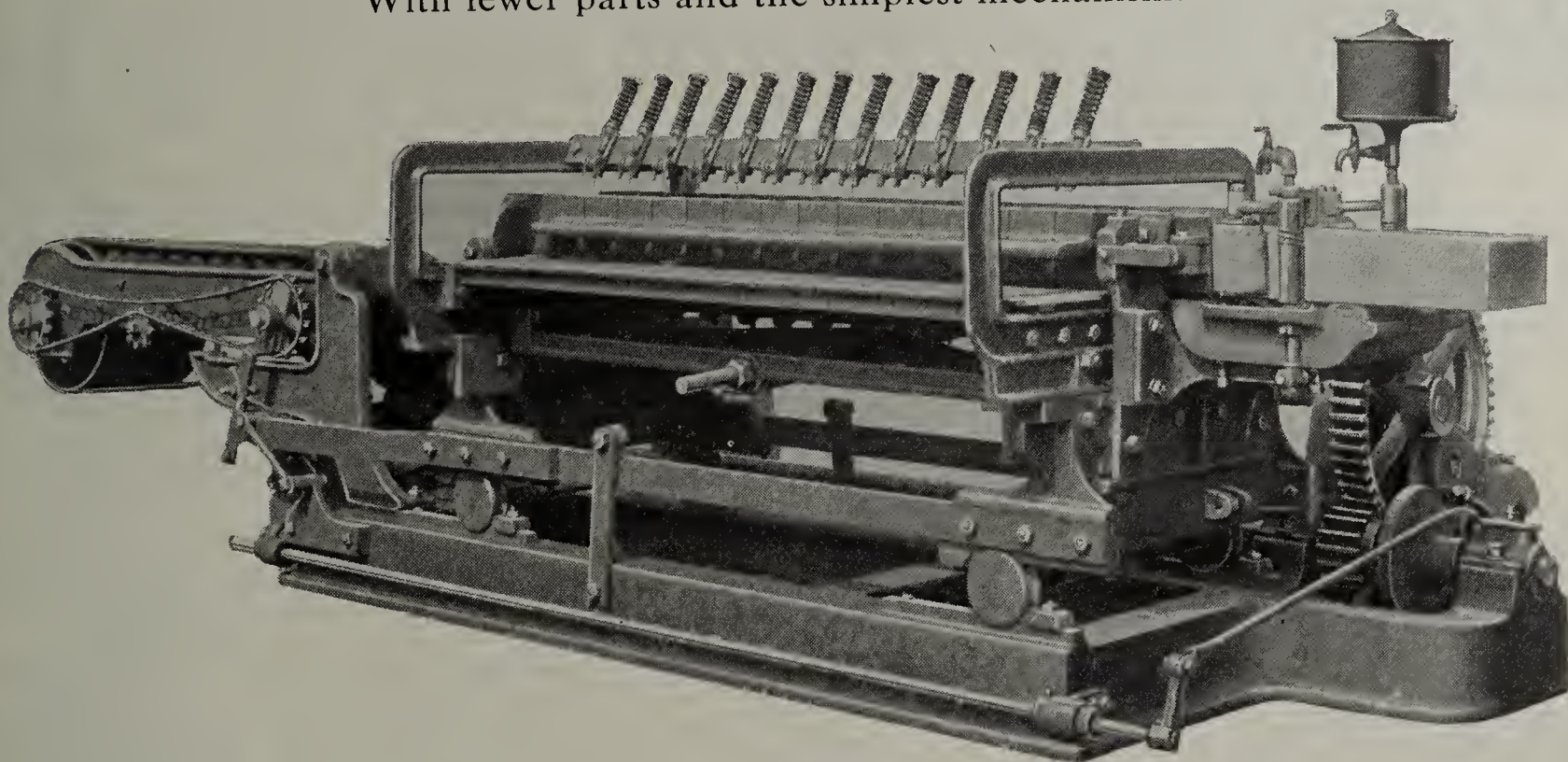
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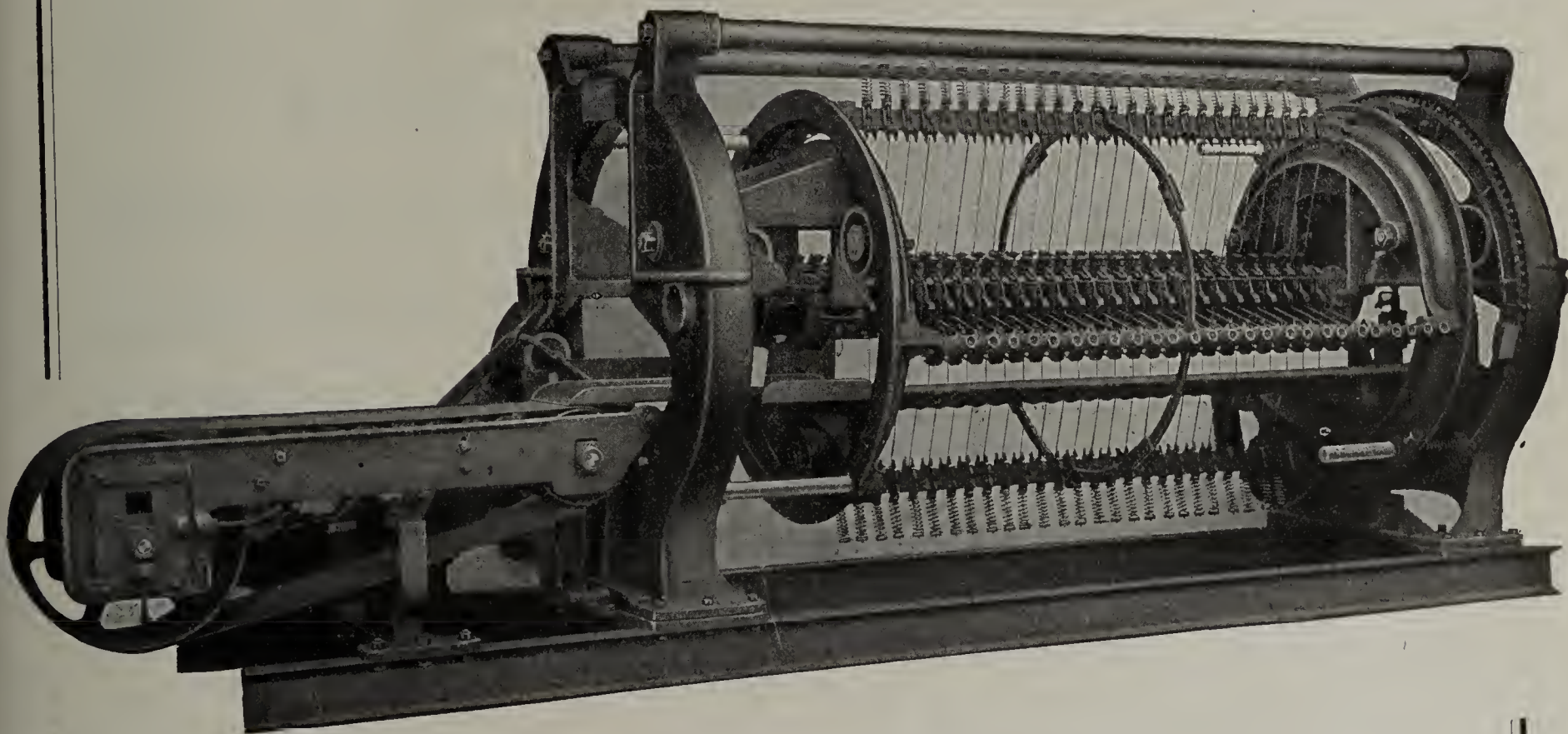


AUTOMATIC CUTTING TABLES

With fewer parts and the simplest mechanism.



Cuts brick within 18 inches of die.
No friction or other aggravations.
Capacity, 10,000 brick per hour.



Only Rotary Automatic Cutting Table, with Cutting Frame next to Die of Machine. Capacity, 100,000 Brick in 10 hours.

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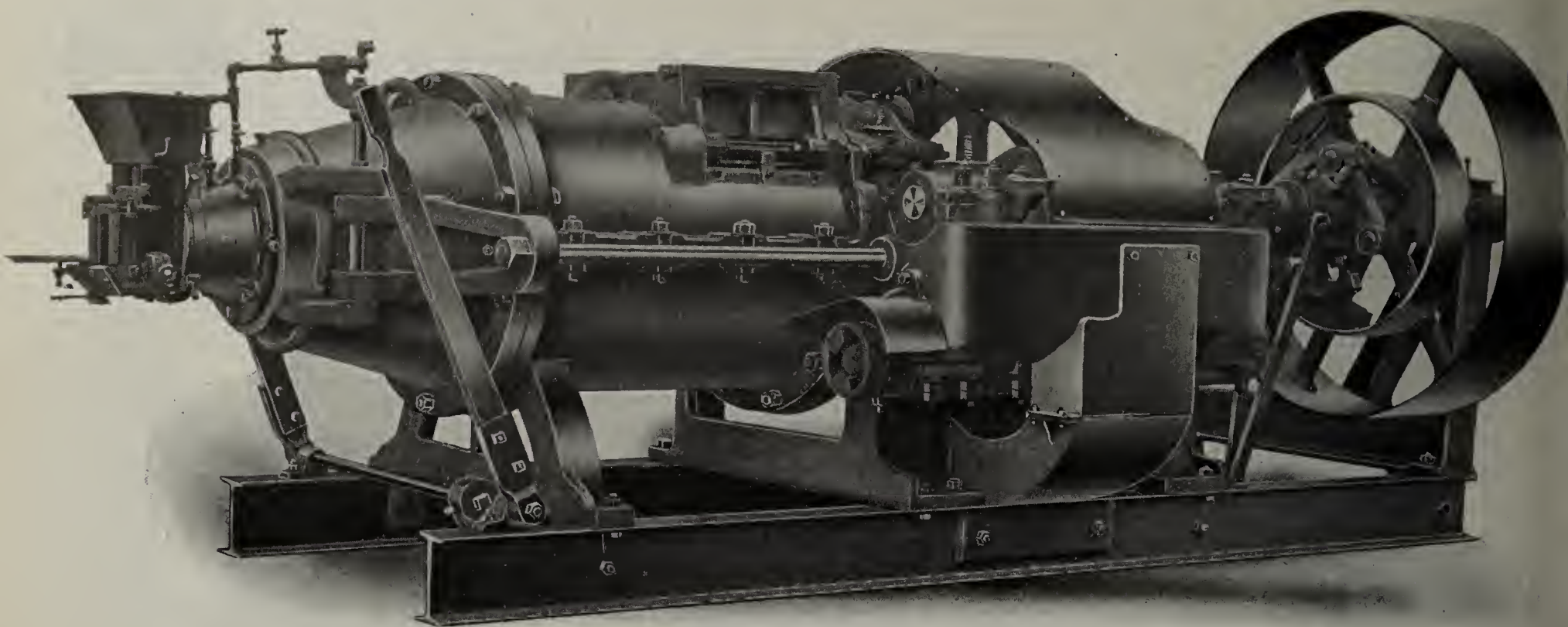
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**Steele No. 5 Brick Machine, Capacity 50 to 100 M Per Day.
Built on 20 years' experience, not on theory.**

Adjustable hardened steel knives, steel shaft with renewable iron shell, main bearing 9 inches in diameter, the end thrust held by U bolt equalizing the pressure. The front is fitted with a renewable chilled bush, steel cut gears running in oil, and other parts liable to break made of steel.

Provided with opening between barrel and main box preventing clay from working into the box.

Guaranteed to produce better and straighter cut brick at less cost than any other for up-keep.

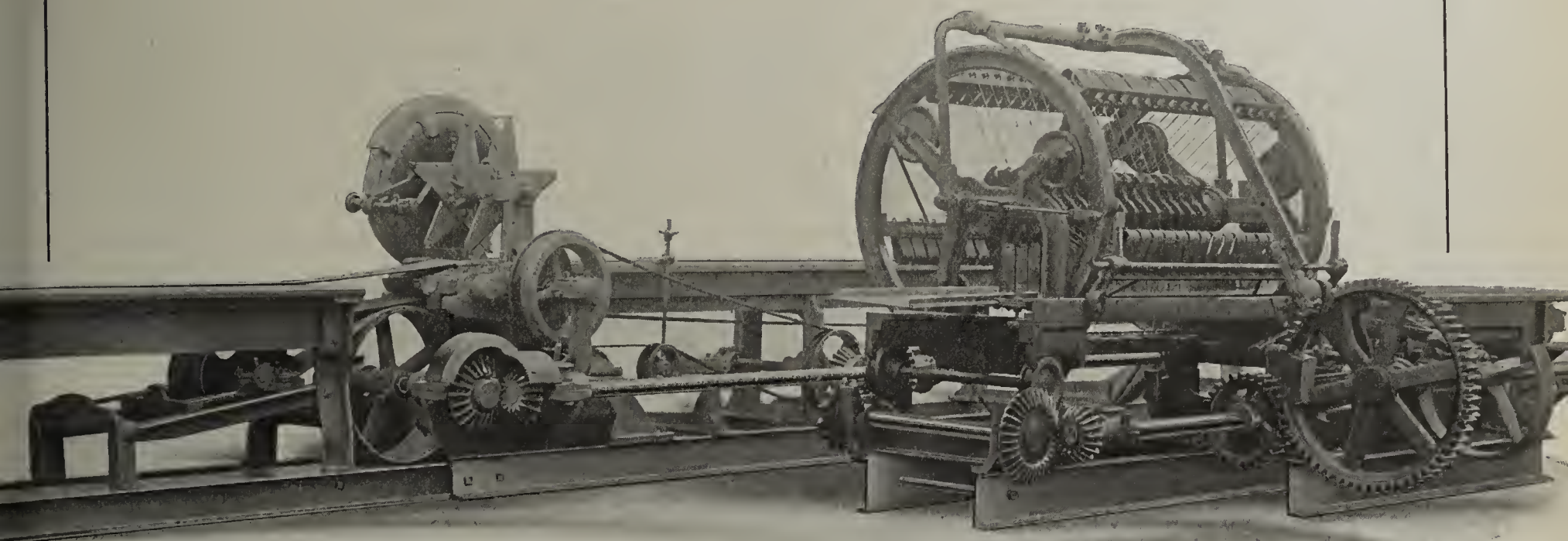
If you have a clay that is too much for the machine you are trying to work, let us hear from you.

Our reputation, long experience and strong progressive organization will guarantee you the best service that can be had.

Write for catalog.

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Statesville, N. C.

BRICK CUTTERS



Examine These Cutters

THEY are so simple and direct in their movements that they are easily understood and kept in good shape, and show minimum wear after long service. They are the result of 20 years' effort and continual improvements.

Our End Cutters will cut up to 30,000 per hour, either flat or on edge. One of these cutters has cut 42,000,000 brick with no perceptible wear on the irregular gears which control the cut.

They are especially adapted to Wire Cut Face Brick as they cut perfectly straight.

Come to our plant and see them in operation.

J. C. STEELE & SONS
Statesville, N. C.

The CLAY PRODUCTS SHOW

EVEN to the casual observer, many features of the Clay Products Show presented lessons which of necessity must have made a strong, almost non-eradicable impression, and brought home with startling force the beauty and utility of the claycrafter's products. Many there were among the visitors who doubtless marvelled at the possibilities of clay when properly manipulated by skilled artisans. But forcible as these lessons were they carry with them largely recollections only of the artistic, whereas in order to derive the greatest benefit from such an exhibition, those who are directly engaged in the work of manufacturing clay products must give heed to the practical lessons to be learned.

To successfully produce clay products from both the artistic and commercial standpoints, it is necessary that the producers have the very best equipment possible to obtain. This applies particularly to the dryer. A dryer that will dry ware more economically than any other as to fuel consumption as well as cost of operation and produce a higher percentage of more uniformly dried ware than any other, is the one that must command attention. Our

JUSTICE RADIATED HEAT DRYER

will do all of this and more.

As experts in this line we solicit your inquiries, which will give us the privilege of going into the matter more thoroughly and enable us to demonstrate the value of this dryer and how really important it is that every progressive manufacturer of clay products should install one.

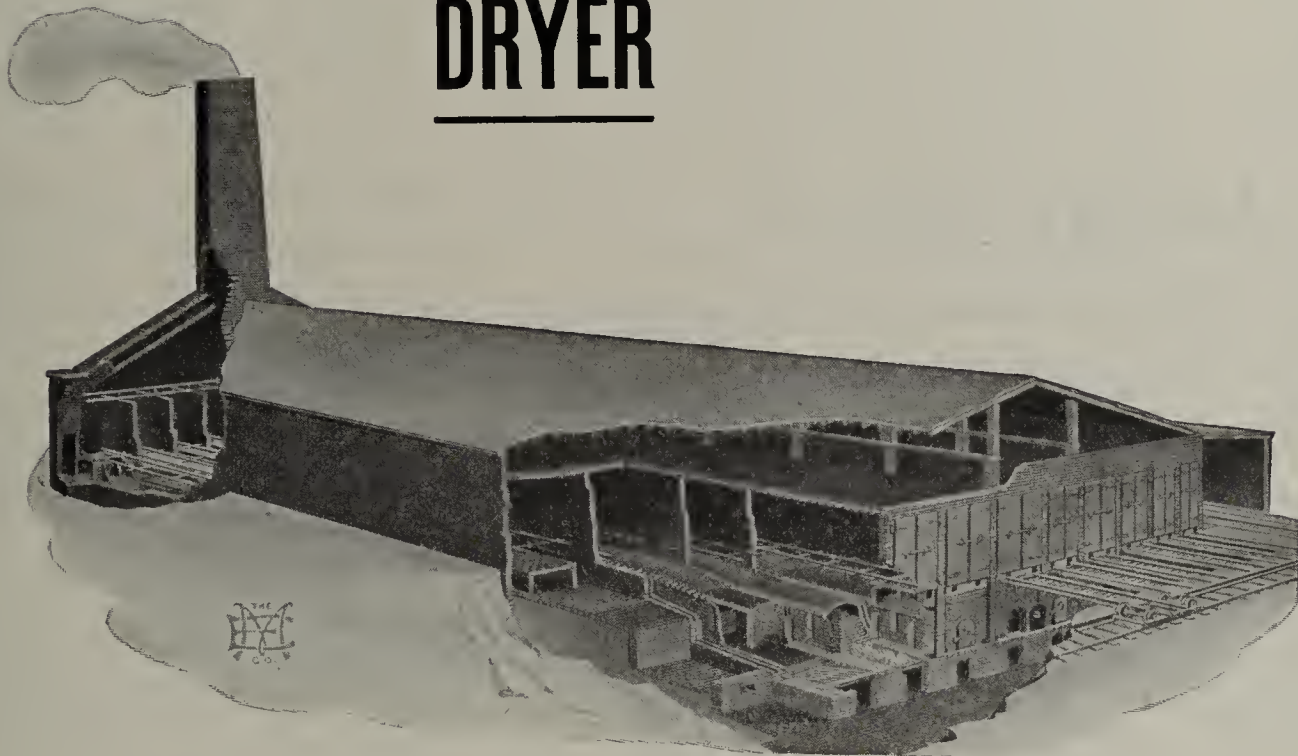
The Manufacturers Equipment Company

Sales Agent for: The J. D. Fate Company's Complete Line of Clay Working Equipment
The Elwood Dry Press The Joplin Rock Crusher

Dayton, Ohio, U. S. A.

Mention THE CLAY-WORKER.

THE JUSTICE RADIATED HEAT DRYER



It will stop your losses in drying and turn that feature of your business into a source of revenue and profit.

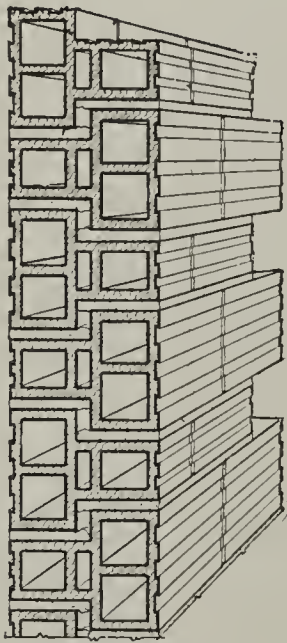
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DENISON TILE

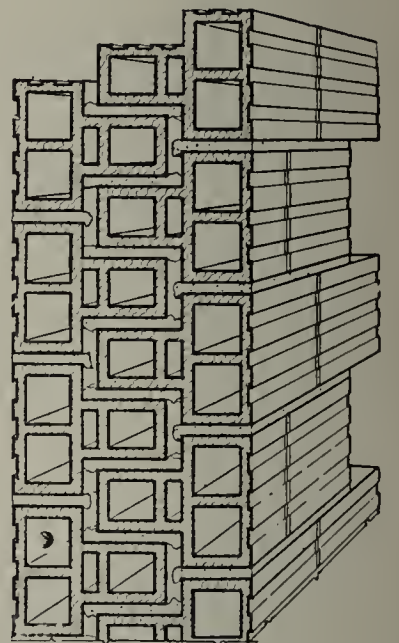


EIGHT INCH WALL

A Wonderful Opportunity

Is offered to a few clay products manufacturers for the securing of rights to manufacture a line that offers them **certain success and big profits.**

Opportunity does not often knock at the door, and this is a chance which should not be neglected. Those who can secure territory for the manufacture of Denison Tile will indeed be fortunate. In a recent issue we published a letter from President Lyle of the Great Eastern Clay Co., one of the largest clayworking concerns in the east, telling of their wonderful success in the sale of this building material. We give below the opinion of Mr. Darling, sales manager of the Clay Product Co., Chicago, who has secured the right to manufacture and sell this material for the Chicago territory.



TWELVE INCH WALL

LOOK!!

During the past month, the Ohio Clay Company has booked the following orders for **Denison Tile:**

St. Mary's Hospital.....	400,000
Eagle School.....	100,000
Youngstown Hotel.....	150,000
Memphis (Cleve. School).....	60,000
Truman Building.....	65,000
	775,000

The equivalent of **five and a half millions** of common brick.

How is that for a below zero month?
Getting orders for Denison Tile is like
"rolling off a log."

It pleases the architects because it can be utilized in the most difficult forms of building construction.
It pleases the owner and building contractor because it can be laid far more cheaply than brick.

Choice Territory Yet Remains. Write Now.

Any clay (fire clay, shale or alluvial deposit) that will mold into shapes and burn to a good hard body without losing its shape is suitable for the manufacture of Denison Tile

OHIO CLAY COMPANY

Schofield Building

CLEVELAND, OHIO

Mr. Darling's Opinion

"We are very enthusiastic regarding the future of the Denison Tile, and we feel that we are fortunate in having our present contract with you, for we believe there are great opportunities for profit in the manufacture of this tile, and that it will be an important factor in future building construction, largely displacing common brick and frame construction in load-bearing walls.

"The architects and contractors are heartily welcoming this new building material, and it will doubtless be specified during the coming year for a large amount of the building construction in Chicago. In fact, we are anticipating now the necessity for increasing our manufacturing facilities to take care of the demands upon us.

"We believe that Denison Tile solves an important problem in cheapening construction costs. Not only will it save large costs in structural steel buildings, but in any class of building it saves the cost of furring, and also reduces the cost of labor and mortar in construction work.

"There is no doubt but what a stronger and better load-bearing wall can be built of this tile than of any other material."

Proclamation:

Governed by an insatiable desire to produce only machinery that will carry the unqualified approval of the clayworker, we have associated with us engineers, mechanical, chemical and ceramic, who are graduates of the great Universities of the World and it is a product of their untiring labors, practical experience and knowledge that we present for your consideration in the following pages.

The C. W. Raymond Co.

*The Strongest Power in the World of
Clayworking Machinery*

Dayton, Ohio, U. S. A.

**The Introduction to the 1912 Raymond
Catalog—Will you let us prove it?**

The Producer Gas Fired Continuous Kiln



OUR NUMEROUS installations of the CONTINUOUS KILN are giving splendid results. On the strength of the proven results, we are now constructing these kilns in all parts of the United States. A saving of 60% of the cost of burning, combined with absolute uniformity of burn and minimum kiln losses makes this Kiln an absolute necessity to the up-to-date clayworker.

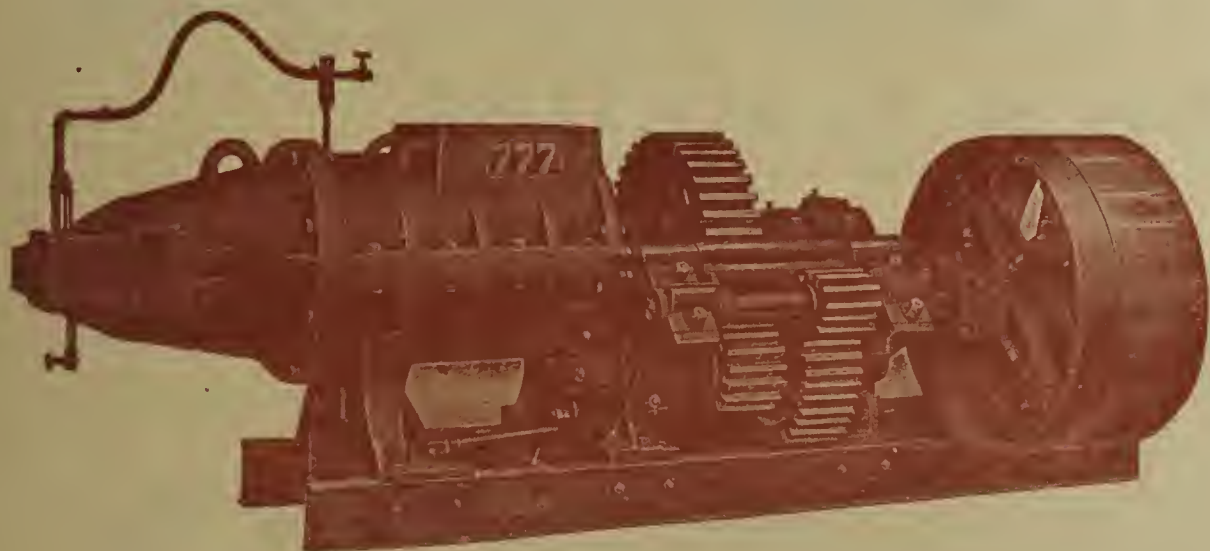
It is built in two types—COMPARTMENT or TUNNEL, and is successfully burning all classes of clay and all the principal products.

Literature fully covering the Continuous Kiln will be mailed on receipt of your request.

THE C. W. RAYMOND CO.

The Strongest Power in the World of Clayworking Machinery

DAYTON, OHIO, U. S. A.



The Brick Plant of The United States Military Prison

at

Fort Leavenworth, Kansas

is equipped with

- 2—Raymond 9 ft. Standard Dry Pans
- 2—Raymond Cup Elevators
- 1—Raymond Piano Wire Screen
- 1—Raymond 10 ft. Standard Pug Mill
- 1—Raymond "777" Brick Machine
- 1—Raymond No. 2 Automatic Cutter
- 1—Raymond Victor Repress
- 1—Raymond 10 Tunnel Radiated Heat Dryer

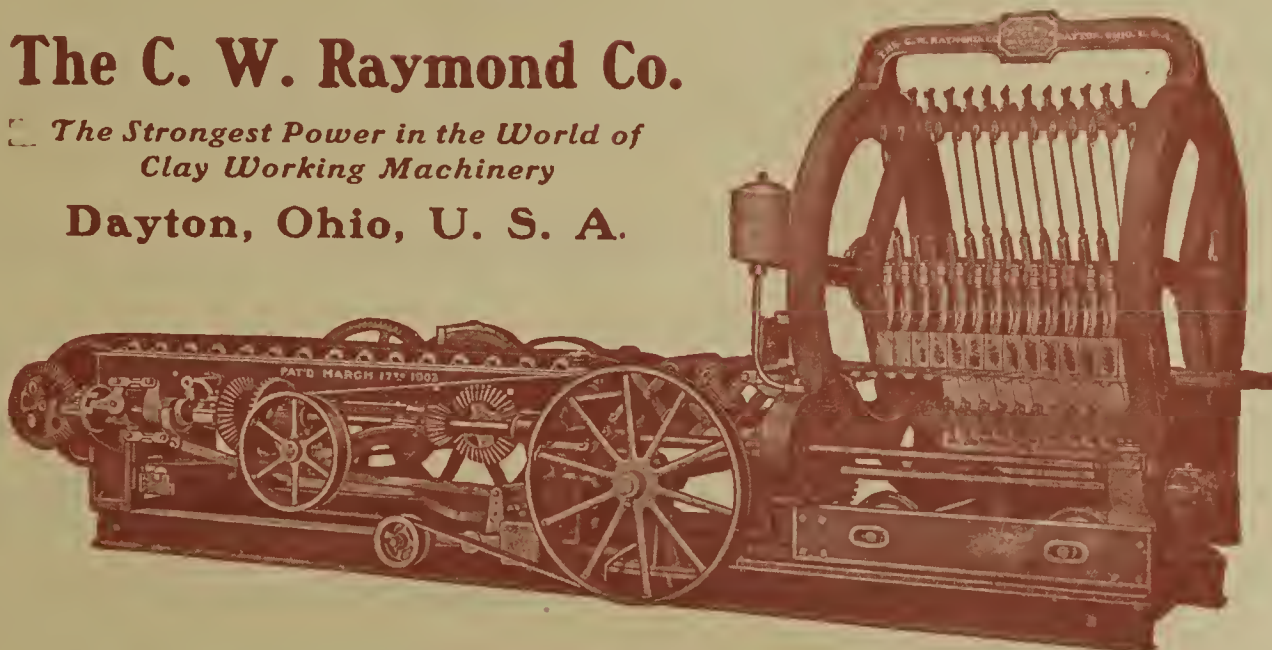
—And They Said,

"—particularly delighted with the quality of the brick manufactured at the Military Prison, and could only attribute its SUPERIORITY over the Lansing brick, which is of the same material TO THE IMPROVED MACHINERY USED."

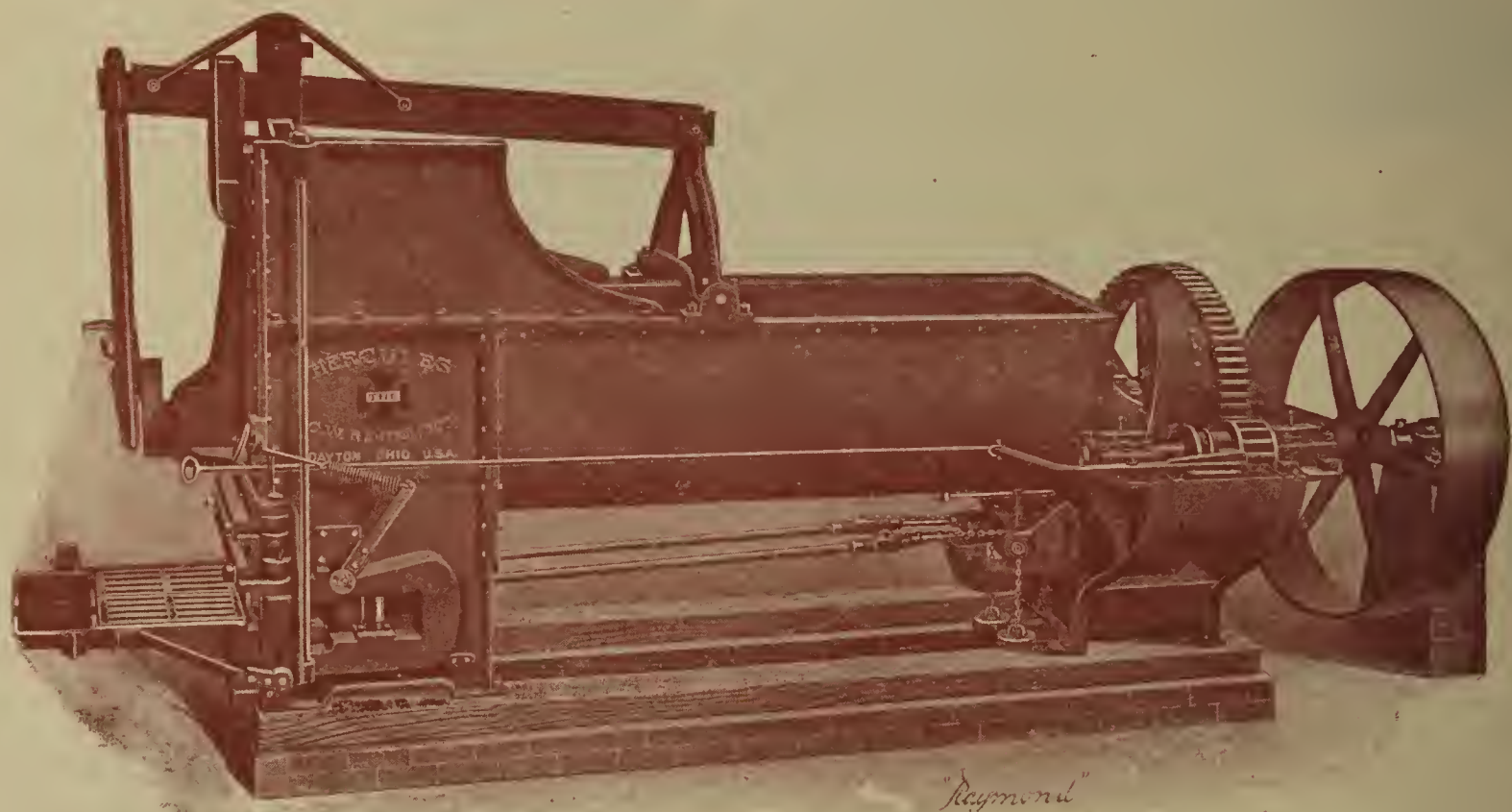
The C. W. Raymond Co.

*The Strongest Power in the World of
Clay Working Machinery*

Dayton, Ohio, U. S. A.



THE RAYMOND HERCULES BRICK MACHINE



Among the numerous improvements made in our machines for the year of 1912 the Soft Mud machinery has come in for its full share and the Hercules Soft Mud machine is now constructed with a vastly improved pushout device, making a positive return and of such shape and size to insure sufficient bearing at this important point that it will not stick nor clog in any manner.

The safety feature of the pushout device has not been lost sight of, but has been improved over the old method by paying more attention to the workmanship and every part of the machine now is put together with the same care and precision as are the most careful adjustments on our Automatic Cutting Tables. The result of this is clear, making as it does a higher grade machine, smoother working, better product and longer life.

Photographs and full description of this improved machine are yours for the asking.

THE C. W. RAYMOND CO.

The Strongest Power in the World of Clayworking Machinery

DAYTON, OHIO, U. S. A.

WE CAN:

Increase the capacity of old Down Draft Kilns, save fuel and time and improve the product with our new Vacuum System.

We build Down Draft Kilns, round or rectangular, that excel **any** kilns as to economy and quality of product.

We Build vacuum waste heat dryers in connection with these kilns and dry brick thoroughly within twelve hours.

We build all kinds of dryers, viz.: Vacuum, Waste Heat, Steam Pipe Rack, Waste Heat Pipe Rack, Steam Blower, Radiated Heat and Combination.

We furnish plans and specifications and build brick and other clayworking plants complete.

We make chemical analyses of clay.

We investigate, make physical tests and develop clay properties.

We remodel and rejuvenate old plants.

We have had 30 years' practical experience building, developing and operating clayworking plants.

ED. H. CALLAWAY ENGINEERING CO.

Engineers, Brickologists and Clay Specialists

50 Church Street, New York City

You Can Save Money

Time and Trouble

By making your choice of magazines for coming year and ordering them all at once through THE CLAY-WORKER.

Knowledge is Power

The best way for clayworkers to get trade knowledge is through the columns of the best clay journal, THE CLAY-WORKER. The up-to-date, successful manufacturer usually keeps posted on current events through the current magazines. The home should be provided, and usually is, with journals devoted to domestic interests and to the welfare and pleasure of the women and children. All of these, whether literary or technical, we offer at prices that will net a saving of 25% to 50% on your magazine purchases for the ensuing year.

(These prices are good only in the United States. Special prices will be quoted to points beyond the United States covering additional postage required.)

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If none of the foregoing combinations is just what you want, write us for special prices on any magazines or papers desired and we will quote you equally low prices.

Send all orders to The Clay-Worker.

T. A. Randall & Co., Pub. Clay-Worker, Indianapolis:

You will please send The Clay-Worker and the other magazines named below to me for the ensuing year beginning with the next current issue of each for which

I enclose \$.....

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Postoffice.....

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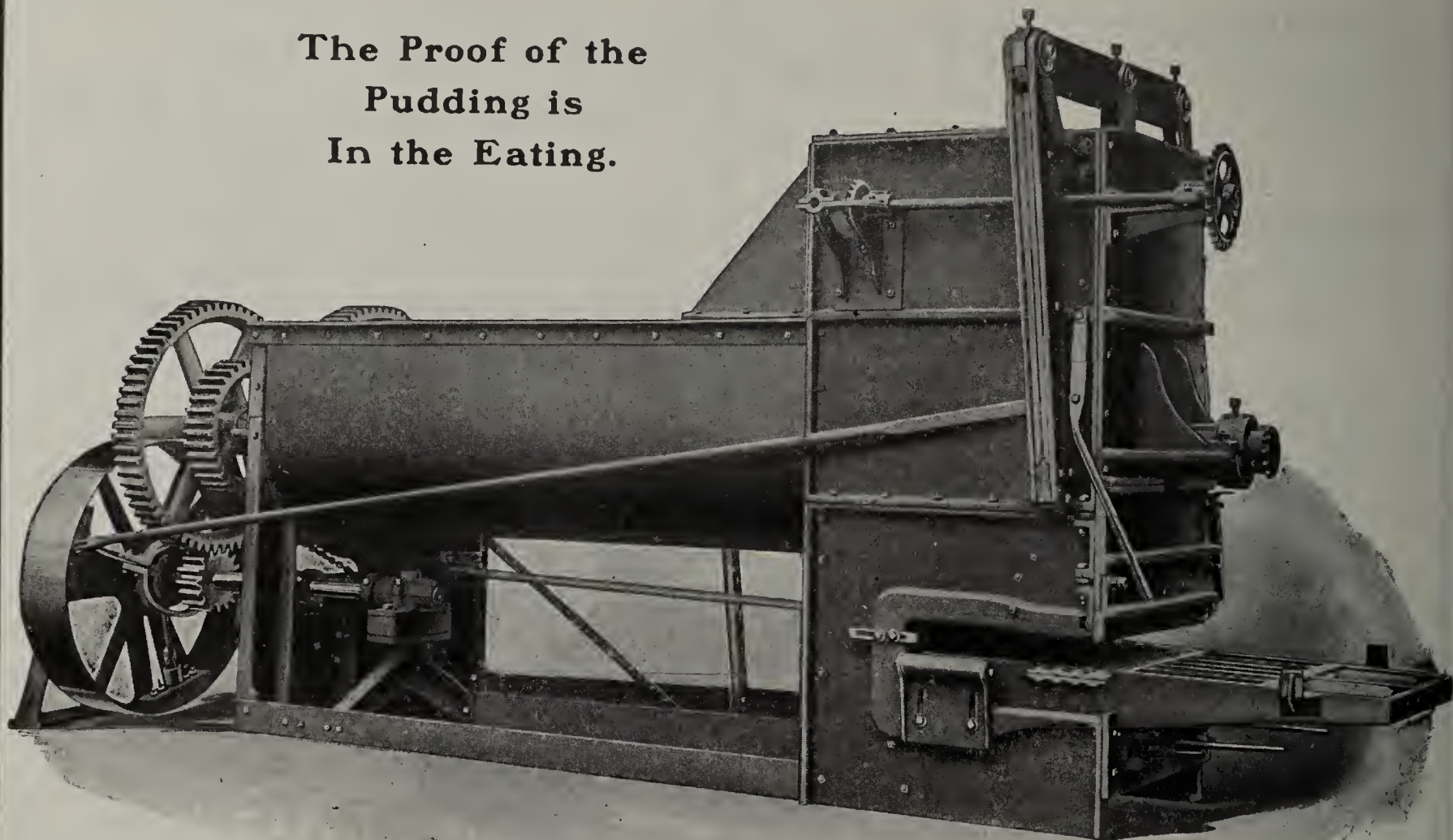
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Has Your Brick Machine Cost You Over \$16.80 a Year for Repairs?

That's the Record of a DUKE OF WELLINGTON at The Riverside Fuel & Supply Co.'s Yard, Fremont, O., on a Five Years' Run.

The Proof of the
Pudding is
In the Eating.



The above is not an exceptional record for our Duke Machine. Names of many users—some with lower repair records than this—given on request. ***What it has done for others it will do for you.***

Built under the direction of our competent engineers—strengthened where strength is needed, every vital part of the most scientific mechanical design.

Molds the clay very stiff—which some machines cannot.

With the pug shaft making two revolutions to each mold of brick, obviously pugging the clay more than any machine of its class, with a result that there is absolutely no air in the clay, and ***every end brick is perfect.***

Guaranteed not to break nor wear for one year. This means ***we will replace free of charge*** on cars here ***all parts which do break or wear in that length of time.***

Write right now for our catalogue, which describes this and 11 other machines; also

Pugmills,
Disintegrators,
Crushers,
Sanders,
Winding Drums,

Clay Cars,
Sand Dryer,
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Rack Dryer Cars,
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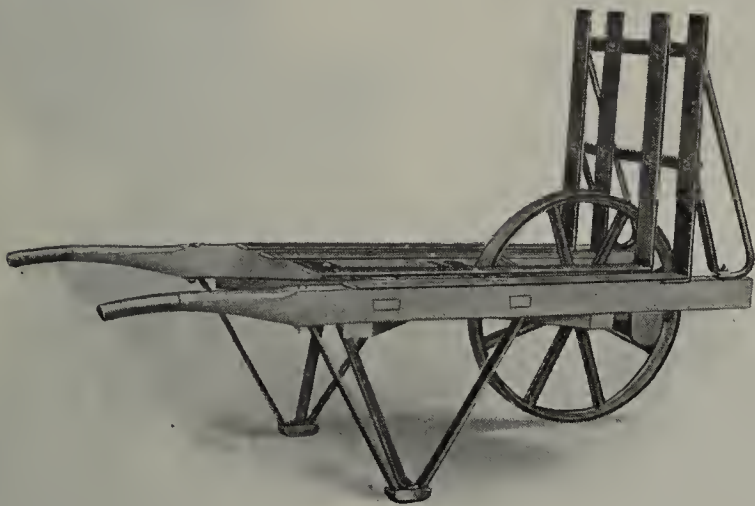
Elevators,
Trucks,
Barrows,
Molds,
Kiln Castings

THE WELLINGTON MACHINE CO., Wellington, Ohio



Roller Bearing Brick Barrow,
Price \$7.50.

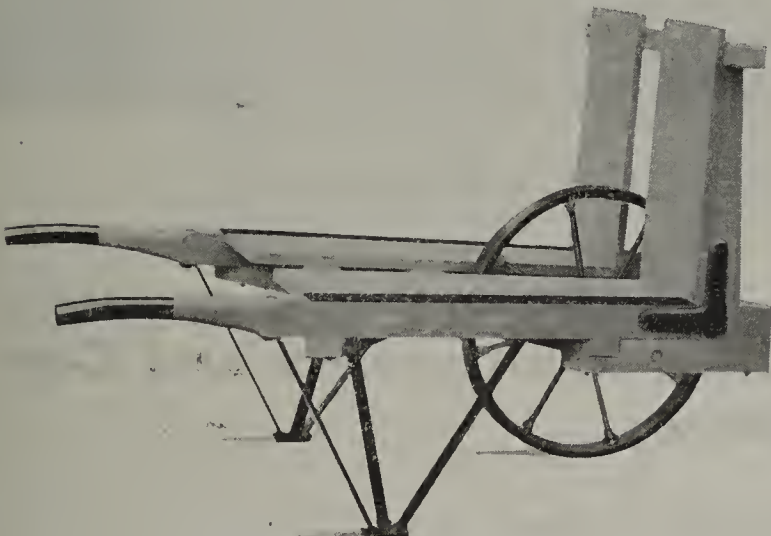
Have sold thousands of this style to brick manufacturers all over the country.



Steel Slat Barrow,
Price \$9.00

"We have been using your line of Barrows for a great many years. We use your Steel Slat Barrows for handling brick from kiln to cars; we consider these Barrows the very best there is on the market. Are unable to suggest any improvement as we consider them perfect."

WESTERN CLAY MANUFACTURING CO.
per C. H. Bray.
Helena, Mont.



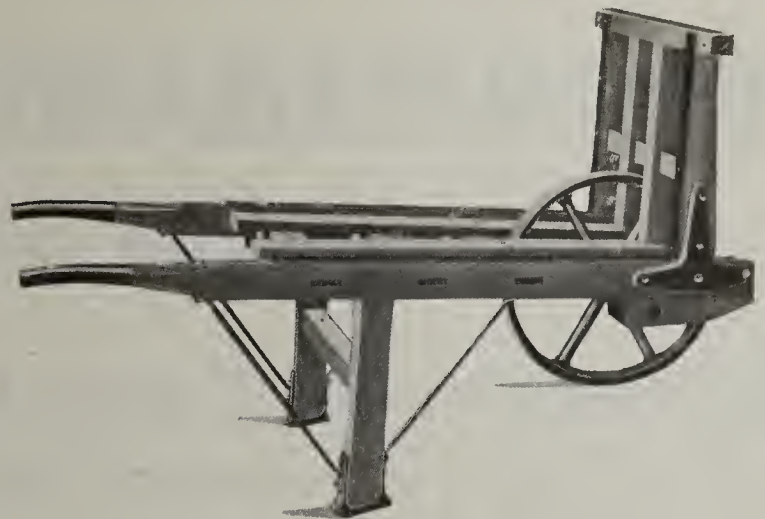
Regular Brick Barrow,
Price \$6.50.

"We cannot say too much for your Regular Bearing Barrows; they are the only Barrows we have been able to get that would stand the rough handling that a Brick Barrow gets in handling burnt brick. Our men have dumped them from runs 10 and 15 feet high loaded with 75 brick, without any damage to them at all, and before we secured your Barrow we would have a Barrow smashed up every day or two. We consider that these Barrows will pay for themselves twice in a season over any other Barrow we have had."

MOUNTAIN BRICK CO., Williamson, W. Va.

Many other Styles shown in our Thirty-Third Year Catalogue, yours for the asking.

THE WELLINGTON MACHINE CO., Wellington, Ohio

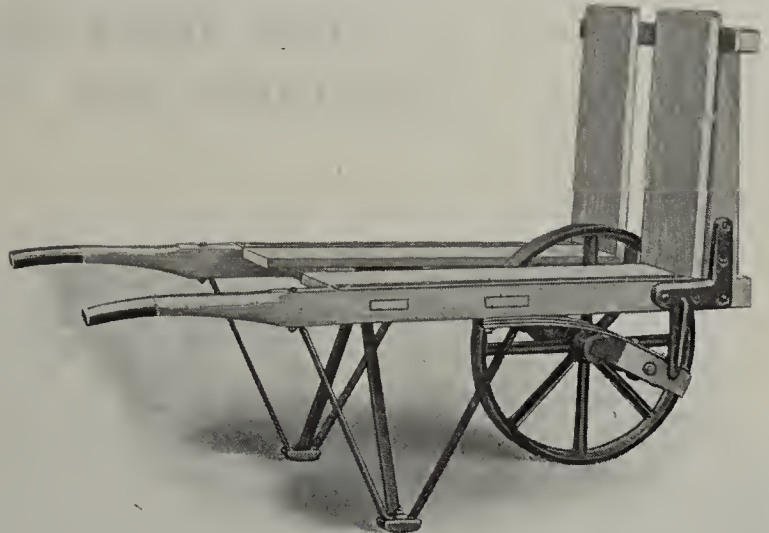


Extra Heavy Burnt Brick Barrow,
Price \$7.50.

"The Wheelbarrows have been most satisfactory in all respects."

THE NEW JERSEY CO.
New York City.

(Using 50 Extra Heavy Barrows.)



Spring Brick Barrow,
Price \$7.50 and \$8.50.
Regular and Roller Bearing.

"We have had very good results with your Barrows, as much as could be expected of wood and metal when put to the hardest kind of service."

THE STRAITSVILLE IMPERVIOUS BRICK CO.
New Straitsville, Ohio.

(After having purchased 48 of our Spring Barrows.)



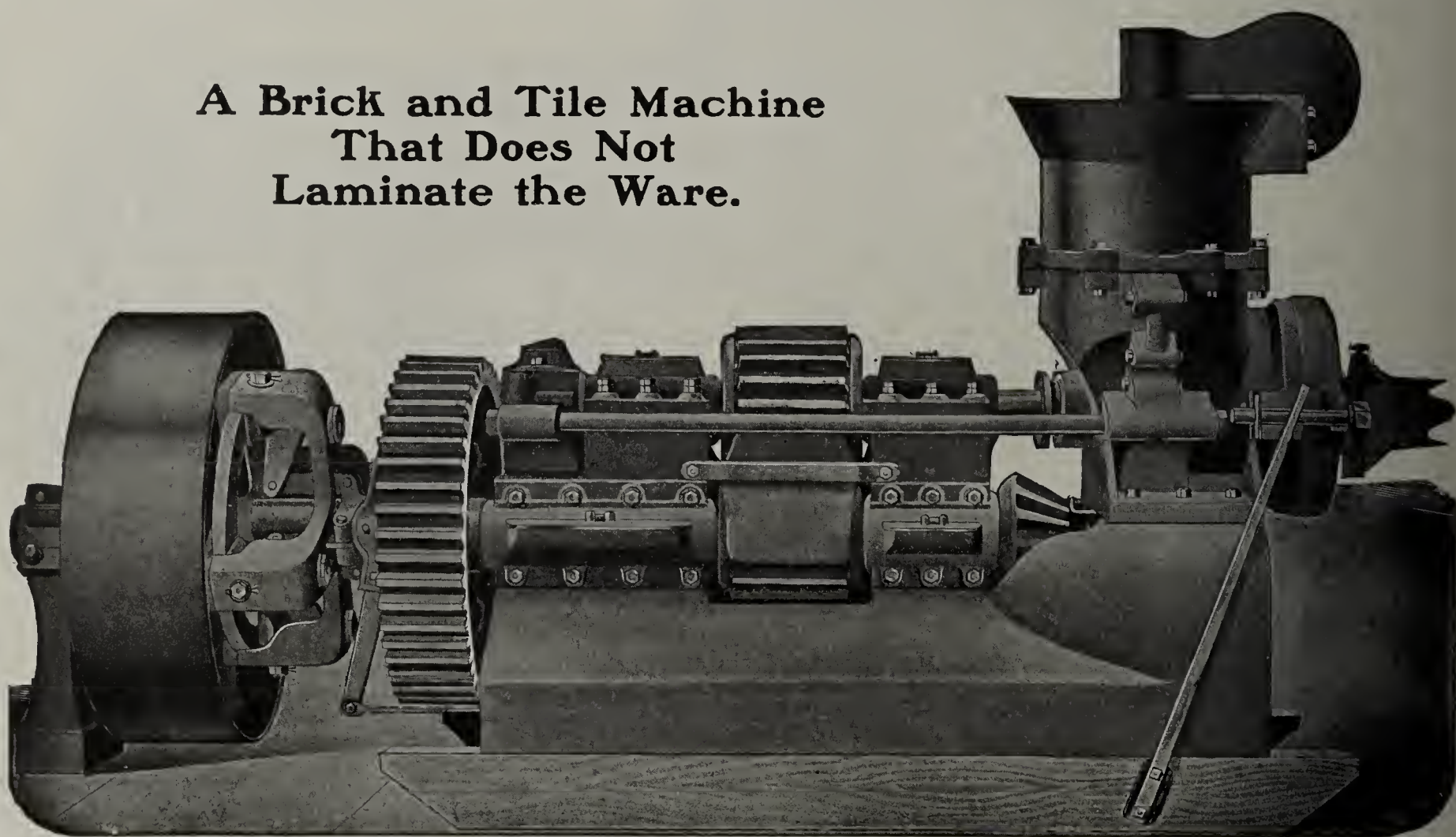
Regular Barrow.
Showing Solid Construction and Braces.

TURN FAILURE INTO SUCCESS

With The Wonder Machine.

A Machine of Large Capacity. Unequaled in
Record of Durability.

A Brick and Tile Machine
That Does Not
Laminate the Ware.



The Big Wonder Brick and Tile Machine.

We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans, Disintegrators, Pug Mills, Granulators and Corrugated and Smooth Roll Crushers.

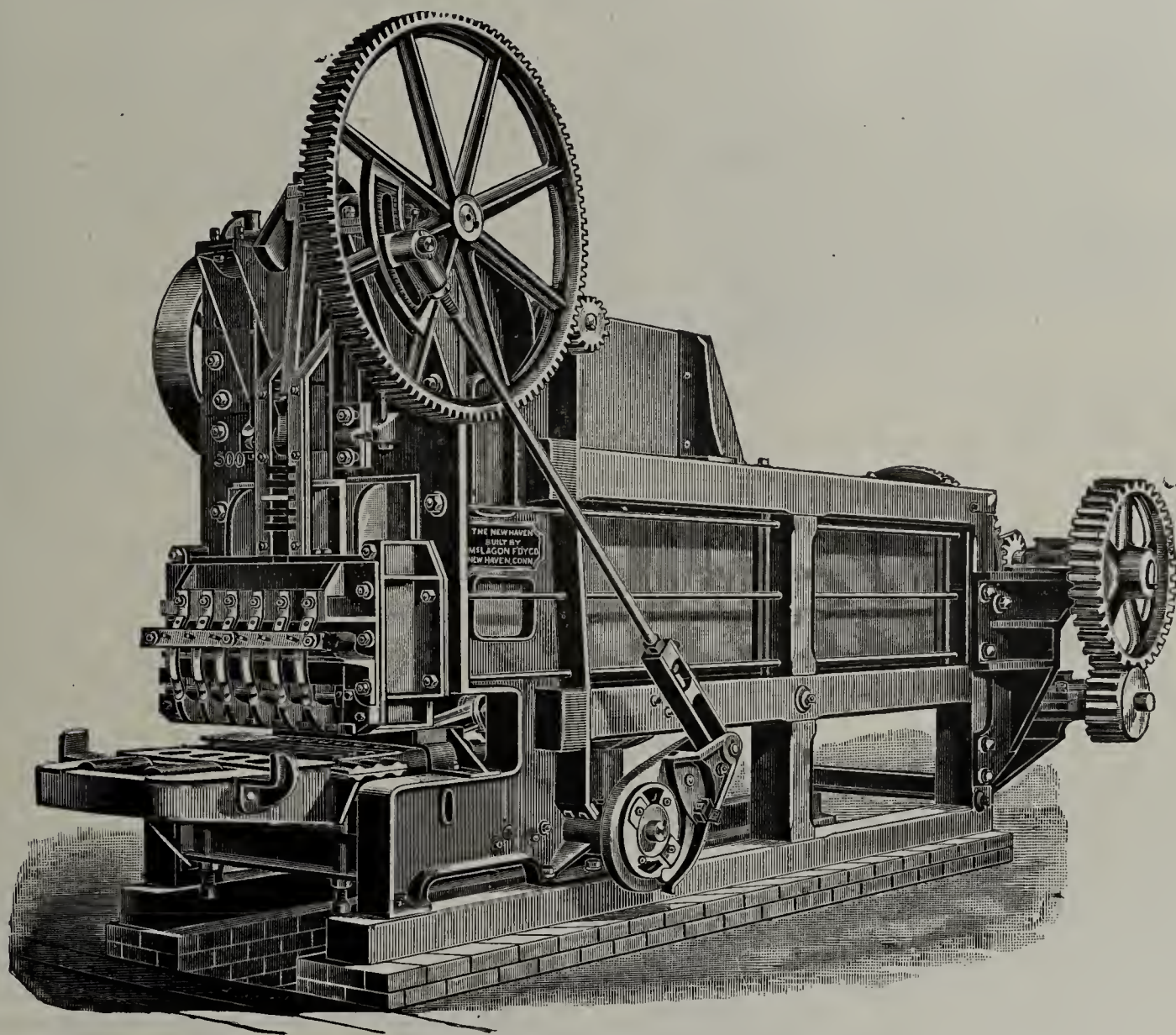
Write for Catalog and Prices.

THE WALLACE MFG. CO.,
FRANKFORT, IND.

Endurance the Crowning Quality

The "New Haven" Horizontal Brick Machine is the Strongest Soft Clay Brick Machine in the World.

It is adapted to work any clay and is suitable for any yard, large or small, that uses steam for motive power. The brick made on it are solid and square, having smooth surfaces and sharp corners. For **Quantity** and **Quality** of production we challenge comparison with any machine built. The capacity of the machine is really limited only to the facilities for handling the brick as they are made.



"New Haven" Horizontal Brick Machine.

We will be pleased to submit estimates for a complete plant or any portion of one. We can furnish machinery of the most modern and approved construction for soft mud plants of any capacity at reasonable prices. Shafting, hangers, bearings, pulleys, gearing and machine work of all description.

The EASTERN MACHINERY CO.

NEW HAVEN, CONN.

The C.-W. Vest Pocket Kit

The
Handiest
Combination
Ever
Invented

18 TOOLS IN ONE.



AN ARTICLE OF REAL MERIT.
CAN BE USED IN A THOUSAND WAYS
AROUND THE HOME AND OFFICE.

This remarkable combination is one that everyone whether young or old will find useful in a hundred ways every day. It is in no sense a toy or trinket, but a practical combination of several useful tools all in one that one needs oftentimes when there is nothing else suitable within reach. Carried in the VEST POCKET or kept in the DESK, it is always within reach and ready for immediate use as occasion arises.

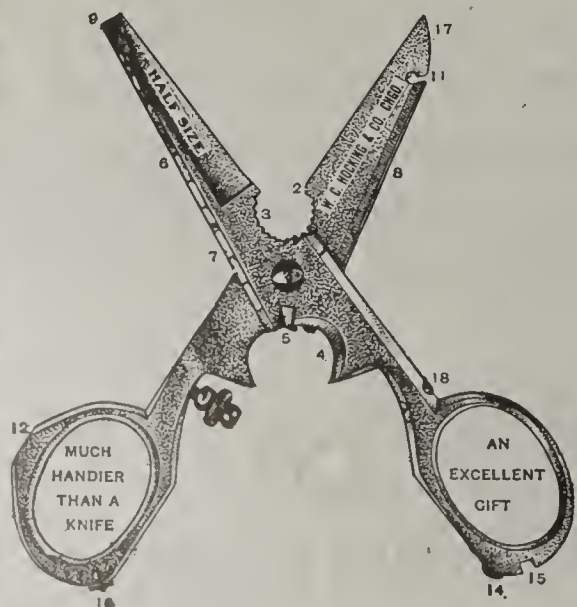
To smokers it will prove a boon, as it is a perfect Cigar Clip. As a Screwdriver, as a Light Hammer, as a Nail Clip and File, as a Wire Cutter and for innumerable uses that either Scissors or Knife may be put to it is a perfect gem.

It is, in brief, a little tool chest all in one compact device, and the novelty of the combination and the excellence of the kit both in material and construction makes it a marvel of convenience.

Once seen and used, you will not willingly be without it. Scissors are no more feminine than is a Jack Knife, and this C.-W. Vest Pocket Kit is really the more useful of the two. The inventor has out-Edisoned Edison in this clever combination which is offered FREE with every **new subscription** to The Clay-Worker.

Clay-Worker and V. P. Kit, \$2.00.

C.-W. Vest Pocket alone, \$1.00.



T. A. Randall & Co., Publishers The Clay-Worker, Indianapolis:

You will please send me THE C.-W. VEST POCKET KIT and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued.

beginning with the.....issue. Enclosed find \$

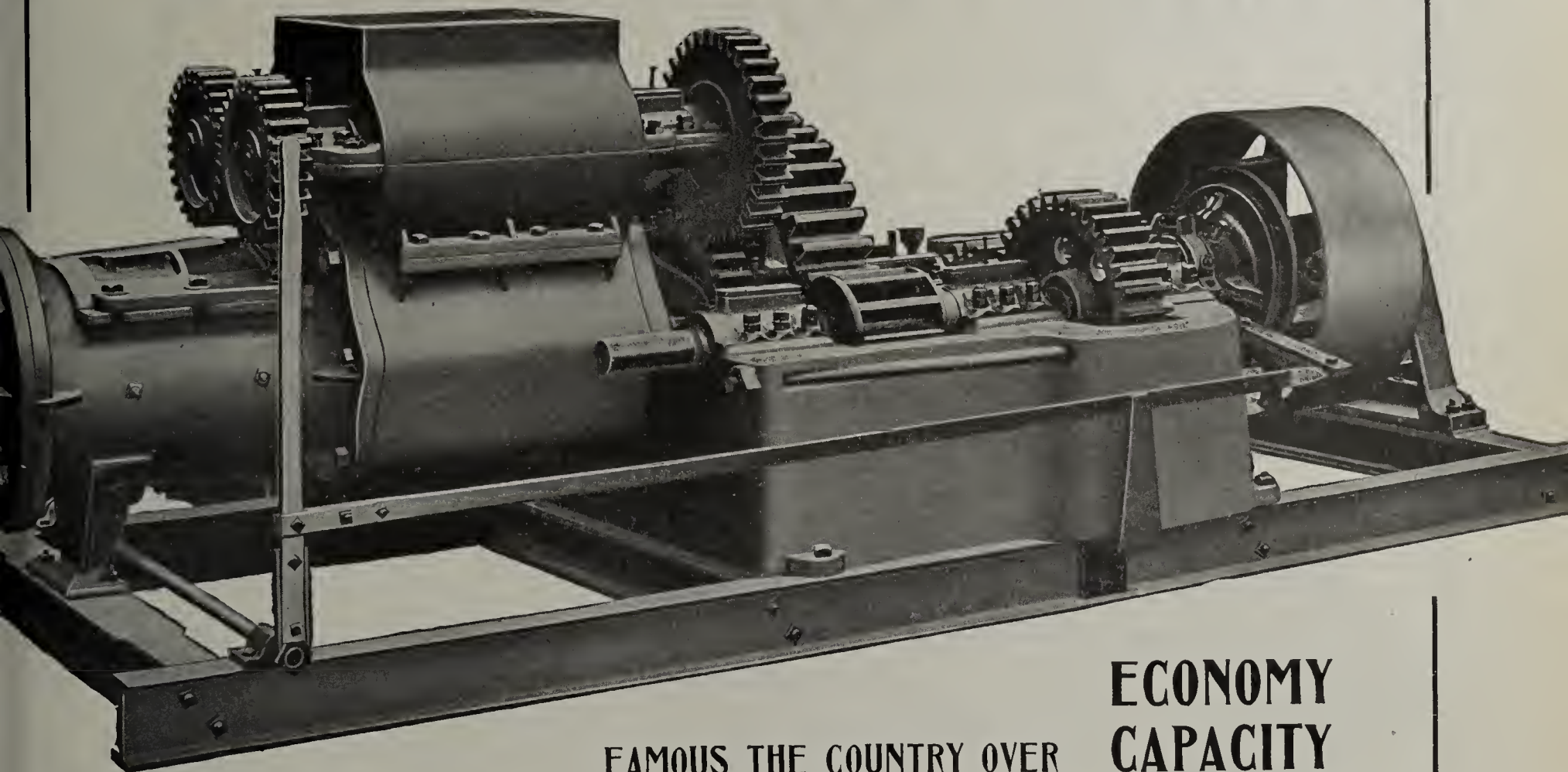
Name

Postoffice

Street and Number

County.....State.....

MADDEN MACHINES



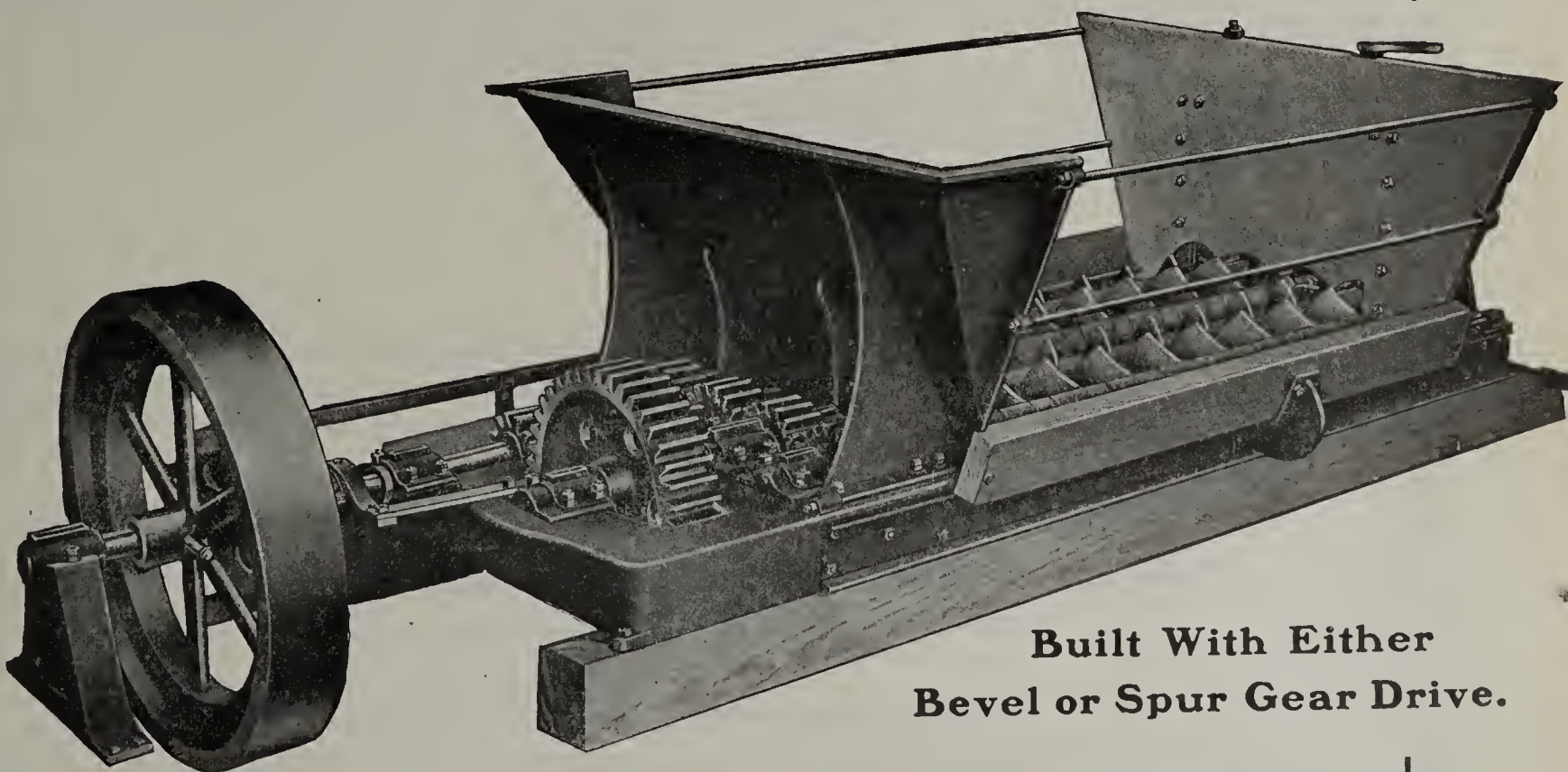
FAMOUS THE COUNTRY OVER

**ECONOMY
CAPACITY
QUALITY**

Used in the most successful Clay Plants in the manufacture of Drain Tile, Brick, Hollow Blocks, Silo Blocks, Fire Roofing, and paving Brick.

TALK WITH ARBUCKLE

We can equip your entire plant with crushers, integrators, FEEDERS, Dumpables, Elevators and any machinery used in Clay-working Plants.



**Built With Either
Bevel or Spur Gear Drive.**

Write to **ARBUCKLE & CO., Inc.** Rushville, Ind.

Successors to Scott-Madden Iron Works Co. Rushville Plant.

(Sold by Scott-Madden Iron Works Co., Keokuk, Iowa)

Mention THE CLAY-WORKER.

HAIGH'S IMPROVED NEW SYSTEM OF CONTINUOUS KILN

Arranged to Suit All Locations.

These Kilns can be seen burning Roofing Tile, Drain Tile, Dry Pressed, Facing, Fire, Paving and Common Building Brick, and burning from 5,000 to 200,000 brick per day.

Points of Superiority:

Cheapness in construction. Easy to understand and operate. Perfectly free from any nuisance. We save more than one-half the fuel and half the labor used on other kilns.

With our new draft flue arrangement we get absolutely the highest economy. Our new waste heat arrangement, both for water-smoking in the kiln, and in drying the brick in the dryer, has no equal.

We claim the nearest to 100% No. 1 product, and want you to see them.

Read the following letter from the Wise County Brick Company:

BRIDGEPORT, TEXAS, AUGUST 5, 1911.

MR. H. HAIGH,
Catskill, N. Y.

DEAR SIR:—We have your favor of 1st inst and are handing you herewith check to balance our account, for drawings, specifications and rights for your system of continuous kiln, in this connection we desire to thank you for the many courtesies extended. Our relations with you have been very pleasant indeed, and the kiln is a fuel saver.

Business conditions have been such here that we have not been crowded with orders this year, but even under those conditions we are now adding four additional chambers to the kiln, which will then give us twenty-four chambers.

With best wishes for your continued success, we are,

Very respectfully yours,

WISE COUNTY BRICK CO.,
J. V. MONTRIEF, Secretary.

(This kiln was constructed from plans and written instructions wholly; neither myself nor any of my men have ever seen it, yet the company has operated it successfully for two years which is ample proof of the simplicity of the construction and operation of my kiln.—Hervey Haigh.)

**This Kiln can be Fired with Coal, Wood, Oil Natural
or Producer Gas.**

For further particulars and information address

H. HAIGH

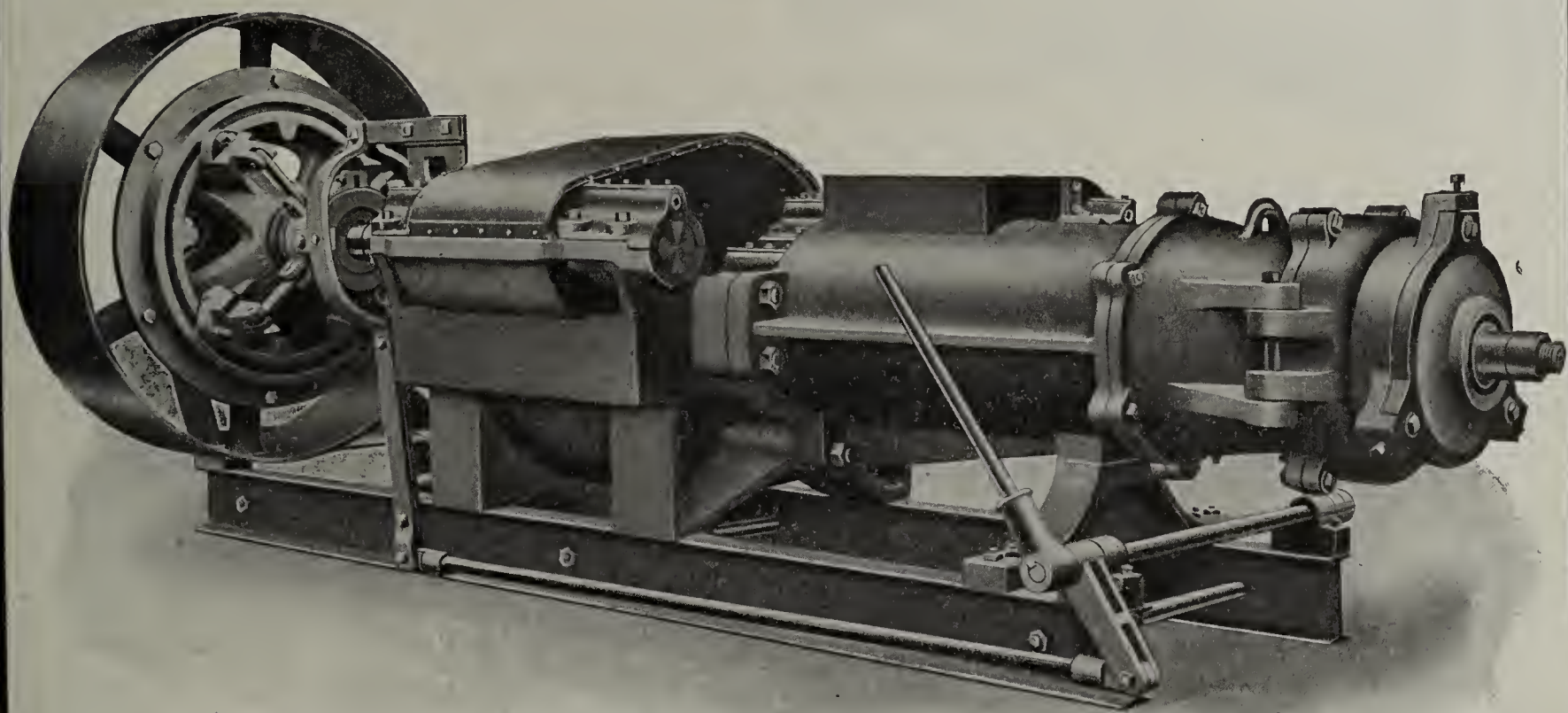
Brickworks Engineer,

CATSKILL, N. Y.



The Brewer No. 88 Horizontal DRAIN TILE MACHINE

A high grade, high speed, heavy duty pattern, new enough to be up to the minute, but old enough to have shown what it can do.

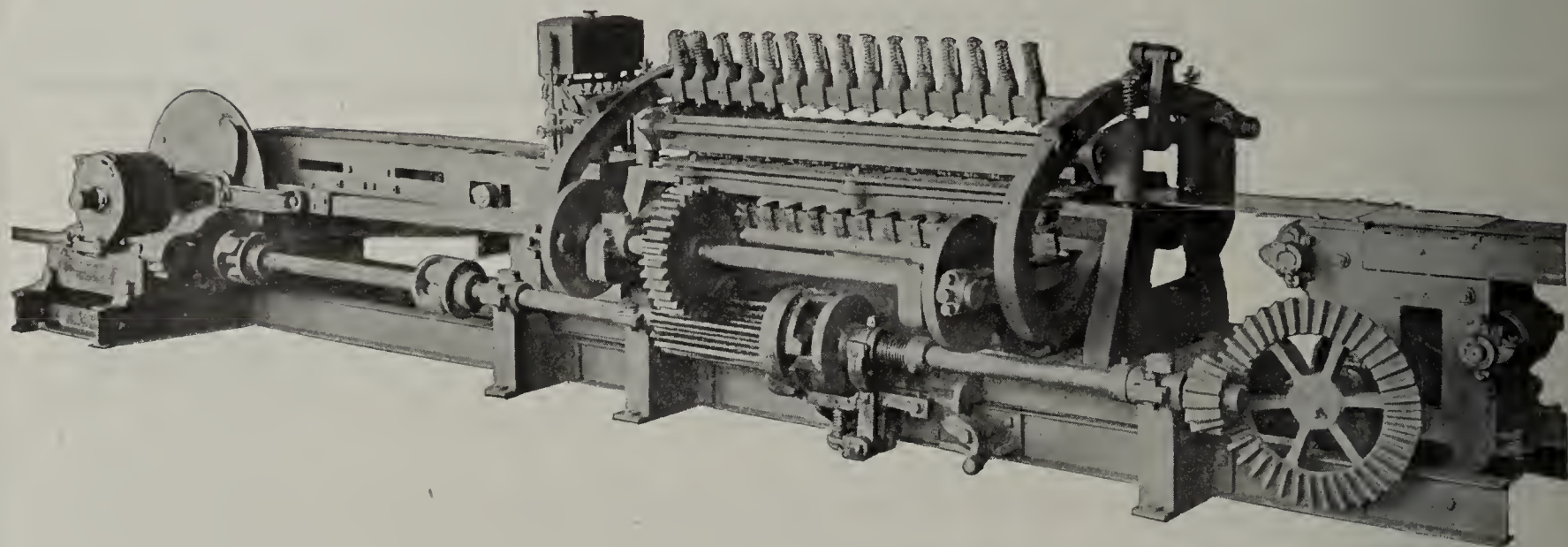


Here Are a Few Construction Points:

- Cut gears, covered and running in oil.
- Gear frame cast in one piece.
- Cylinder cast in one piece.
- Hammered steel shafts. Self-oiling bearings.
- Sectional lined screw case. Heavy 29-in. disc clutch.
- Tool steel bushed dies.

Ask for complete catalog, references and prices.

H. BREWER & COMPANY, Tecumseh, Mich.



Model T 60 Reciprocating Automatic Cutter

This cutter, which is of the reciprocating type, is built in two Models "T 50" and "T 60" for capacities up to 12,500 brick per hour or more. The design is extremely simple and substantial. It embodies many of the well tried features of our Rotating Automatic Cutters.

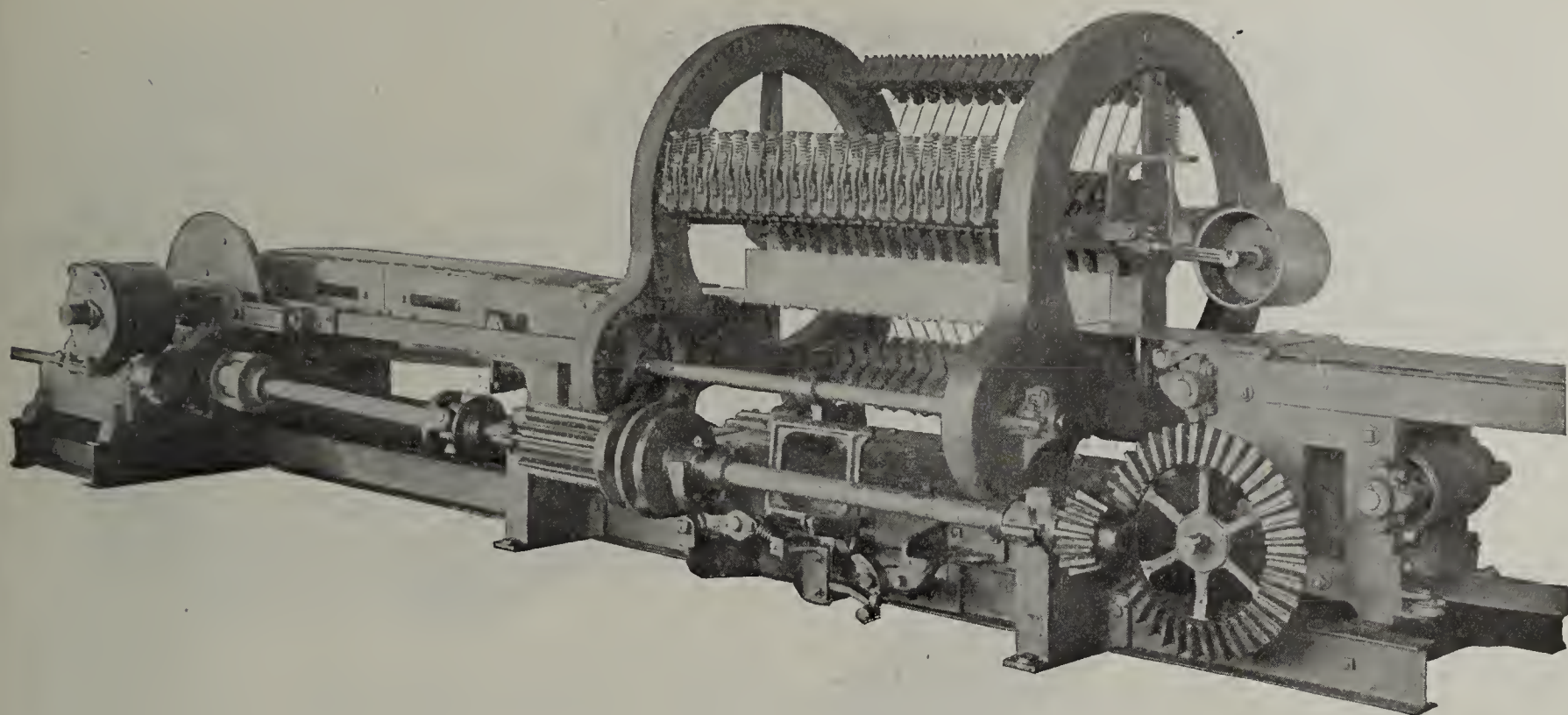
The cutting frame carries only one set of cutting wires and has a swinging movement, avoiding the wear and play common to sliding parts. It is actuated by cranks, driven by a single gear and pinion, giving a smooth, quiet starting and stopping of the cutting stroke. The frame remains stationary between cuts, affording ample time to renew broken wires.

The platens are very easily removed and replaced when the thickness of cut is to be changed. Four bolts hold the platen in place. When these are removed it can be lifted straight up, between the end castings. Only a few minutes required to make the change.

An upper platen (Dunn Patent) can be furnished to insure smooth upper edges on the brick. This is automatically raised to clear the clay column after the cut is completed and is returned to position in time for the next cut, avoiding any tendency for the column to become wedged. Solves the problem of making smooth edge brick on a reciprocating cutter.

Either Model is made to suit a variety of work. The "T 60" is built special to accommodate the largest sizes of fireproofing, etc. These cutters can also be especially arranged for cutting the Dunn Wire-Cut-Lug Paving Blocks.

E. M. FREESE & COMPANY, Galion, Ohio



Model C 20 Rotating Automatic Cutter

We build rotating automatic cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for hollow ware, fireproofing, radial chimney blocks, etc., up to $13\frac{1}{2}$ in. by $7\frac{1}{2}$ in.

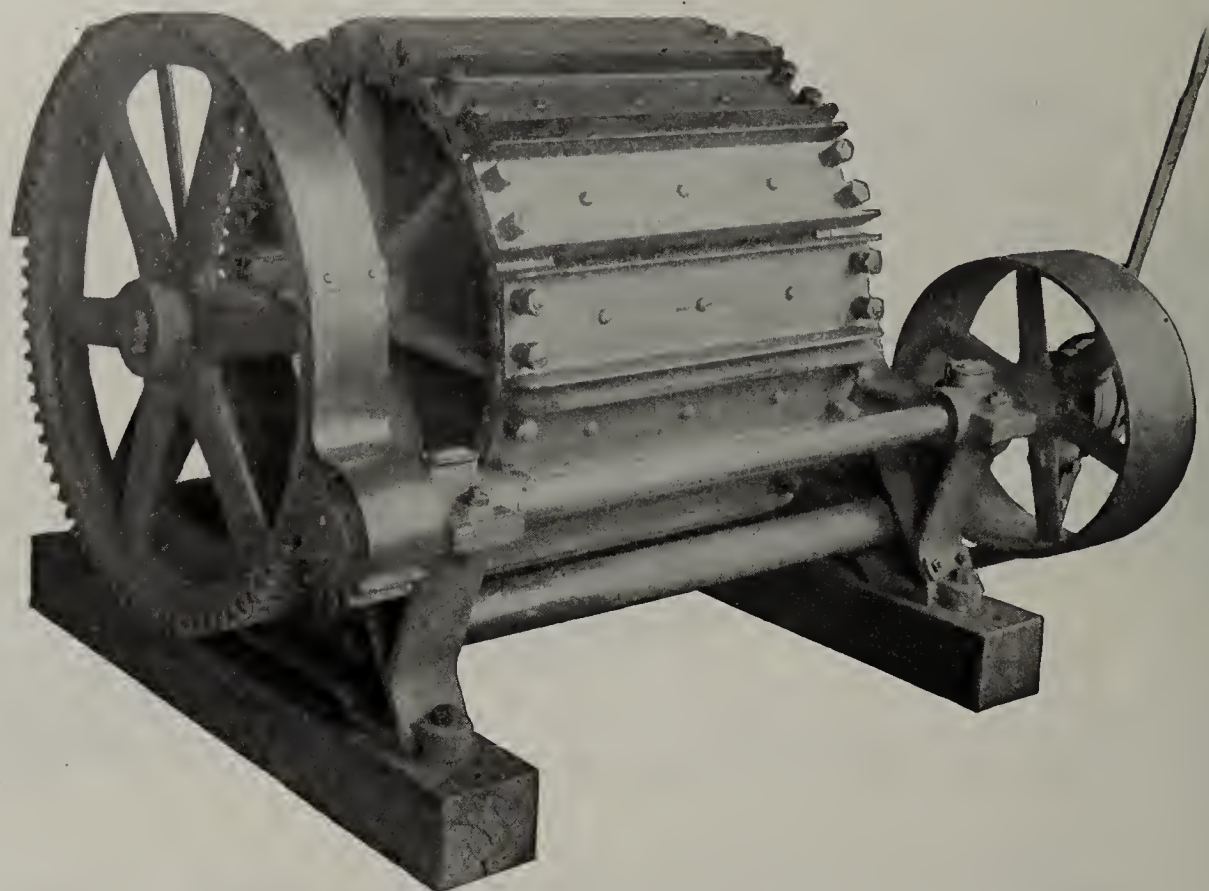
The above illustration shows the Model C 20 Cutter, which is an improved model of our well-known Size 16. It is intended for capacities up to 7,500 standard size brick per hour—18 brick are cut at each cut. At this speed the cutting reel makes only a little over two revolutions per minute, remaining stationary between cutting strokes. It is not necessary to stop the brick machine to renew broken wires, as this gives ample time.

The cutting apparatus, including drive for separating belt, is entirely self-contained, being mounted upon one set of I-beam sills, assuring permanent alignment of all parts. The measuring and separating tables are built with iron or steel sides.

Cutting reel and carriage are carried on rollers requiring little or no oiling. Carriage is positively moved with the clay by an accurate cam. Clutch mechanism is the simplest possible. Wearing surfaces have renewable steel plates.

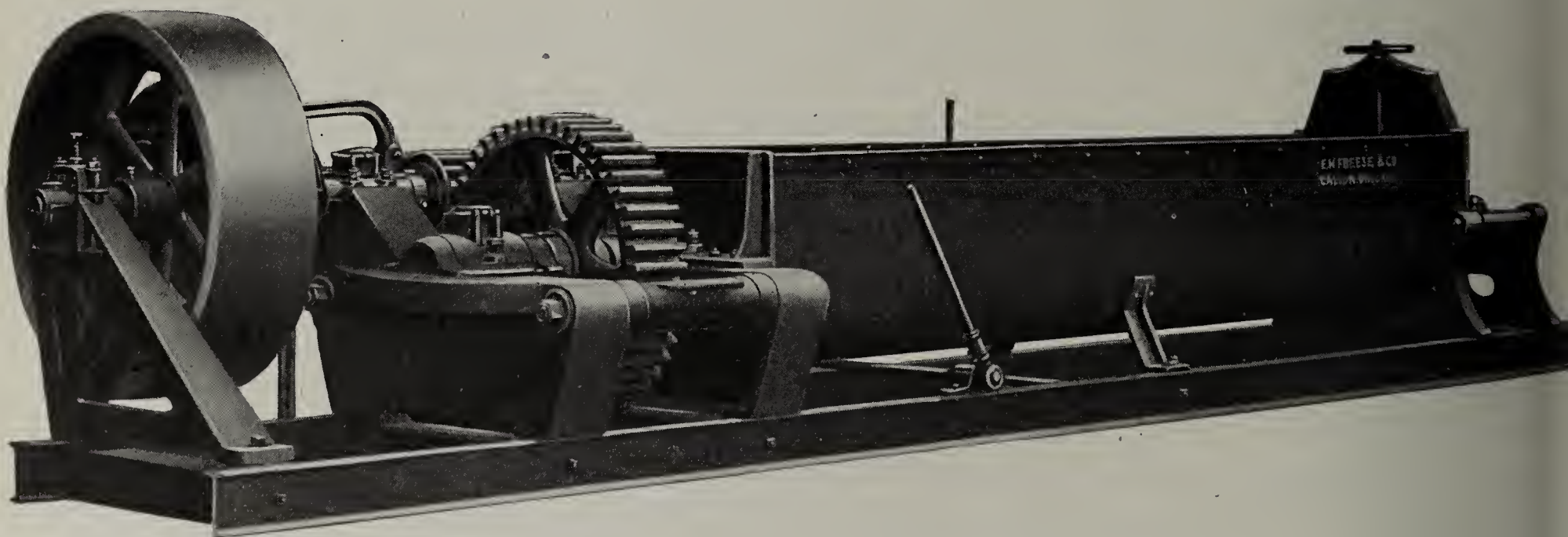
Particular attention is called to the platen construction. The platen is cast in one piece of tubular cross section and is very rigid. Surfaces covered with renewable steel plates, insuring fine slots. The angle of the cutting wires has been changed to give perfect edges on the brick. Built to give long service without skilled attention. Complete description will be furnished on request.

E. M. FREESE & COMPANY, Galion, Ohio



STANDARD RATTLER FOR PAVING BRICK

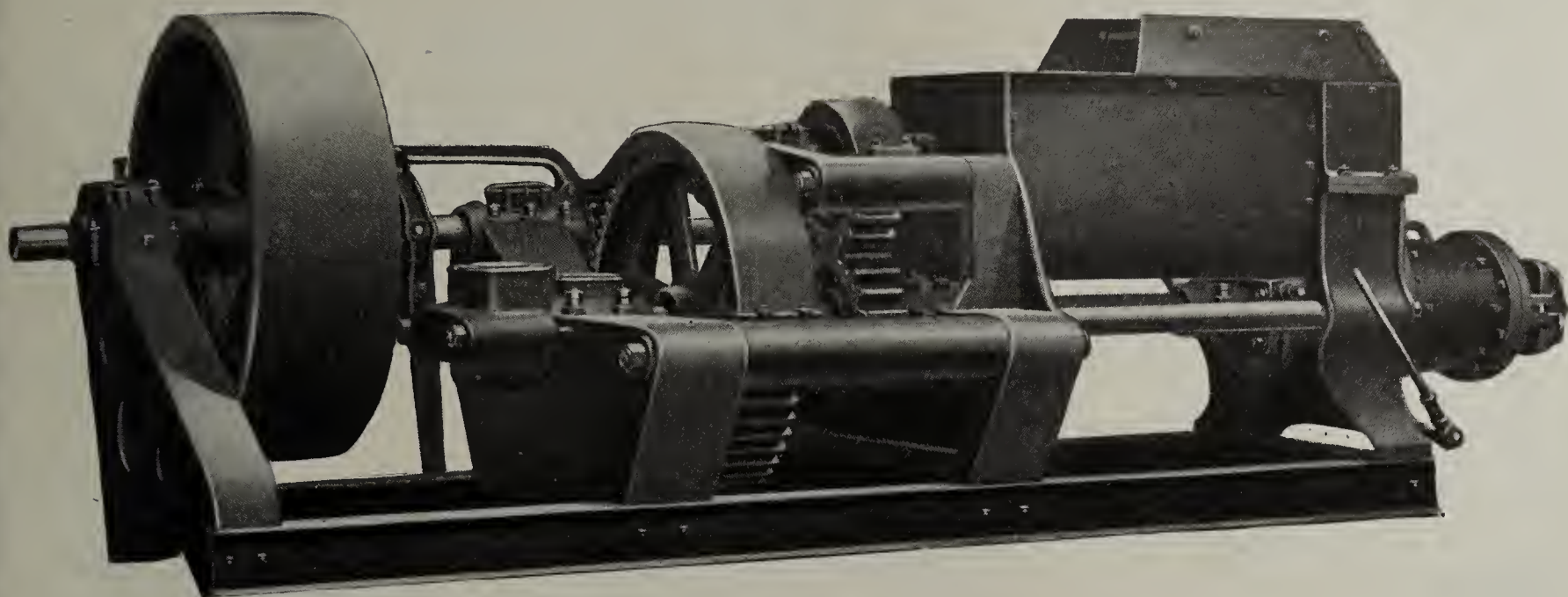
Built to fully comply with the new specifications adopted by the National Paving Brick Manufacturers' Association. Write for detailed information.



We are building Pug Mills in great variety—more than forty patterns and sizes. We have both spur and bevel geared Pug Mills of all sizes, arranged to discharge at either end as may be specified. The above is an example of a heavy, direct geared machine of large capacity, designed for most exacting requirements.

Let us send particulars.

E. M. FREESE & COMPANY, Galion, Ohio



Model "KC" Auger Brick Machine

This machine has several features of merit. The construction is simple. The parts conveniently accessible. Each of its three shafts has three journal bearings, insuring substantial support for the gearing and more permanent alignment. The feeding chamber is open its entire length and the auger chamber is kept positively and uniformly supplied with clay. The gearing is designed for smooth and quiet operation. All the shafts are of large diameter and the proportions throughout are extremely heavy. The workmanship and material are of the best.

Intended for first-class product and economical operation.

E. M. FREESE & COMPANY, Galion, Ohio

RUNNING DAY AND NIGHT ON ORDERS WANT ANY BETTER ASSURANCE?

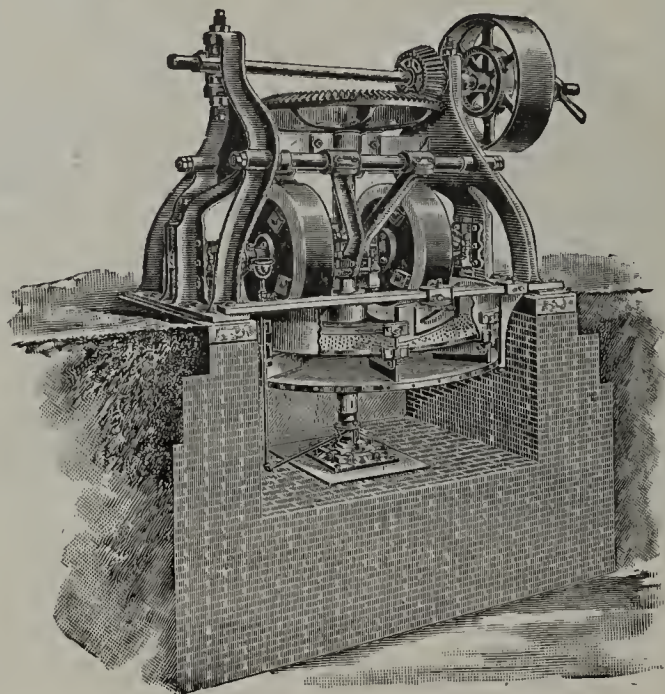
If in the market for pans or presses

**COME
At Our Expense**

and let us show you what our machinery is doing in the BEST PAYING plants of the country.



Write Us You are Coming
and When.



Our Machines
are

BUSINESS

If that's what you mean,

COME;

If not—**DON'T**

STEVENSON'S

WELLSVILLE, OHIO

**Never Made So
Many Presses**

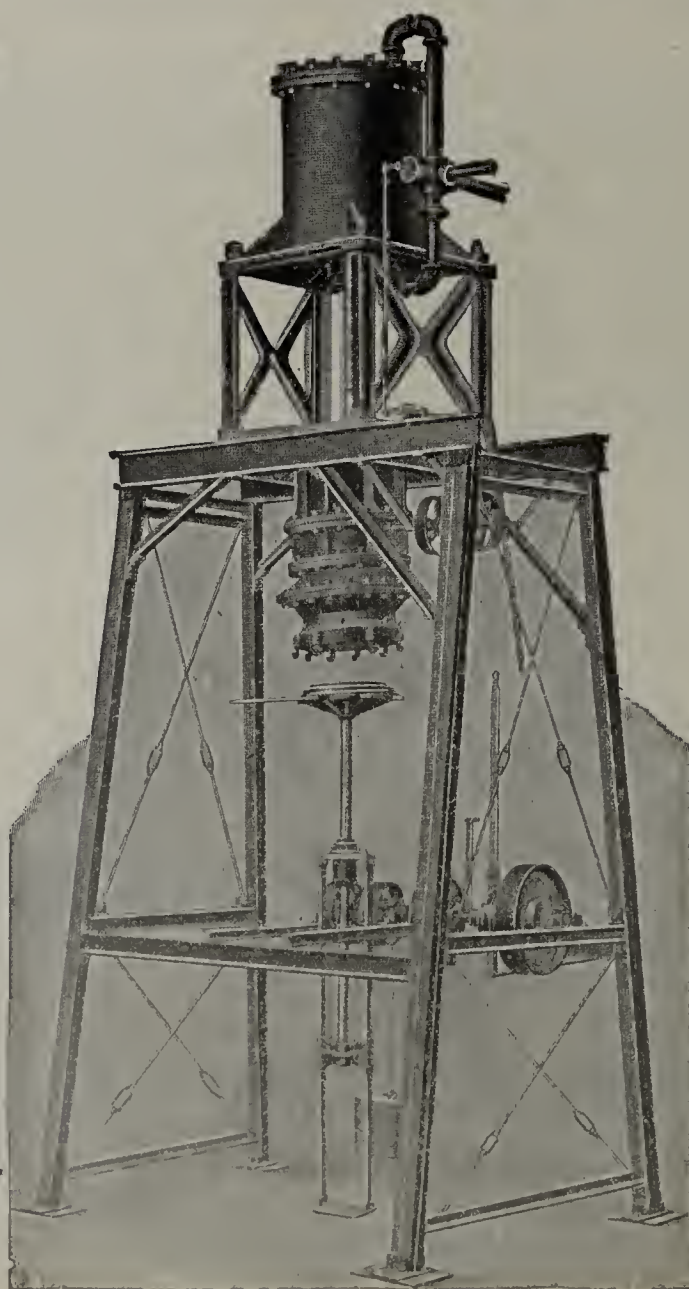
Do you know why?

There are

**No
Other
Such
Presses
Made**

and

NEVER WERE



Our Presses

Are rapidly

**Displacing
Other Presses**

You "from Missouri?"

If you want a new press
COME at

OUR EXPENSE

and

WE'LL SHOW YOU

Mention The

Clay-Worker.

For Sixty
Years
The Name

Frost

Has stood for all
that is best in
Power Plant
Equipment, Clay
Crushing and
Mixing Machinery

SOME OF OUR PRODUCTS

Dry Pans
Wet Pans
Sand Mills
Chaser Mills
Brick Rattlers
Automatic Side Crank Engines
Automatic Center Crank Engines
Automatic Enclosed Engines for
Belted Service
Automatic Enclosed Engines for
Direct Connected Service
Throttling Side Crank Engines
Throttling Center Crank Engines
Throttling Twin Engines

Well Drilling Engines
Horizontal Return Tubular Boilers
for 100, 125 and 150 lbs. pressure
Vertical Submerged Tube Boilers
Vertical Full Length Tube Boilers
Scotch Marine Boilers
Portable Locomotive Boilers
Rocking and Dumping Grates
Open Feed Water Heaters
Closed Feed Water Heaters
Pressure Tanks
Air Receivers
Stack and Plate Work
Complete Power Equipment

Send for Our Descriptive Bulletins Illustrating and
Giving Full Details of Our Products.

The **Frost** Manufacturing Co.

Works at
GALESBURG, ILL.

CHICAGO OFFICE:
112 West Adams St., CHICAGO, ILL.
Cable Address "FROSTMANCO," Chicago.

Mention THE CLAY-WORKER.

MODERN IDEAS FOR THE SUCCESSFUL

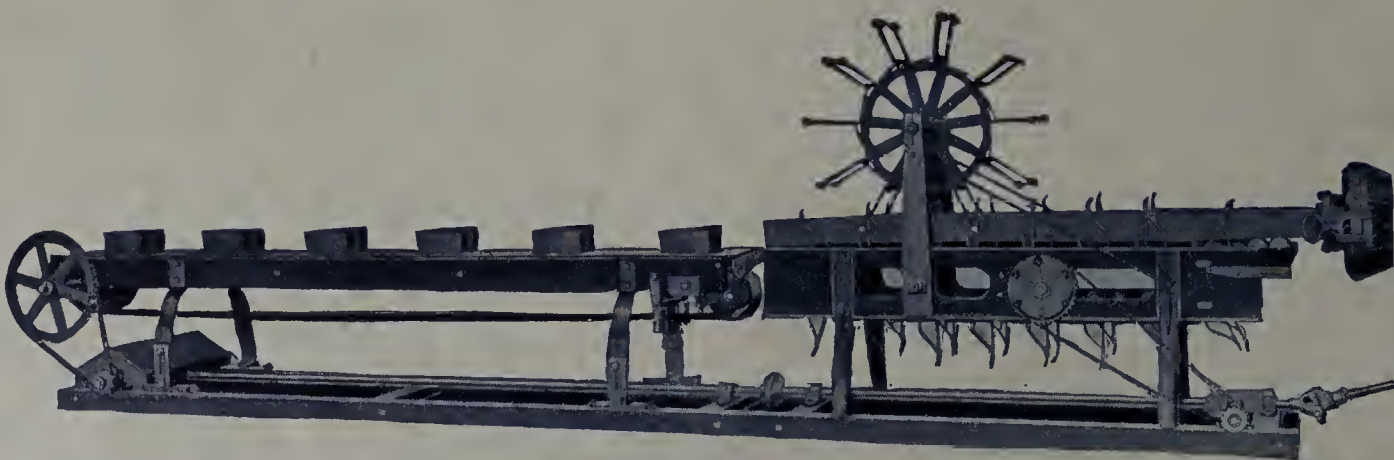


Special
Premier Fire Proofing Machine, equipped with special set of nozzles and augers for large sizes and also one for small sizes. The most up-to-date machine for this purpose on the market.

Standard
Bensing Automatic Tile Table, fitted with platens for cutting hollow blocks and fire proofing from 4 in. x 9 in. to 10 in. x 12 in. Can be furnished to cut any length from 12 $\frac{1}{4}$ in. to 14 in. long.



Standard
Bensing Automatic End Cut Brick Table with friction driving device and belt delivery. The only really successful arrangement for cutting light weight hollow brick.



The J. D. FATE COMPANY,

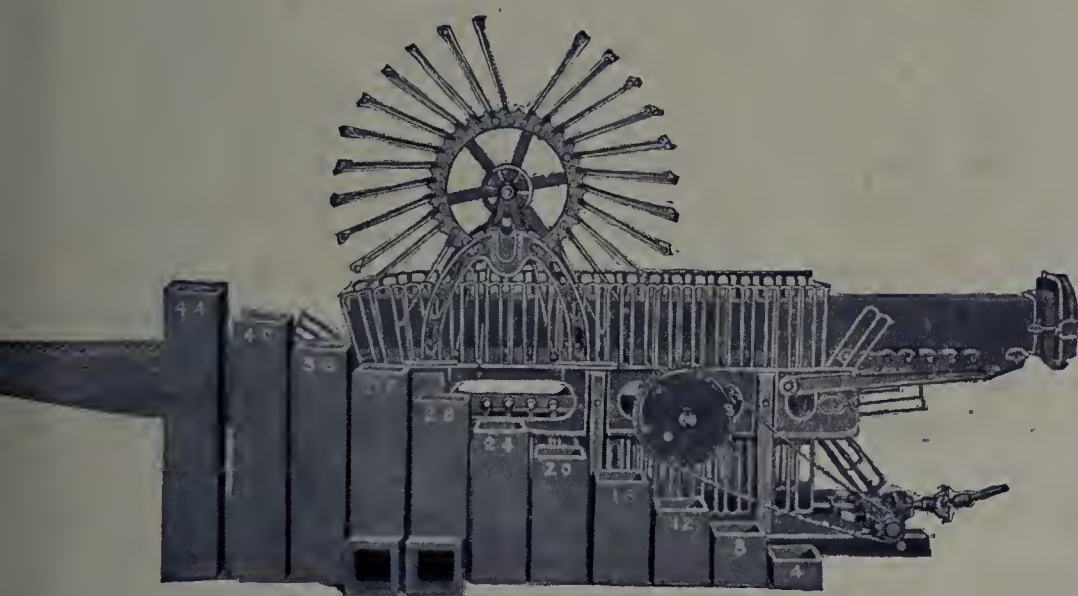
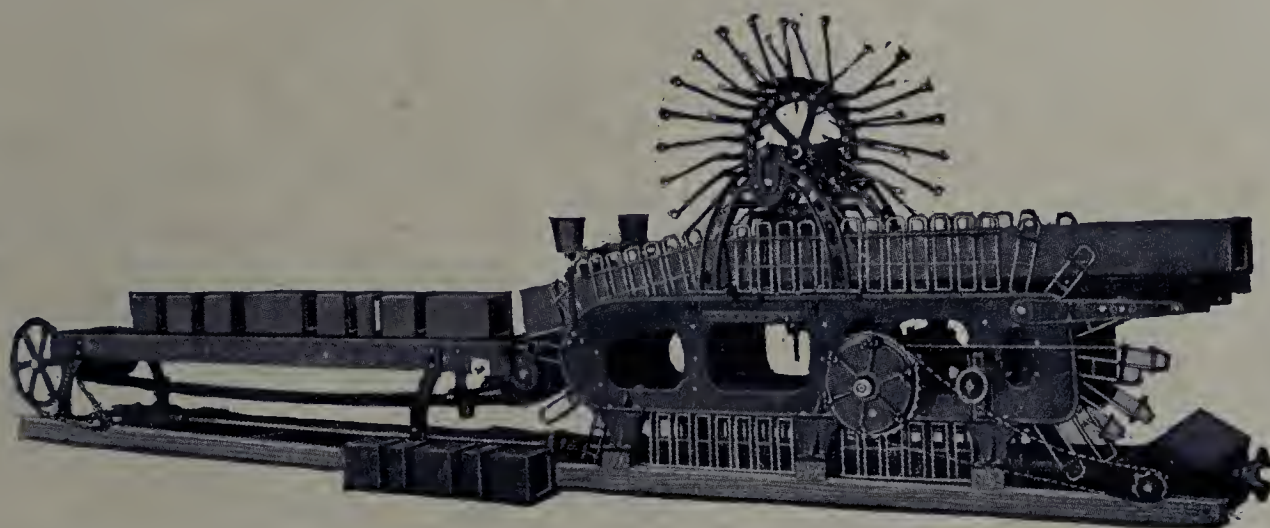
A. E. Davidson, Western Representative,
Manufacturers Equipment Co.,

MANUFACTURE OF FIRE PROOFING WARE



Special
Bensing Automatic Table with
roller delivery for large hollow
blocks. Will handle blocks as
large as 9 inches high and 18
inches wide, and from 9 inches
to 18 inches long.

Special
Bensing Automatic Table
cutting face blocks
and fire proofing. Cuts
multiple lengths and
will handle ware 11 inch-
high by 12 inches wide.
Furnished with either rol-
ler rack or belt delivery.



Special
Bensing Automatic Table with
roller delivery and friction
driving device for hollow blocks
and drain tile. Cuts in multiple
lengths of 4½ inches and will
handle blocks up to 11 inches
high and 13 inches wide.

Plymouth, Richland Co., Ohio

Blake-McFall Building, Portland, Oregon

ton, Ohio, Sales Agent

1896

1912

14 Years of Constant Satisfactory Service In Many Clay Plants

Is the Record of the PERFECT CLAY SCREEN

Why continue with your old clay screen from which today the product is entirely too coarse, tomorrow too fine, next day scarcely anything, and always requiring constant attention.

FIGURE up the cost and let us quote you on a PERFECT CLAY SCREEN that will give you ABSOLUTE CONTROL OF YOUR CLAY. The same fineness every day in the year and you get every pound of clay that is fine enough for your product.

Just think what it costs to have a man cleaning and breaking up your screen, and then not get capacity or proper fineness. THE PERFECT CLAY SCREEN is automatic, self cleaning, and the plates last many times as long as do plates on an ordinary screen. Increased and improved output at less cost, is our GUARANTEE. Let us try, if we don't do it IT WON'T COST YOU ONE CENT.

DUNLAP MFG. CO.

Bloomington, = Illinois

WE CAN SAVE YOU MONEY

FIRST, by actual test, at our expense, **WE PROVE** that we can **SAVE MONEY** for you. **THEN** we license you to use our patented System of **BURNING BY FORCED DRAFT**, charging as royalty a few cents per thousand on your output—a mere **FRACTION** of your **SAVING**. **FINALLY** you apply to us for an exclusive license for your territory (just as the New England Brick Company did) for obvious reasons.

POSITIVE Mechanical CONTROL OF DRAFT—Economical to install.

“First come—first served.”

Full information upon request.

The Steadman & Robinson Co.,
50 Church St., New York City,

LAKEWOOD LINE



**OHIO CERAMIC
ENGINEERING CO.**

Cleveland,
Ohio



Branch Offices:
CHICAGO,
555 West Quincy St.
PITTSBURGH,
1202 Fulton Building.
NEW YORK CITY:
30 Church St.

THE “LAKEWOOD LINE”

These are the goods the Clayworker needs. See this car—a stiff mud flat car—permanent channel steel decks. Cold riveted throughout with $\frac{3}{8}$ -in. rivets—all close home driven, no shearing off or coming loose—very tight joints. Will carry about two bricks for every pound the car weighs. Easy running. Send for catalog giving full particulars. A full line for clayworkers.



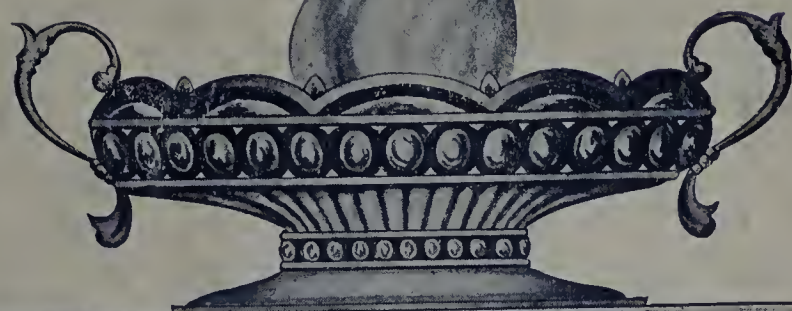
THE CLAY-WORKER

PUBLISHED
MONTHLY
BY

T. A. RANDALL & CO.

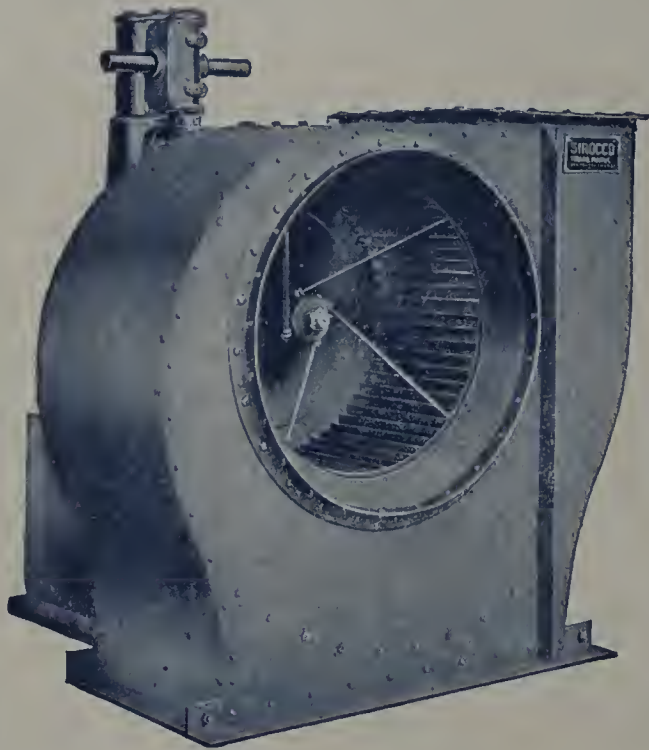
INDIANAPOLIS

APRIL, 1912



OFFICIAL
ORGAN
OF THE

NBMA



“Sirocco”
TRADE MARK

Fans for Induced Draft on Continuous Kilns

are great POWER SAVERS—are inexpensive to install and have constructional features which bring the cost of maintenance down to the minimum.

The “Sirocco” way is the most economical way of handling air around a brick plant.

“Sirocco” Bulletin No. 284-C.W. will interest you. A copy is waiting for your address.

AMERICAN BLOWER COMPANY

DETROIT, MICH.
U. S. A.

Canadian Sirocco Co., Ltd., Windsor, Ont.

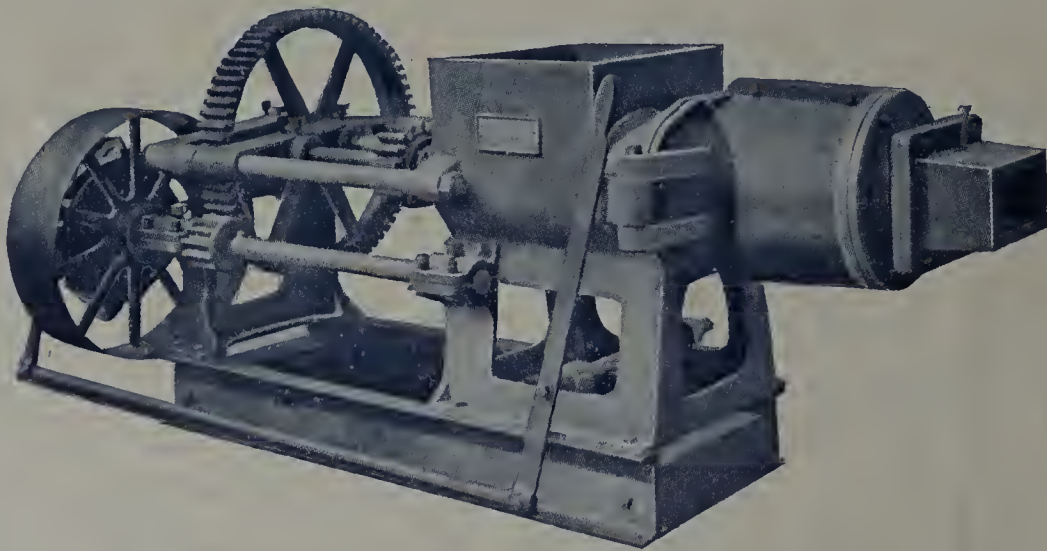
ADDRESS HOME OFFICE OR NEAREST BRANCH

New York, 141 Broadway
Rochester, Insurance Building
Philadelphia, Hale Building
Pittsburgh, Empire Building

Chicago, Marquette Building
St. Louis, Title Guaranty Building
Atlanta, Emplre Building

Minneapolis, Plymouth Building
San Francisco, Rialto Building
Seattle, Arcade Annex
Portland, Beck Building

MUELLER'S NEW AUGER BRICK MACHINERY



A separate feeding shaft prevents all clogging and intensifies mixing.

The hinged front parts of cylinder, easy to swing open, permit quick access to all augers and knives.

The new Auger System develops a positive, irresistible driving force, prevents idle turning of clay in cylinder and therefore lamination.

We build machines of all capacities, also small auger machines for laboratories, horsepower brick machines, hand plunger presses, pug mills, single and double shaft, clay feeders, elevators, piano wire screens.

Smooth and break roll crushers of any size and combination.

Brick, block and tile dies, lubricated in full or parts, hand and automatic cutting tables, recutters for all kinds of standard bricks, blocks and clay products.

Lowering brick trucks for hot floor driers.

ROOFING TILE MACHINERY

Revolving presses for standard interlocking tiles.

Trimming press for ridge tile, special shapes, etc.

Hand presses, molds in metal and plaster.

Special double shaft auger machines for stream roofing tiles, as shingles, promenade tiles, interlockings, Spanish S or mission tiles, etc., as well as dies and special cutting tables for each of those tiles

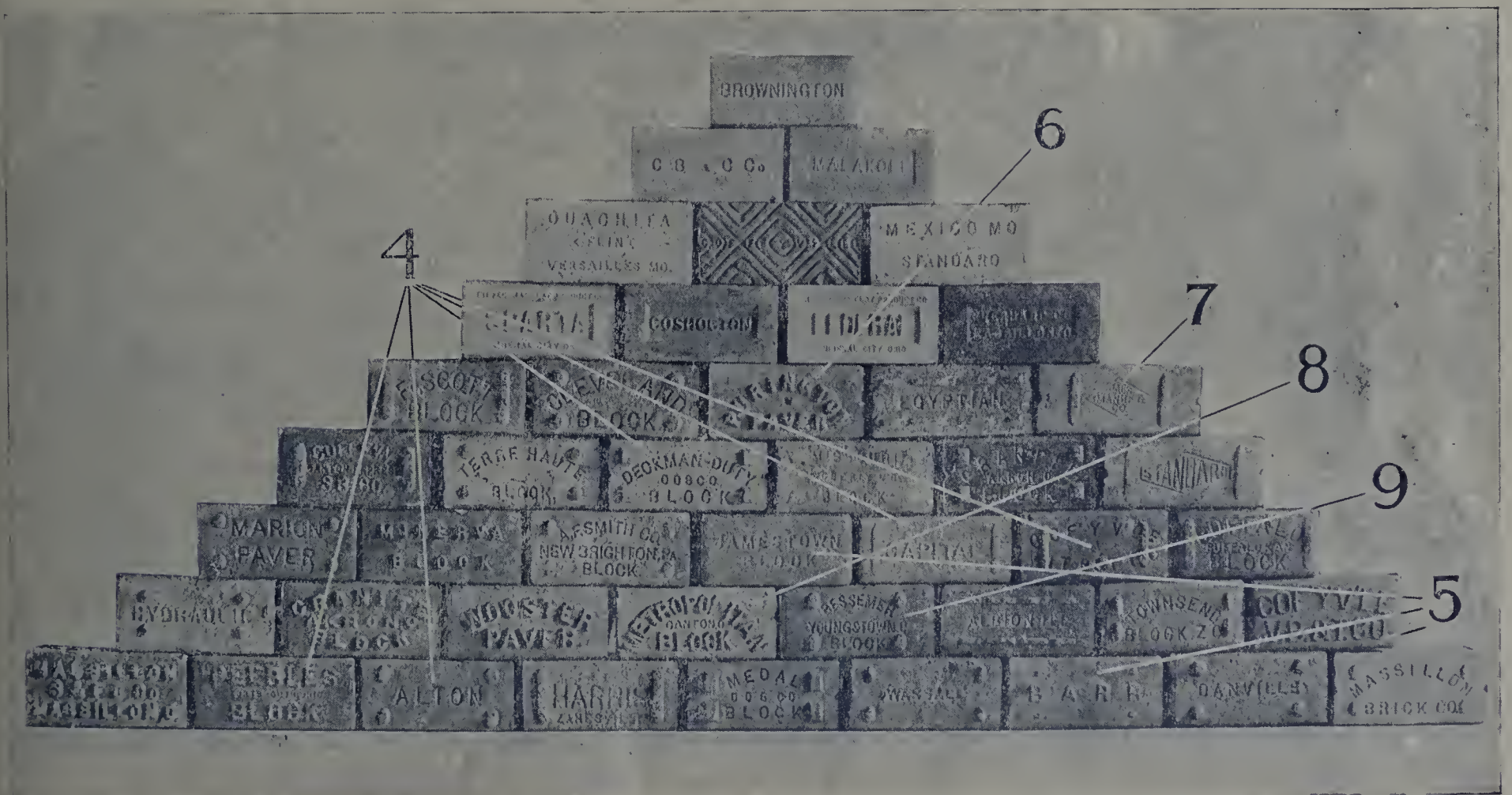
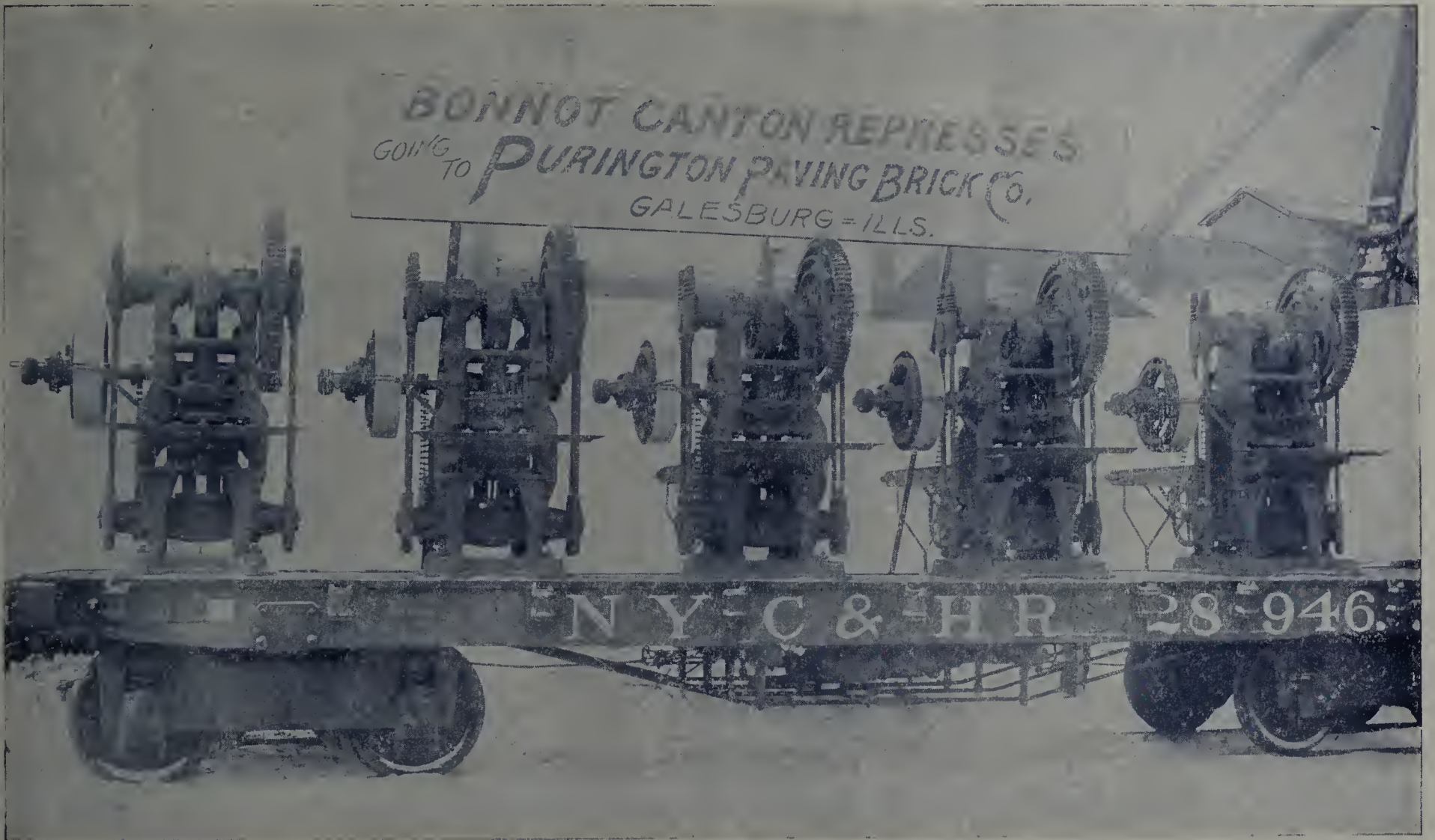
We equip complete plants of any size with all necessary machinery for the manufacture of any known type of roofing tiles.

MUELLER BROS.

1436 Macklind Ave., (on Frisco Tracks)

ST. LOUIS, MO.

Bonnot Repress has been Adopted by Purington Paving Brick Co.

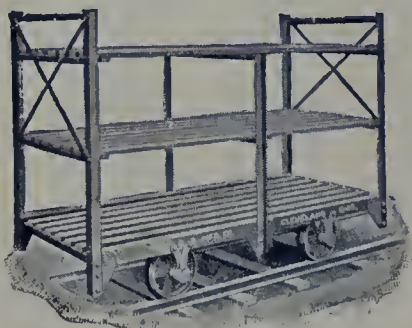


A study of this cut will show the class of brickmakers who use BONNOT REPRESSES and the number of machines some of them are using.

909 New York Life Building,
Kansas City, Mo.

THE BONNOT COMPANY, Canton, Ohio

Mention THE CLAY-WORKER.



No. 1205
Triple Deck Car.



No. 6425
Electric Locomotive.



No. 103
Stiff or Soft Mud Car.

CARS

For Brickyards, Quarries,
Cement Plants,
Dryer Cars, Dump Cars,
Locomotives,
Turntables,
Track, Switches, Etc.



No. 217-S
Side Rocker Dump Car, small capacity.



No. 913
Double Track Electric Transfer Car.



No. 160-E
Side Dump Gable Bottom Car.



No. 145-C
Pressed Steel Top, Ball Bearing
Turntable; Patented.

THE ATLAS CAR & MFG. CO.
CLEVELAND, OHIO

The Taplin, Rice-Clerkin Co.

The Machinery Folks of Akron, Ohio., U. S. A.

"The 'Pioneer' Wet Pan
Is the best known to man."

"Pioneer has no Peer."

"Pioneer Machinery is simply the best,
And Used in Clay Products it stands every test;
Durable, high-class, efficient, and true,
It does for its users what others can't do."

"Make things from Clay the 'Pioneer's' Way."

"Established Eighteen-Sixty Five,
But growing fast and much alive."

"We would build better,
But we can't."
"We could build cheaper,
But we won't."

Some Plants We Installed

Wm. E. Dee Clay Mfg. Co., Mecca, Ind.
National Drain Tile Co., Terre Haute, Ind.
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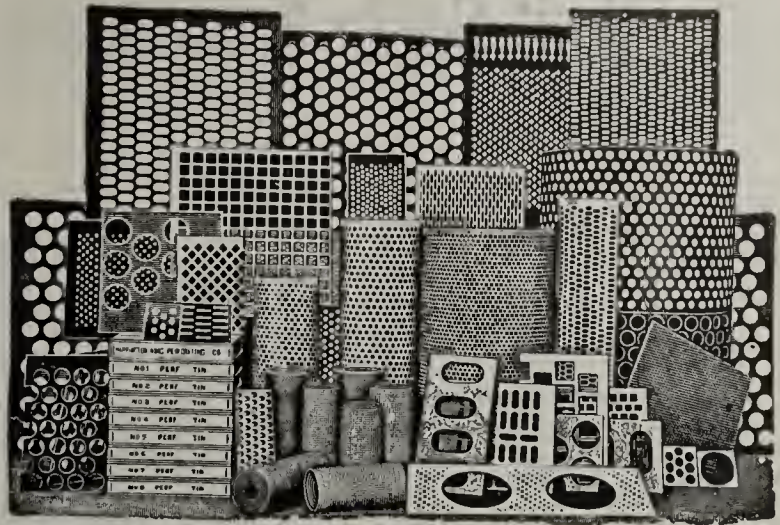
¶ We make Screens for Clay, Sand, Gravel, Cement, Stone, etc., and for Drying Floors, Car Bottoms, Conveyers, Dry Pans and cleaning and grading apparatus.

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JUST MAKE A LIST

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THEN

JUST MAKE A FEW INQUIRIES,

regarding the process of drying employed by them, and just see if you don't find that about nine out of ten of the plants on your list are equipped with

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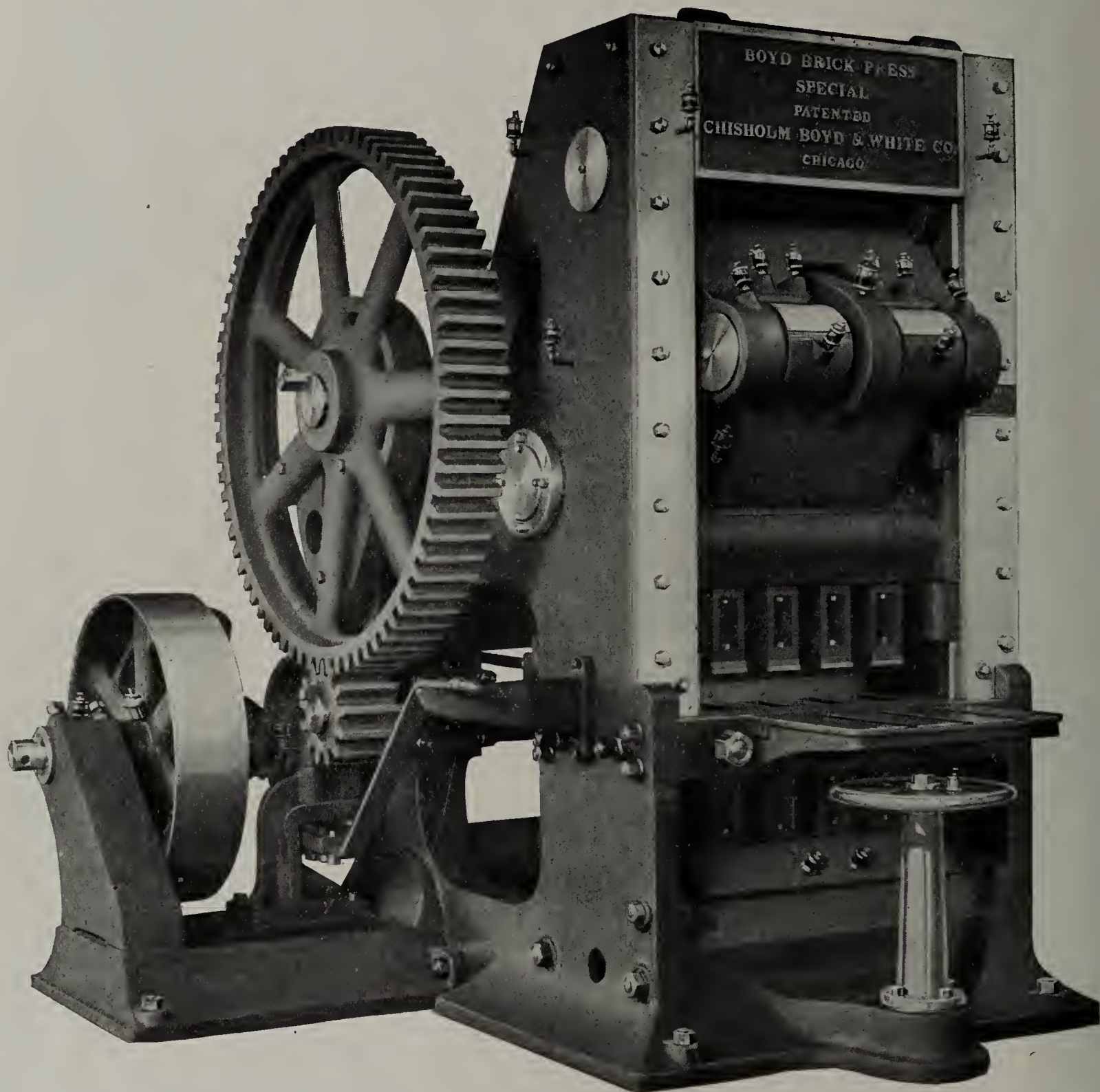


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SPECIAL FEATURES OF THE BOYD BRICK PRESS

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PRESSING TIME FACTOR—long duration, 50% of the cycle.
GEARS, SHAFTS, BEARINGS and other parts exceptionally large.
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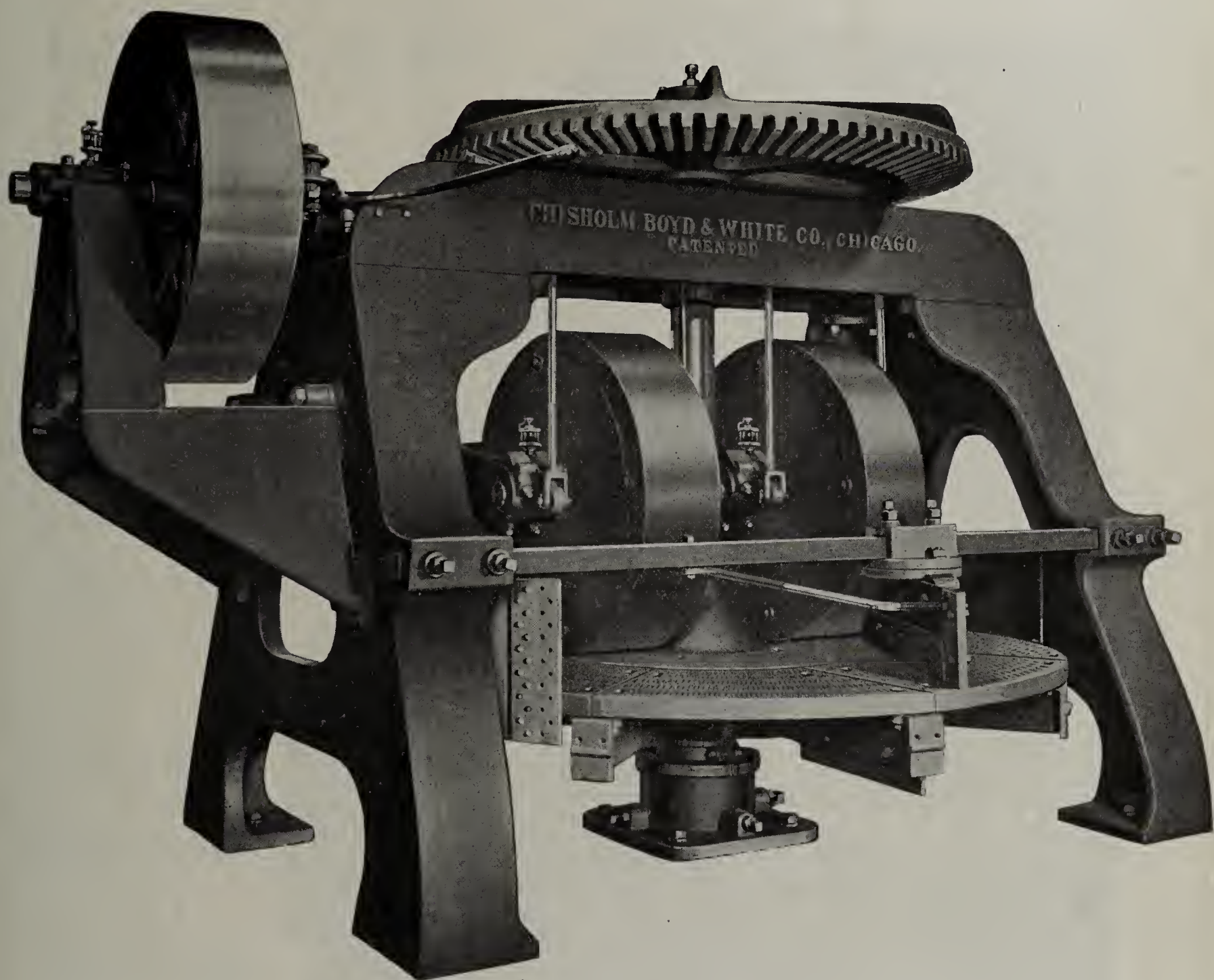
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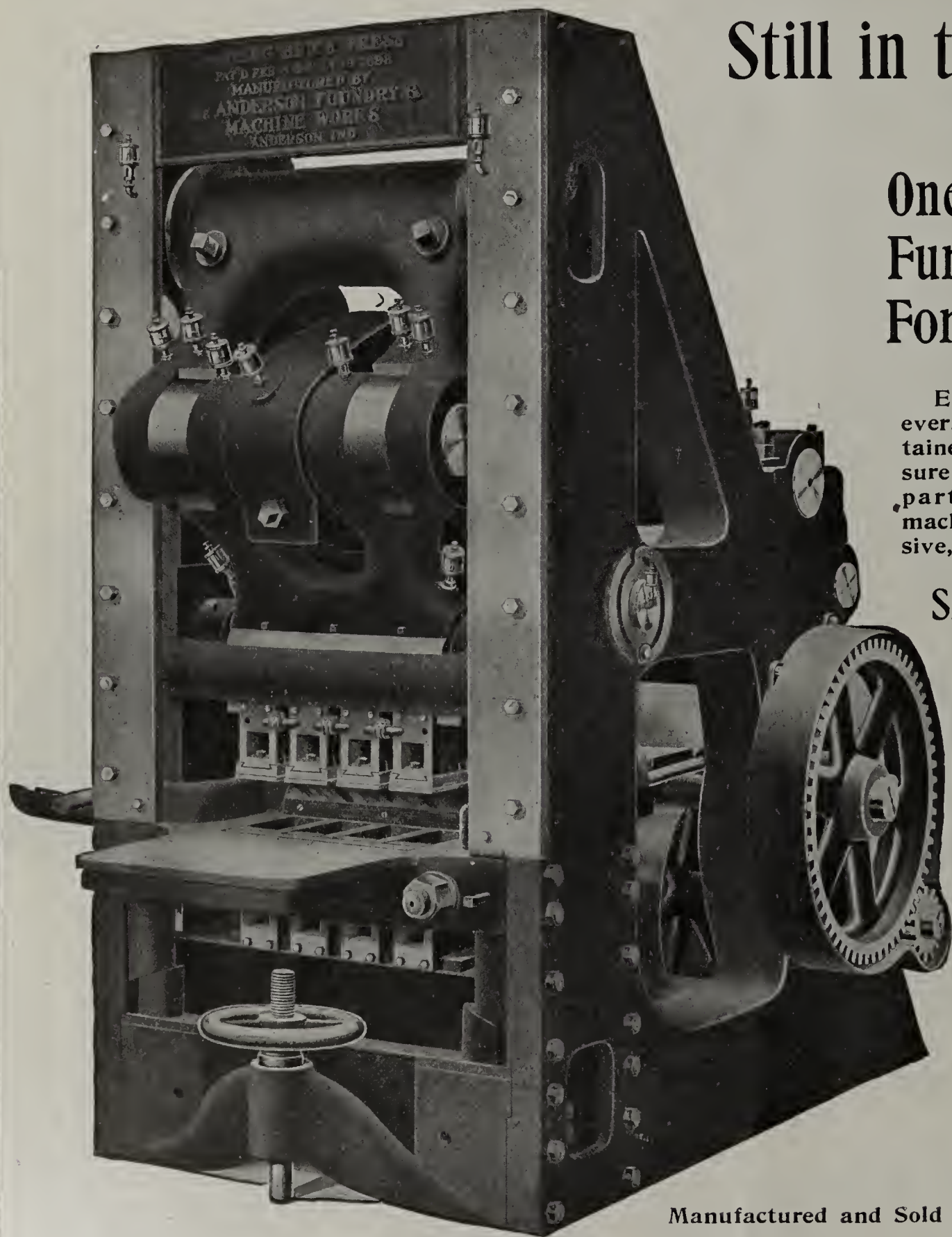
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Ohio State University.
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Buhner, Jacob.
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Haigh, H.
Hoehne, Richard B.
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Koch, J. J.
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Rodgers Engineering Co., L. E.
Snowden & Co., Geo. E.
Standard Dry Kiln Co.
Tate, Jones & Co.
Trautwein Drying & Engr. Co.
Vogt, Anton.
Yates, Alfred.

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(See Dryer and Dump Cars.)

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(See Scrapers.)

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Heald, G. W.
King, E. A.
Koch, J. J.
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Wurz & Hillenbrand.
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Dies.

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(See Brick & Tile Machinery.)

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(See Supplies.)

Dryers.

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American Clay Machinery Co.
American Process Co.
Chambers Bros. Co.

(Continued on next page.)

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Locomotive Cranes.

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(See Coloring Materials.)

Mechanical Draft.

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 Mentz, George B.
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 (See Dry and Wet Pans.)

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(See Brick.)

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(See Scrapers.)

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 Crossley Machine Co.
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 Rockwood Mfg. Co.
 Stevenson Co., The
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Presses.

(See Brick Machines, also Sewer Pipe Machinery, also Roofing Tile Machinery.)

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(Continued on page 596.)



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Be prepared to take care of your rush business, rain or shine. The Mathews Gravity Brick Carrier, as shown above, will work in any kind of weather, permitting men to be under cover at both ends.

Hundreds of American brickyards are using the Mathews Gravity Brick Carrier. Any one of them will tell you that they have cut their loading expense 50% over the old wheelbarrow method. The Carrier is made entirely of steel, scientifically constructed, absolutely dependable at all times and under all circumstances. Write us for literature and special information.

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Philadelphia: 1002 Drexel Bldg.
Rochester: 1459 South Ave.
Chicago: 9 South La Salle St.
St. Louis: P. O. Box No. 568.
San Francisco: Hicks, Nell & Marks, 604 Mission St.



Main Office and Factory
ELLWOOD CITY,
PENN., U. S. A.

Buyers Ready Reference List—Continued.

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Illinois Supply & Con. Co.
Mueller Bros.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Taplin, Rice, Clerkin Co.
Stevenson Co., The

Revolution Indicators.

Brown Instrument Co.
Ceramic Supply & Constr. Co.

Revolving Steam Shovels.

American Hoist & Derrick Co.
Marion Steam Shovel Co.

Rock Crushers.

American Pulverizer Co.
Phillips & McLaren Co.

Roofing Tile Machinery.

American Clay Machinery Co.
Ill. Supply & Construction Co.
Mueller Bros.
Raymond Co., The C. W.

Rope.

(See Supplies.)

Rotary Dryers.

American Clay Machinery Co.

Sand Dryers.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Fate Co., The J. D.
Hensley, J. W.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wellington Machine Co.

Sand Lime Brick Machinery.

American Clay Machinery Co.
Anderson Fdry. & Mach. Wks.
Chicago Brick Machinery Co.
Chisholm Boyd and White Co.
Fernholtz Brick Machinery Co.
Ill. Supply & Construction Co.
Ohio Ceramic Engineering Co.

Raymond Co., The C. W.
Scott-Madden Iron Works Co.

School of Ceramics.

Illinois University.
New Jersey State School.
New York State School.

Scrapers, Plows and Clay Gatherers.

Arbuckle & Co.
Eagle Iron Works.
Ill. Supply & Construction Co.
Scott Madden Iron Works.

Screens.

American Clay Machinery Co.
American Pulverizer Co.
Arbuckle & Co.
H. Brewer & Co.
Bonnot Co., The
Ceramic Supply & Constr. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
E. M. Freese & Co.
Harrington & King Perf. Metal Co.
Ill. Supply & Construction Co.
Mueller Bros.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.
The Stevenson Co.

Sewer Pipe.

Evens & Howard Fire Brick Co.

Sewer Pipe Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Taplin Rice Clerkin Co.
Scott Madden Iron Works Co.
Stevenson, Co., The.

Steam Gauges.

(See Supplies.)

Steam Shovels.

American Hoist & Derrick Co.
Marion Steam Shovel Co.
Scott-Madden Iron Works.
Thew Auto. Steam Shovel Co.

Steam Specialties.

Dean Bros. Steam Pump Wks.
Frost Mfg. Co.
Morehead Mfg. Co.
Pulsometer Steam Pump Co.
Standard Dry Kiln Co.

Steam Traps.

American Blower Co.
Frost Mfg. Co.
Morehead Mfg. Co.
Standard Dry Kiln Co.

Steel Pallets.

Ohio Galvanizing Co.
Ohio Ceramic Engineering Co.

Supplies.

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Anderson Fdry. & Mach. Wks.
Arbuckle & Co.
Atlas Car & Mfg. Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. & W.
Carnell, Geo.
Ceramic Supply & Constr. Co.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd and White.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Ill. Supply & Construction Co.
Ohio Ceramic Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., Ill.
A. C. Newton.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin Rice Clerkin Co.
Wallace Mfg. Co.
Wellington Machinery Co.

Switches.

Atlas Car & Mfg. Co.
Ohio Ceramic Engineering Co.

Tempering Wheels.

Carnell, Geo.
Raymond Co., The C. W.

Thermometers.

Brown Instrument Co.
Ceramic Supply & Engr. Co.
Rodgers Engr. Co., The L. E.

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American Clay Machinery Co.
Anderson Fry. & Mach. Works
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., Ill.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Ill. Supply & Construction Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Wallace Mfg. Co.
Wellington Machine Co.

Time Recorders.

Brown Instrument Co.

Tracks and Switches.

(See Rails.)

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(See Supplies.)

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American Clay Machinery Co.
Raymond Co., The C. W.

Voltmeters.

The Brown Instrument Co.

Wheels and Axles.

(See Supplies.)

Wheelbarrows.

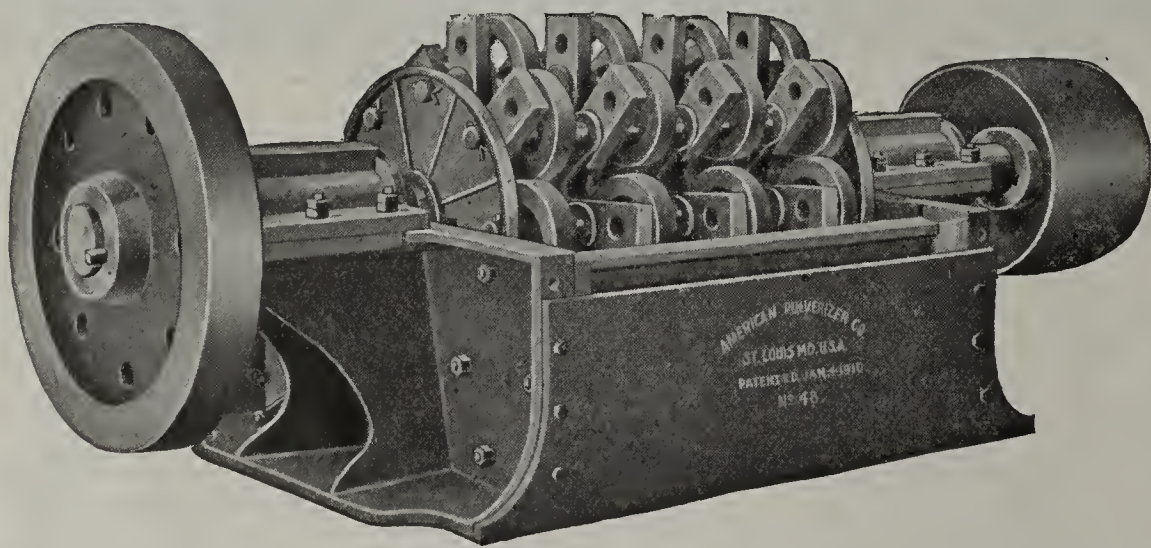
(See Barrows.)

Wet Pans.

(See Pans.)

Wire.

(See Cutting Wire.)



Sioux City, Ia, Nov. 5th, 1911.

American Pulverizer Co.,
St. Louis, Mo.:

Gentlemen—We have your No. 48 Pulverizer at work grinding our material, consisting of shale, blue and yellow plastic clay carrying a good many hard stones. We aim to mix all these clays together, but at times we will get a batch of each by itself, and we will say that our yellow plastic clay is a pretty hard grinding proposition, as it is very sticky and always wet. We are making brick 2½ in. by 4 in. by 8½ in. at the rate of 90,000 per day.

We think your Pulverizer a great machine, and know that it will grind the clay finer than any machine we have ever seen, and at the same time give the tonnage. Would say that 90% passes through a screen with wires 1-16 in. apart. We formerly used dry pans, but could not grind fine enough and get the tonnage. We also tried a steam-jacketed Pulverizer, but this would not work, as it clogged

up and gave us so much trouble that we discontinued its use, having satisfied ourselves that a hammer mill cannot do our class of work. We feel warranted in recommending your machine to shale brick manufacturers as being a superior Pulverizer.

Yours very truly,
SIOUX PAVING BRICK CO.

Chicago, Jan. 17, 1912.

American Pulverizer Co.,
St. Louis, Mo.:

Gentlemen—In reply to your favor of January 16th will say that we are well satisfied with the performance of the machine which you furnished us. It fully comes up to our expectations, and we find will do the work without excessive wear of any kind.

Very respectfully yours,
THE NORTHWESTERN TERRA COTTA CO.

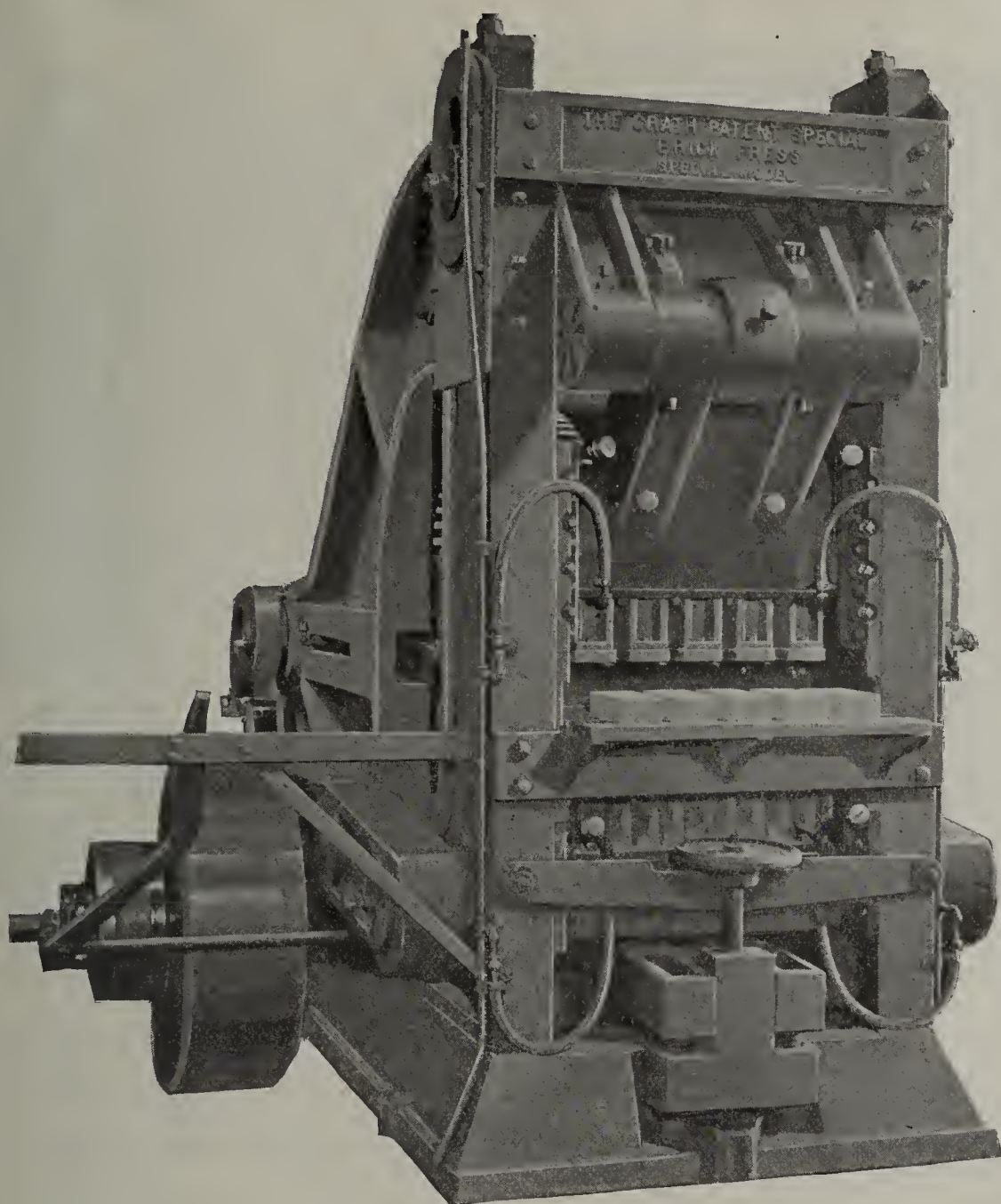
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AMERICAN PULVERIZER COMPANY

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All machinery guaranteed to make highest grade of ware and against breakage.

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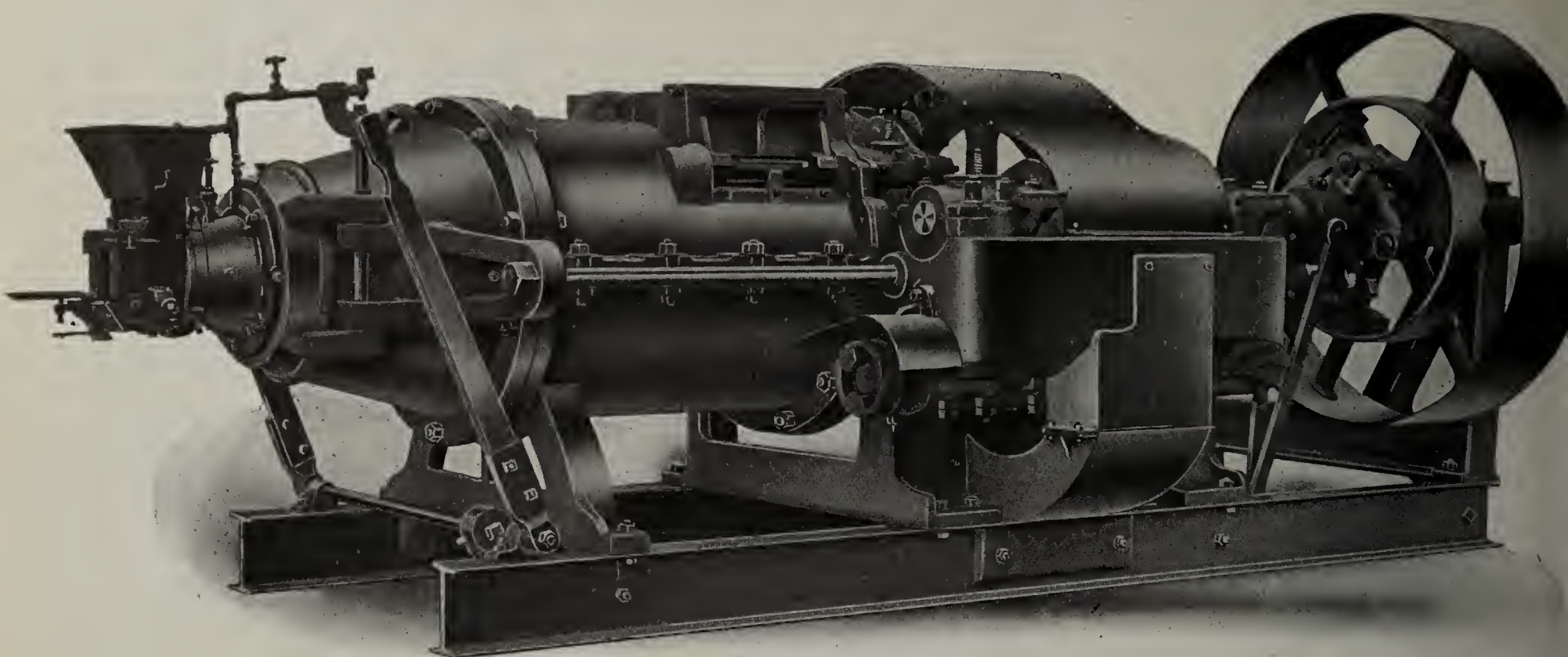
All side and cross strains and twisting of crank shaft eliminated.

Brick free from granulations and weak centers, pressed evenly throughout with balanced pressure.

Made in one-two-three-four and five mold sizes.

The best hand power brick press is the **Grath Hand Press**.

Roofing tile presses and machinery.



**Steele No. 5 Brick Machine, Capacity 50 to 100 M Per Day.
Built on 20 years' experience, not on theory.**

Adjustable hardened steel knives, steel shaft with renewable iron shell, main bearing 9 inches in diameter, the end thrust held by U bolt equalizing the pressure. The front is fitted with a renewable chilled bush, steel cut gears running in oil, and other parts liable to break made of steel.

Provided with opening between barrel and main box preventing clay from working into the box.

Guaranteed to produce better and straighter cut brick at less cost than any other for up-keep.

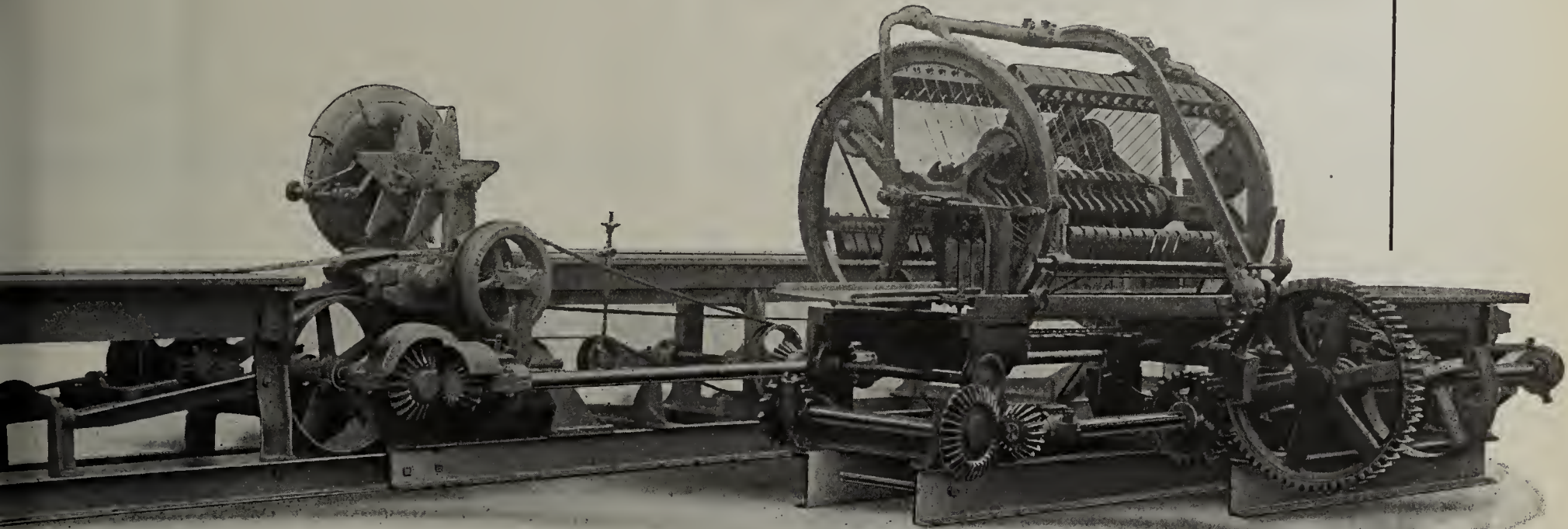
If you have a clay that is too much for the machine you are trying to work, let us hear from you.

Our reputation, long experience and strong progressive organization will guarantee you the best service that can be had.

Write for catalog.

J. C. STEELE & SONS,
Statesville, N. C.

BRICK CUTTERS



Examine These Cutters

THEY are so simple and direct in their movements that they are easily understood and kept in good shape, and show minimum wear after long service. They are the result of 20 years' effort and continual improvements.

Our End Cutters will cut up to 30,000 per hour, either flat or on edge. One of these cutters has cut 42,000,000 brick with no perceptible wear on the irregular gears which control the cut.

They are especially adapted to Wire Cut Face Brick as they cut perfectly straight.

Come to our plant and see them in operation.

J. C. STEELE & SONS
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Will send you free, upon request, any or all of the following booklets:

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Thurber Vitrified Paving Brick and Pressed Building Brick of Superior Quality.

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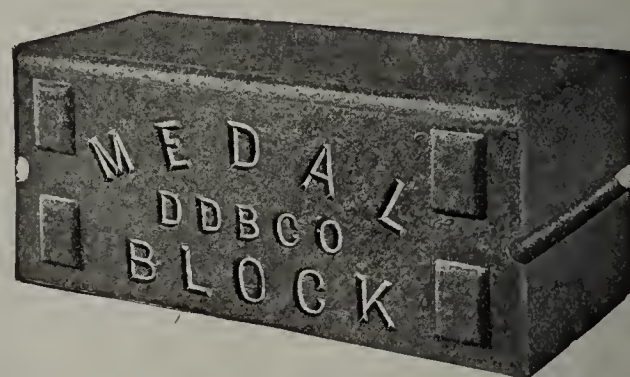
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Our material has for over twenty years successfully stood the heaviest traffic of Indianapolis, Terre Haute, East St. Louis and dozens of other large cities of Indiana and Illinois. We ask investigation and comparison by those seeking the best paving material. Samples furnished on application.

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Which are offered to the municipalities of the Central States under positive guarantee as to wearing quality. None better.

Prices and samples sent on application.

Correspondence solicited.

Office and Works: Clinton, Ind.

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WE OWN AND OPERATE EXTENSIVE DEPOSITS OF THE VERY BEST GRADES.

Fire Clays, Terra Cotta Clays, Kaolin, and Fire and Moulding Sands.

Have been in the business for TWENTY-FOUR years, and are prepared to meet every reasonable demand. Unsurpassed shipping facilities. Prices and samples free.

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The Most Uniform Shale Paver
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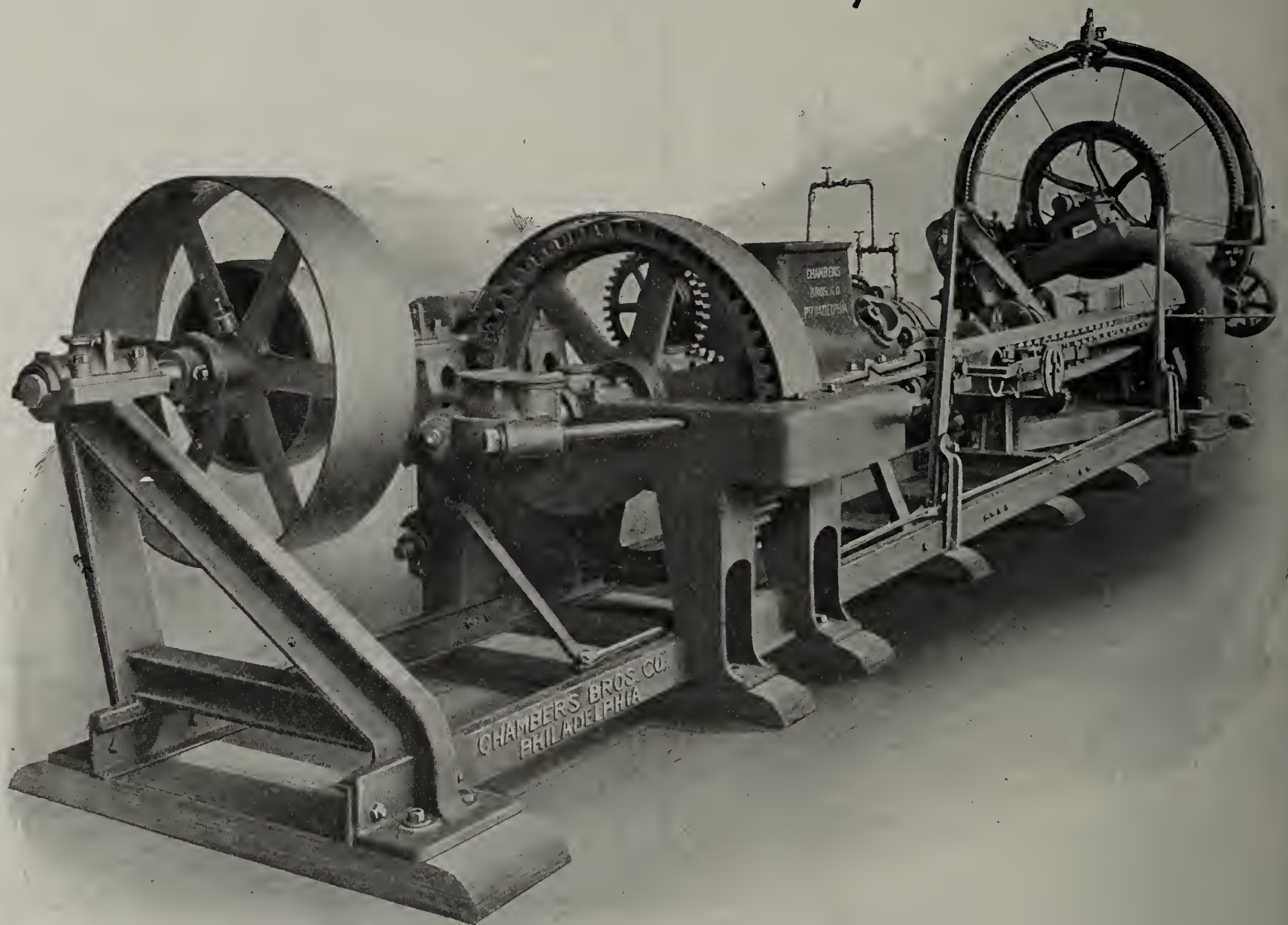
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The No. 10 Auger Brick Machine with No. 5 Automatic Side Cutter.

Cuts Building Brick, Hollow Brick and various thicknesses and lengths of Furnace Block Material.

Auger Brick Machines of Various Capacities with Rotary End-Cut and Side-Cut Tables.

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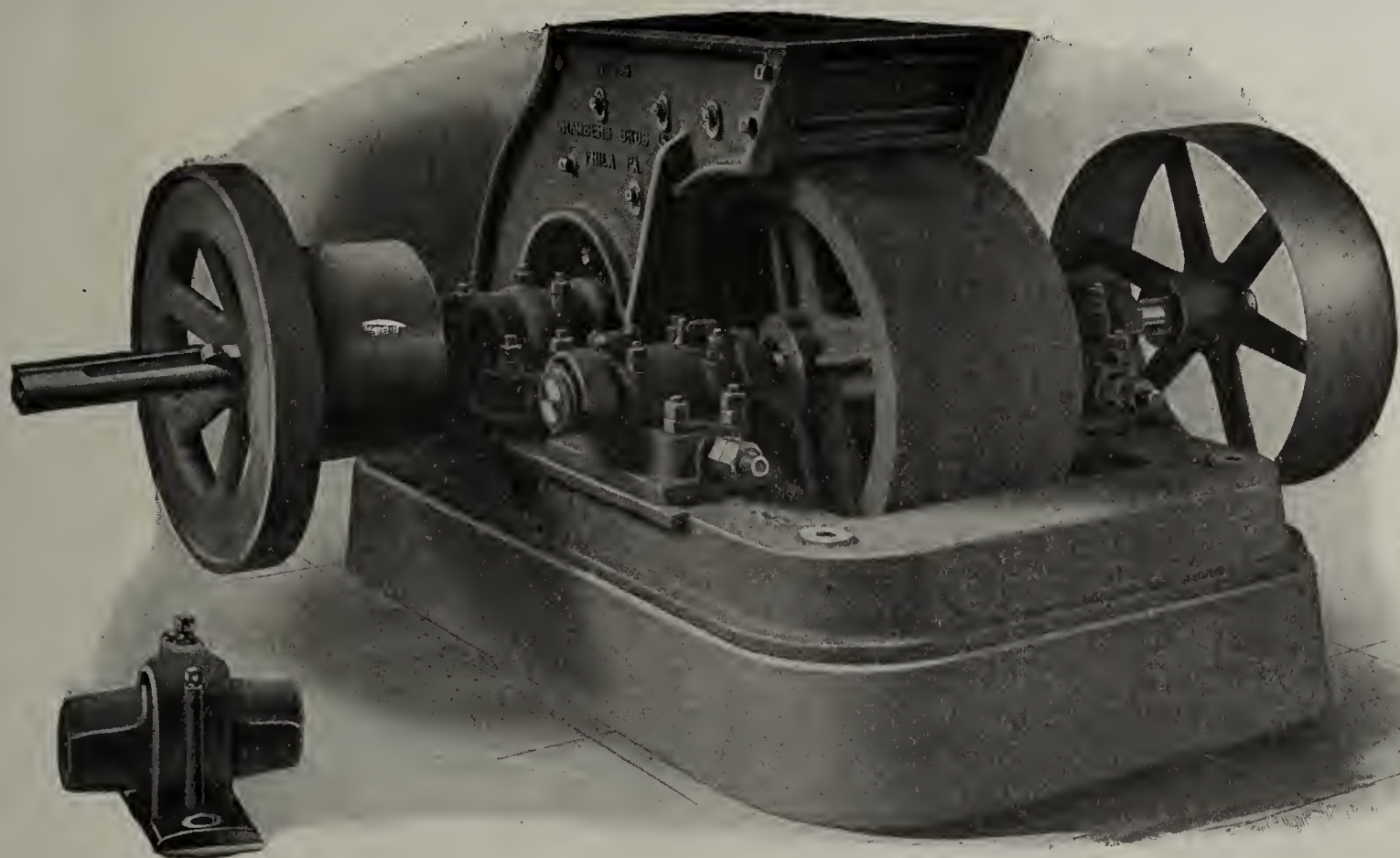
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Clay Disintegrators or Grinders



The Chambers No. 2 Special Clay Disintegrator.

For all-around work on surface-dug plastic clays used either for stiff tempered or soft molded brickmaking, this machine has an enviable record. Receives clay in either dry or moist condition, throws out the larger stones and crushes the smaller ones. A very reasonable attention to maintenance keeps our Disintegrators in condition for good work and insures continued satisfaction. One brickmaker claims to have put clay for 27 millions of brick through one of our No. 2 Special Disintegrators without any repairs! This is an unusual record. Conditions must have been exceptionally favorable. The next customer may have a mixture of flint rock and gummed sand that would cause him to divide that record by ten at least, but the No. 2 Special grunts a little and then goes on. We don't sell many stiff mud brick machines to the New England Brick Manufacturers, but we sell them our Disintegrators.

We build several sizes and have one machine designed for the man who feeds horse shoes and steel wedges along with other things sent up by the steam shoveler.

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I am The Standard Heating Apparatus

Because of my unique (patented) construction, I have no equal in the efficient use of *exhaust steam* for drying.

Also, my construction is such as to secure unusually ample provision for expansion and the *same* degree of flexibility to *every* pipe.

I am the least troublesome heating apparatus you ever saw in a brick drier.

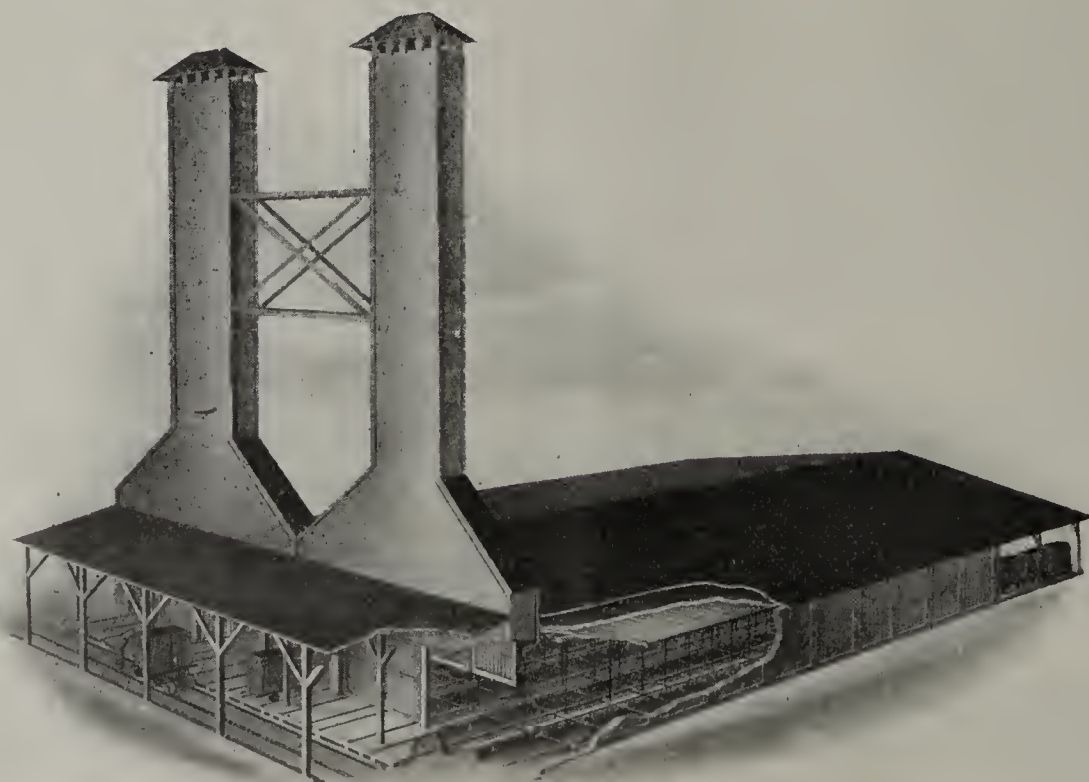
Superintendents don't say "Darn those leaky pipes" about *me!* My pipes are not the ordinary kind. They're full weight and made specially to order. And I have long threads—with correspondingly long and heavy couplings.

My headers are made of *cast iron* and are extra heavy. Wherever there's a joint, there are extra long threads to insure *steam-tightness*.

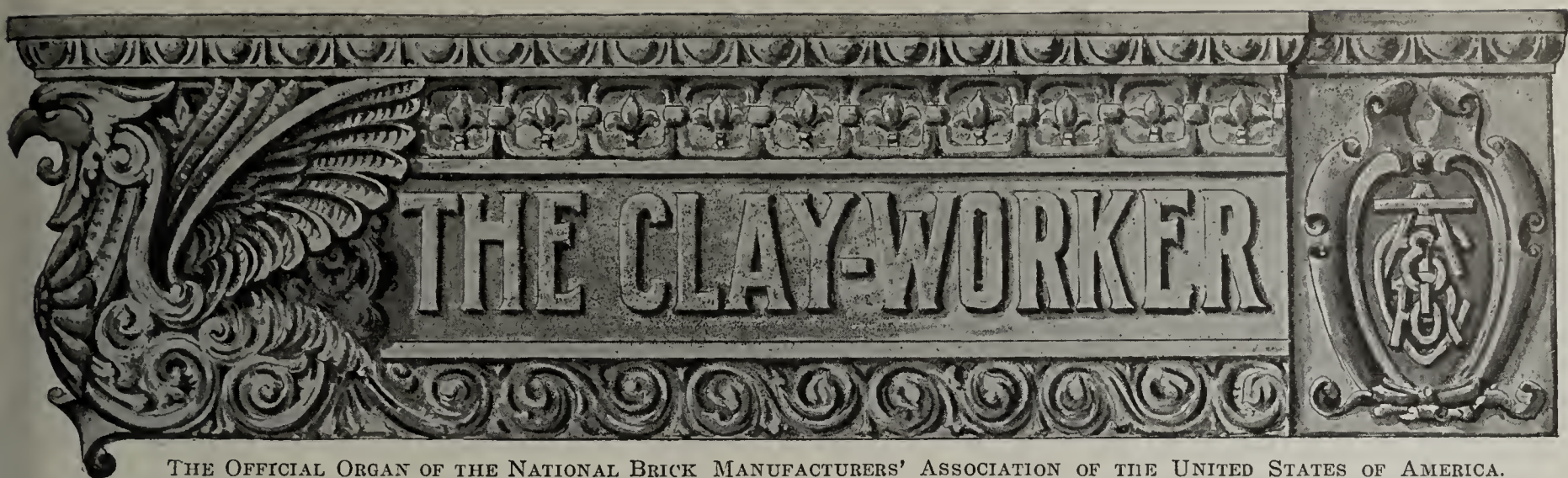
But to be on the safe side, my pipes are arranged so that any one of them can be gotten at and lifted out instantly.

When you install me, you don't have to bother with pipe-cutting. All my pipes are cut at the factory to the exact lengths required.

Write for the catalog and learn more about me. Address: The Standard Dry Kiln Co., 1547 McCarty St., Indianapolis, Ind.



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THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LVII.

INDIANAPOLIS, IND., APRIL, 1912.

No. 4.

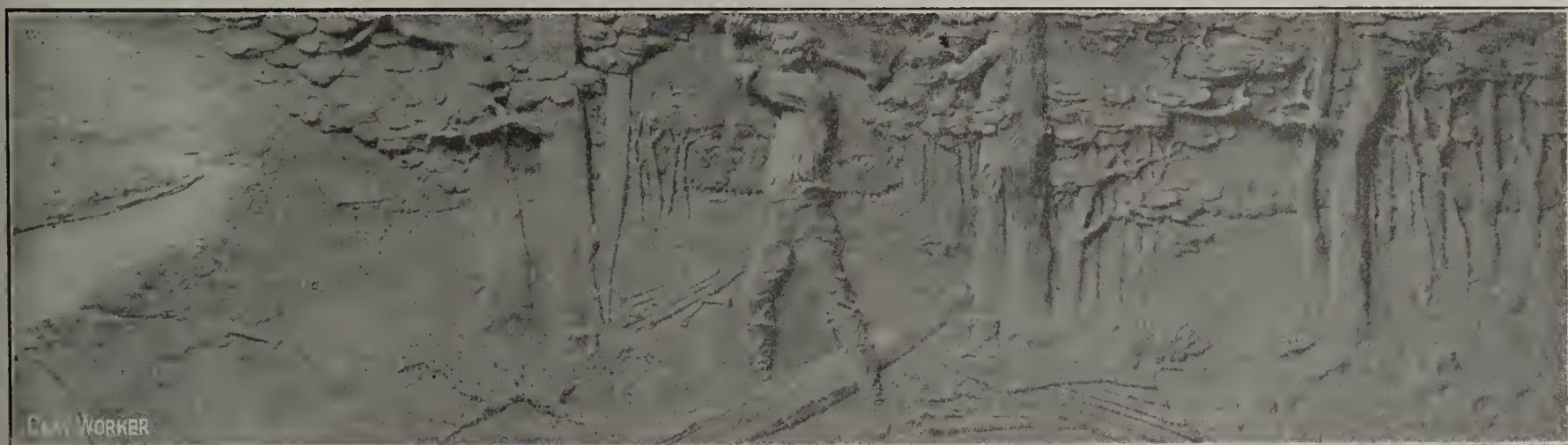
Written for THE CLAY-WORKER.

A NEW LIFE OF LINCOLN.

A Most Wonderful Story Told in Terra Cotta.

A NEW LIFE HISTORY of Abraham Lincoln, pioneer, statesman, President and martyr, has been given to the world in form which will defy the ravages of time long after the print paper of present book-bound editions is faded and yellowed and crumbled beyond the power of man to decipher. It is written in terra cotta and at Terra Cotta, under the editorial direction, so to speak, of the "Master of Terra Cotta," William D. Gates. The illustrations are by Karl Schneider, chief of the artistic staff of

(at the beginning and end of the series and between each panel) of the faces of personages whose individualities were closely linked with Lincoln and with the history of Illinois during and approximating the period from 1840 to 1865. It required the best part of a year's study on the part of Mr. Schneider. One would naturally think that the libraries would be full of the sayings and doings of so remarkable a figure in the country's history, but the reverse appears to be the case, and Mr. Schneider found that none of the biographers had covered the field sufficiently exhaustively to give him the inspiration he sought. Even by reading all of the biographers and culling here and there from each, he could not find the dramatic events portrayed in sufficient detail to give him the faithful historic background which he



Lincoln Splitting Rails on the Banks of the Sangamon—The First of the Ten Terra Cotta Panels Lately Installed in Lincoln Memorial Hall, University of Illinois.

the American Terra Cotta and Ceramic Company, but as the whole story is told in the pictorial language it may be truthfully said that Mr. Schneider is the author of this new and distinguished piece of biography.

The new "Life of Lincoln" is issued in a single edition of one volume and one copy, which has just been installed at the University of Illinois at Urbana, and can not be removed thence. It is in the form of a group of exterior panels gracing the Lincoln Memorial Hall, newly completed for the university of the State which claims Lincoln as her foster-son, and whose county seats and towns and rolling prairies are so full of glorious memories.

To gather these treasures of memory was a first step essential to creating the ten panels which represent the ten epochal periods, as Mr. Schneider sees them, in Lincoln's history, and which girdle the Memorial Hall, and especially was it essential to the reproduction in twenty medallions

wanted. He was not satisfied to portray Lincoln alone as the central figure in each panel. He wanted to show the great statesman in his true setting, among the actual people with whom Lincoln had lived and worked and fought, whose lives had been touched by him and had in turn left their impression upon him. Nor was it the face and form of Abraham Lincoln alone which these panels were intended to present to a world in danger of forgetting (amid the strife and turmoil of modern life) the patient, conserving force of the man who stood strongly against public clamor for measures he believed to be right, and who preached the sanctity of constitutional safeguards and orderly procedure in the face of flaming and dangerous radicalism. Face and form have been depicted countless times. It was the aim of this series to present the spirit of Lincoln, and so successful was Mr. Schneider in achieving this aim that in three of his panels the actual figure of Lincoln does not appear at all.

To get the atmosphere necessary, Mr. Schneider was



Abraham Lincoln During His River Boatman Days.

obliged to visit various historical spots and to communicate with those who could remember Lincoln, and with the descendants of those who were intimate with him. Family pictures and anecdotes thus were obtained, and it was possible to fix with considerable certainty the identity of the persons who were with the Statesman of the Sangamon during the particular events which the panels set forth. Herbert Mills Fay, of DeKalb, Ill., editor of the DeKalb Review, supplied many of the pictures used in compiling this work in terra cotta.

The first of these panels shows graphically Lincoln, the man—the basic characteristics of his personality, his rugged vigor and willingness to work. It is Lincoln, the rail splitter, who stands before us in this panel, amid the timber on the banks of the Sangamon. In the distance is the little log cabin. On either side is a pile of hewn rails. Above a great log, feet braced on either side, stands the giant figure of the future statesman, axe swung back over his shoulder, and fixed attention directed to the line to which he must hew patiently until he cleaves the log in two. The atmosphere is strikingly Lincolnesque. The spirit of the land—the field, the forest and the stream—from which Lincoln sprang and which gave to him that elemental strength to do and to endure, pervades the scene, the calm, strong spirit of the land for which he later strove and died.

The next panel shows Lincoln as a river boatman, sitting on his loaded batteau, close by the landing of a town far south on the Mississippi. The face of Lincoln is the central theme, thoughtful and strong. To the right in somewhat hazy outline, so that it is a matter of interpretation whether the figures are intended as physical realities, or the children of Lincoln's thoughts, is a slave-market scene, such as Lincoln is said to have looked upon on one of his trips down

the river, and which caused him to vow that he would use his strength to drive the curse of slavery from the land.

A third panel has for its subject "Lincoln as the circuit rider." In the background Judge David Davis, an historic figure in southern Illinois (whose son today bears his name and honorable reputation in the city of Litchfield), is seen riding up to the quaint building in which the session of court is to be convened. Lincoln, a lawyer now, has ridden up to the court house somewhat in advance of the judge, and standing up in his stirrups, is listening with grave and respectful attention to the plea of an aged widow who has been defrauded by an unscrupulous lawyer.

According to anecdotal history, she was more than 80 years old and the widow of a soldier of the Revolutionary war. She had put in a claim for pension money and had been allowed \$400 by the government, but her lawyer kept half of it. Lincoln took her case against her former lawyer and won it. Another lawyer is seen tying his horse to a nearby tree.

The Lincoln-Douglas debate at Freeport, Ill., is depicted in the fourth panel. On a platform like those familiar in the old days in the square of almost every town, and still found in some of the more unspoiled communities of southern Illinois, the two great figures of that famous ante-bellum political campaign are seen. Stephen A. Douglas sits at a table listening to the words of his masterful opponent, and doubtless planning for his rebuttal. Lincoln, erect, strength and purpose in each ungainly line, is putting his famous question:

"Can a house divided against itself long stand? Is it possible for a nation to endure, one-half slave and one-half free?"

The expression of the two debaters and of their auditors on the platform compel admiration for the sculptor.

Lincoln's first inaugural address furnishes the theme for



Abraham Lincoln as the Circuit Rider.



The Famous Lincoln-Douglas Debate.

the fifth panel. The new President, having just taken his oath of office, is addressing the throngs whose faces are upturned to the platform. Nearest the railing on Lincoln's right sits President Buchanan, whose term has just expired. To Buchanan's left sits Chief Justice Taney, who administered the oath of office to Lincoln. To the left of the central figure next the railing sits Edwin Baker, whose speech of introduction presented the new President to his people. Next to him sits Lincoln's old adversary, Stephen A. Douglas. He is holding Mr. Lincoln's "tile," which caused him to remark to Mrs. Lincoln and her neice, Mrs. Brown, immediately upon his right:

"If I can not be President, at least I can hold the hat of a President."

The other figures in this group are not worked out with an eye to historic accuracy, except for the secret service men, who stand with arms folded at the extreme left.

"We are coming, Father Abraham, one hundred thousand strong," is the subject of the sixth panel, the first of the series whose chief connotation is the vivid personality of the war President, although his familiar figure does not appear. It shows the Twenty-fourth Massachusetts regiment just arriving ready for the defense of Washington. In the distance is the dome of the capitol. The regiment was the first to arrive in response to the call for volunteers which went out when Lincoln from the windows of the White House could see the "Johnny Rebs" across the Potomac river, and knew that the handful of 200 soldiers then in Washington could never repel the feared invasion nor prevent the capture of the capital. Twenty-four hours before, this regiment had been drilling in Fanueil Hall. Trouble in Baltimore had compelled them to travel by circuitous route, and the last brief stage of the journey is being pointed out to them in the picture.

Panel No. 7 is symbolical. On the ground to the left of the picture lie a negro woman and child. The negro man has risen to a sitting posture and is gazing with rapt attention at Lincoln, who, with an expression of beautiful beningnity, points to the rising sun of hope and freedom. The river which separates the group from the background is supposed to represent the Potomac.

The series now passes from the emancipation to the world-famous scene on the battlefield of Gettysburg. One can almost hear the words, "four score and ten years ago our fathers founded upon this continent," from the lips of the man who stands upon the improvised platform. To his right sits a man named Burke, who had lived in Gettysburg and who, when the Union soldiers came marching by, seized his rifle and joined them without the formality of enlisting. With them he plunged into the engagement and was wounded. When Mr. Lincoln heard of it, he insisted upon his occupying the place of honor upon the platform. Back of the hasty volunteer stands Edward Everett, the orator of the day, who, when he had heard the words of his nation's chief, said: "I wish that in the two hours that I occupied I might have said one-half of that which Mr. Lincoln said in ten short minutes."

The ninth panel—the surrender at Appomattox court house—is another one in which the figure of Lincoln is missing. His very presence, however, seems to fill the room. Ulysses S. Grant, the general who had the President's unswerving support in the face of clamor and abuse, appears as Lincoln's personal agent in bringing to a close the terrible war. With firm grip he clasps the hand of the defeated Lee, holding with keen eye the gaze of his southern adversary. General Lee's son, then destined to become prominent in later years of his country's history, is the foremost figure in the background a little to the right. The tensivity of the moment



President Lincoln's First Inaugural Address.



"We are Coming, Father Abraham, One Hundred Thousand Strong."

is reflected in each stern face. Every line in Grant's figure spells force dominant; every line in Lee's bespeaks the poignant bitterness of defeat and the pride of spirit that will not bow the head even to a victor.

As the series begins with the spirit of the land, so, in "The Soldier's Return," it closes. The aged mother clasps her son once more in her arms. The oxen halt in the furrow, as the old father with one hand on the plow turns for his share in the welcome greeting. Gazing at the group from a little distance stands a young woman, a sister or a sweetheart. The mighty Lincoln is departed but peace broods over the rolling prairies, the spirit of calm and strength which Lincoln typified, striving and dying that he might restore it once again to the land from which he sprang and which he loved.

No less remarkable than the panels are the medallion heads interspersed among them in the frieze. In two of these heads—those of Henry M. Stanton and Horace Greeley—the effect of spectacles has been faithfully reproduced. The effect is especially striking in the head of Stanton. One can almost think he sees the pupil of the eye through glass, so cleverly has the sculpturing been done. Illinois' two war governors, Richard Oglesby and Richard Yates, occupy prominent places, as do William H. Seward, Admiral Farragut, Stephen A. Douglas, Charles Francis Adams, Samuel Chase, Lyman Trumbull, General John A. Logan, General Grant, Charles Sumner, Gideon Wells, Judge Davis, Governor Palmer, Joseph Medill, Turner, Koerner and Owen Lovejoy.

All these marvelous details, historically accurate, in large part have been worked out in broad strokes. Little fine "tool" work was done, but on the contrary the strong features of face and figure have been emphasized with a view to making the likeness correct when seen from twenty feet below, rather than from near hand.

This piece of work in many respects marks a new departure in the sculptor's art, and already is attracting attention throughout the country. The writer thinks it the most marvelous he has ever seen. Although practically no publicity has been given to these panels as yet, and THE CLAY-WORKER claims credit for the first reproduction of the photographs, their fame has spread even beyond the bounds of the United States. A number of communities, desiring to commemorate historic events or distinguished citizens of the past, are making inquiries which indicate that Chicago, with its possibilities for historic research in its great libraries, and above all with its possibilities of interpreting the fruits of historic research into the beauties of lasting terra cotta, is likely soon to be regarded as the Athens of the American continent.

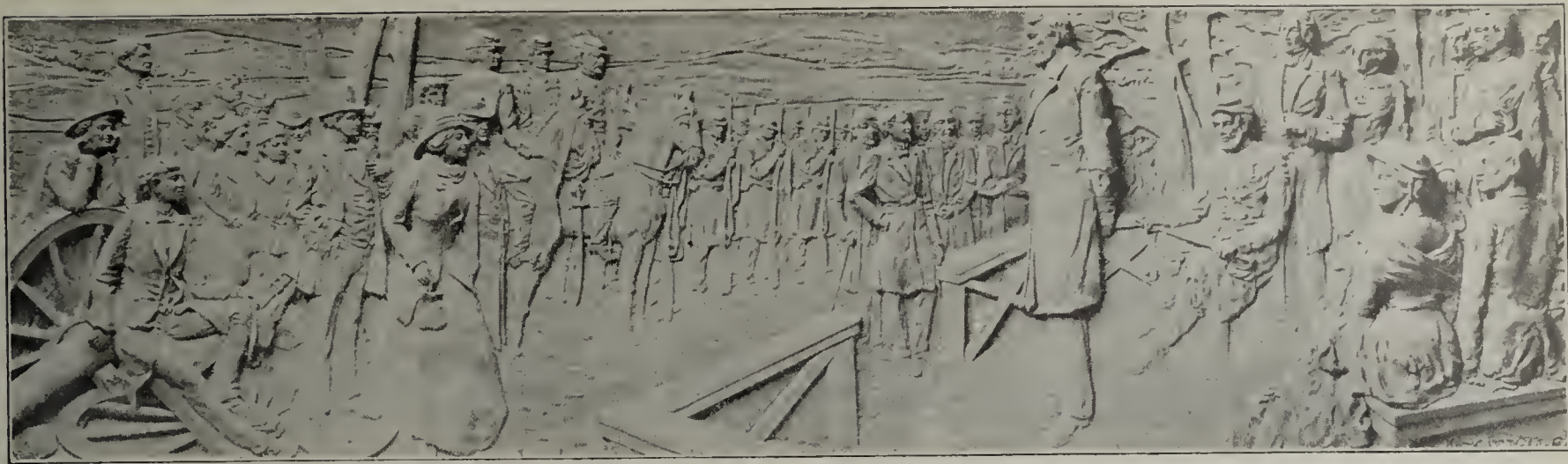
SCRIP.

THE QUESTION OF DRYING.

The question of drying clay products is one of the most important problems we have to deal with nowadays. The old method of drying in sheds, and only in summer time, is so antiquated that any up-to-date brick yard can not conscientiously install such system any more. There are many methods for drying the clay products, and it is work for a trained engineer to devise the ways and methods the best adapted for drying purposes. All the sources of waste heat in a brick plant must be taken into account, and must be used to advantage. Some clays do not stand drying in air circulated by fans; others do not stand quick heating up; in some materials the waste heat of the kilns can not be used, as it will discolor the ware. These questions must all be solved before designing a dryer which will meet the requirement. It is, therefore, impossible to design a dryer which will fit any condition, and which can be installed along patented ideas.—Deut. Topf. & Z. Z. No. 94, 1911.



Abraham Lincoln, the Savior of the Slave.



The World-Famous Scene on the Battlefield of Gettysburg.

Written for THE CLAY-WORKER.

A RETROSPECT.



LOOKING BACK over the past quarter century of clayworking progress, one can truly rejoice that he was permitted to have a part in the wonderful development of building materials. We found the face building materials of burned clay in a single color, except enameled ware, and perhaps terra cotta, and the manufacturer who could produce this color in the most uniform degree upon a mechanically perfect block of clay was our leader.

Our buildings were dreary—perhaps not that, but at least monotonous. They were works of architecture, not of art.

Then came in the buffs and fireflashed, to break the monotony. Our good friend Ittner, at the first Philadelphia convention of the N. B. M. A., said in reference to a fireflashed product, that it was only a fad and would be shortlived. Others spoke with contempt of the "patchwork." Buff bricks would soon reek with visible dirt and that would be the end of them.

Those who were making them had nothing to say in defense, and lived in hope that the fad would last until they could reap their harvest. They have lived, or at least most of them, and the few that have passed away have been replaced by hundreds of others until today—we are ahead of our story, and will leave "today" for the finis, where it can quickly join tomorrow.

The patchwork was but a bit of ferment, weak at first but growing and spreading every year. We did not realize then that it was the beginning of a great change in our building materials.

Unconsciously, we were working out the problem without knowing what the answer was to be. The buff bricks were soon followed by grays, which had the merit of not showing dirt to the same extent as the buffs. The grays were quickly followed by numerous color effects, mottled bricks, iron spots, etc. The mottling, speckling and spotting really marks the beginning of the rough-faced product now so prevalent.

We were making every effort to produce a perfect block of clay and, all unknowingly, were doing all we could to correct the great error of perfectness. We made the bricks as smooth as possible, then tried to make them look rough to hide the smoothness.

Some architects—all praise to them—insisted upon using sand-moulded bricks, common bricks, any old rough stuff, and we now know that they were years ahead of the times. How foolish they were, so we thought, to use such miserable stuff, when our high grade material was theirs for the asking.

It finally penetrated our intellects that there was an insistent demand for a rough-faced product, and the rock-faced brick came on the market to meet this demand.

A rock-faced brick—a base imitation of a noble building material, and in it we debased another material still more noble. We were proud of it, however, and some of us took out patents of one kind or another that we might have a monopoly of the immense business to follow.

Here, at last, was the ideal product, with its lights and shadows, its absorption or dissipation of dirt. Since a rough face was demanded, we would make it perfectly rough. It was too perfect and was a flat failure. The architects would have none of it, nor would the public.

Through it all, red, buff, fireflashed, iron-spot, gray, speckled and mottled and rock-face, there was a bit of ferment at work urging us in the right direction, but instead



The Surrender of Appomattox Courthouse.

of cultivating it we redoubled our efforts to improve the product in the wrong direction.

What we failed to get in the color effect we tried to develop in shape—Roman and Norman sizes. The dry press had the run because it produced the most perfect block. Stiff mud bricks, however, began to pick up, and the battle of imperviousness was on. We do not know whether the fight is lost or won. Personally, we hope it is lost. The walls of our house should breathe as well as the clothing of our bodies. If we need an impervious sweat box for homes, we should favor impervious clothes for our personal wear.

The impervious argument was used to counteract the fact that at best the stiff mud bricks were less perfect than the dry press product. The very feature of the brick which gave it chief value, was the one we tried to eliminate and hide.

The wavy surfaces of the stiff mud product and the greater difficulty of close shading, broke up the glare upon the wall, and we began to get shadows which had been lacking before. Our walls had been all high lights. The repressed product fell out, and wire-cuts, with their greater but natural imperfections, had their run.

There came occasional calls for a corrugated face, showing that some one was trying to solve the problem of natural brick work.

We must not overlook some hand-roughened products

own in the smooth product; it will even grow, because it has not reached its zenith. The sturdy paving brick will not be driven out by its rough-coated rival, nor will some of the more delicate color effects, although they are decidedly on the wane. We need the old; if not for itself, to bring out the beauty of the new. If our art galleries were filled with riotous views of the tropics, we would enjoy a wild snow scene, a quiet lake view, a lonely mountain outlook. No, we can not agree with our friend. The architect will find a place for everything except that absolutely without merit.

We wish to register a plea in favor of retaining the original name, Devonshire, given this rough-faced product by the first architect who used them.

Devonshire is a good old English name, and recalls the rough, hardy men who sailed with Raleigh and who won this western world of ours.

Let Devonshire be the generic name, if you please, and distinguish the several products by such specific names as seem best suited—"Astrakhan," "Velour," "Tapestry," "Bokhara," "Corduroy," "Orientals," etc.

Twenty-five years ago the architect had no choice of color, and simply exercised his skill as an architect, but now his palette is full of colors, and effects more than colors. He is no architect except he is also an artist.

We have looked back from the standpoint of the brick-



The Soldier's Return.

which marked the real beginning of rough textured bricks. They were the pioneers, the educators, and following them it only remained to discover some mechanical and economical method of producing the effect. It had to be natural, distinctive, characteristic of clay, yet mechanically produced. Had this not been accomplished, we believe the sand-moulded brick would occupy a much larger place today than it does.

We have not begun on the sand mould product, and there is a very fruitful field to produce artistic effects.

A lucky accident revealed the true rough textured product; something in which clay could properly express its possibilities.

It was not new, but centuries old, and it is strange that it should be left to an accident to bring it to life again. A prominent—the most prominent—authority on bricks and most enthusiastic lover of the beauty in them, said that the time would come when nothing but rough-faced products would be made. Let us not go that far, lest we again forget that there is something less beautiful and be led astray.

We must remember the beauty we have in the velvety sand-mould product, and as previously noted, we look for a great expansion of this product. In it we will produce color effects not now dreamed of.

But this is not our subject. We are dealing with the past, not the future.

We look to see the iron spot fireflashed brick hold its

maker. The terra cotta manufacturer has all along been in advance of the brickmaker, but had the advantage of a broader limit in values. The brickmaker had to keep within very narrow bounds.

The future has no place in a retrospect, but let us overstep the line and take a peep ahead. Every one thinks that his period accomplished great things and feels sorry he has left so little for the next generation to do. He need not worry. He has opened up some good mines and worked out a few pay streaks, but has left untouched great bodies of ore for future development.

There are a lot of ceramic engineers coming into the field—they have been coming for a decade or more. Their numbers are few, but they are increasing each year, and the effect of their technical training is being felt. We stumbled blindly upon many things, but they will attack the problems with a definite purpose in view, work to that end, and accomplish it.

In brickmaking, for example, besides the natural clay colors, we have made use of only two metallic oxides—manganese and iron—and these only in the natural state. There remains a good list of metallic oxides to be in some way applied within the prescribed limit of cost, and from each will be developed a series of color effects of which we now have no hint. This alone will discount our accomplish-

ments. Then there are frits to be applied to increase the temperature range of application.

We have in mind a number of by-products of little or no value from other processes which should replace more expensive material used in brickmaking.

The sand-mould stuff has something coming to it.

We are leaving some practical problems for them—leaving is not the word we wish to use, since we propose to stay with it a while yet. The first and most important is the fuel consumption. The waste is frightful. Even in the continuous kiln the radiation loss is thirty-three per cent. There is the mechanical handling upon which we have only begun. Some day the farmer may say to us, as he has to the smelter men, put a stop to that sulphur nuisance. There are some problems in drying, in burning, a rattler test of ten or less in pavers, efflorescence—the list is too long. One has only to visit any brick yard to see what practical problems remain.

There are some nice scientific problems, too. Fuller's earth opens up the entire colloidal controversy. Ashley's splendid work on colloids opens up the question of chemical treatment of clays, and we deeply regret that he did not live to make a practical application of his theories. Why in two earths of equal absorptiveness will one bleach mineral oil, and not vegetable or animal, while the other will bleach the vegetable and not the mineral?

We must call a halt, but as one looks at the good things ahead he regrets that there is any retrospect.

The mine certainly has not been worked out, only the surface has been scratched.

CAREY P. ELLIS.

Written for THE CLAY-WORKER.

NORTHWESTERN OHIO BRICK AND BUILDING NEWS.



TRADE in the Toledo market is reported as about normal for this season of the year. All Toledo brick concerns except the open yards are running, but care is being taken not to overstock. It is thought that there is plenty of brick here to take care of all demands, unless something phenomenal, which is not now looked for, should develop. There is a good demand for common brick throughout the country and the market on building brick is beginning to strengthen as the weather improves. Prices on building brick run about \$6.50 and \$7. A movement is on foot in Toledo among brick men to strengthen the brick market for residence purposes. "We have never made any special effort to build up this portion of our business," said a prominent brick man, "but we are going to do so. We have not yet determined just what will be done, but it will be concerted action on the part of all the local plants, and will take the form of a campaign to show people the points of superiority which brick residences have over others."

The paving brick business is not particularly heavy in Toledo at this time, although six streets were recently contracted to be paved with brick. The country roads throughout this section, however, are splendid prospects for paving brick manufacturers. Throughout northwestern Ohio sentiment in the rural districts and in smaller towns is strong for brick paving, and it will take strong arguments to bring about a change of opinion. Just at present Paulding county commissioners are debating seriously the proposition of paving the country road extending from Paulding to the Antwerp stone pike, a distance of several miles, with brick. It is contended that while the first cost of brick may be a little heavier the paving is so much more satisfactory and lasts so much longer that it is cheaper in the end. Paving brick is quoted here at \$18.50.

The question of bonding the city for \$80,000 for a new sewer system will be submitted to the citizens of Celina,

Ohio, at the primary election May 21. There seems to be strong sentiment in favor of the issue and it is expected that it will carry by an overwhelming majority. This will make some nice brick contracts for a little later in the season.

The city council of Van Wert, Ohio, is taking the preliminary steps for the paving of Walnut and Cherry streets and Park Place. An attempt will be made to introduce the use of brick.

The plant of the Columbus Contractors' Supply Company, at Taylor's Station, Ohio, was practically destroyed by fire recently.

The St. Mary's Brick Company has been incorporated at St. Mary's, Ohio, and fifteen acres for the plant have been acquired near the eastern limits of the city. It is expected to have the plant in operation soon and the promoters state that they will manufacture about 1,000,000 brick this season.

The new town hall at Oak Harbor, Ohio, has just been completed and is a handsome structure. It is built of gray pressed brick. Offices, assembly hall and public library are on the first floor, while the second is occupied by a modern theater. A fireproof school house is now nearing completion which cost \$60,000 and used large quantities of brick. The foundation is also being laid for a parochial school to cost \$20,000, and here also a nice brick contract was provided.

Napoleon is planning some extensive street paving for this season, and the council has already made arrangements for beginning this work. "Whit" Hudson has been employed as engineer for this work at \$4 a day for actual service rendered. Mr. Hudson has had wide experience in paving streets. The council also employed Fred Gribbel at \$150 a year as legal advisor in connection with this street work.

Fred Adams, formerly of Fostoria, Ohio, where he was general manager of the Toledo, Fostoria & Findlay Railway Co., has gone to Colorado Springs, where he is now employed as general manager of the National Clay Products Company. This concern owns plants in Colorado and Nebraska and is acquiring more in those States. The Colorado Springs plant is being electrified and having new machinery installed at an expense of \$50,000.

The city of Defiance, Ohio, is proving a good field for brick consumption this summer, as many mercantile structures and private residences are being constructed or are in the hands of architects. Brick is a favored material and will be used largely, not only in the mercantile work but in residence structures as well. The village of Hicksville is also furnishing a number of brick contracts for store buildings and residences.

The paving proposition is the biggest thing in point of interest in Williams county just now, even taking precedence over the presidential nomination. The people of Bryan, Ohio, the county seat, and the farmers throughout the county are desirous of securing good roads that will last. It is figured that a \$60,000 bond issue would furnish about \$175,000 for the work, and a poll of the people of the village taken recently showed an almost unanimous vote in favor of the issue. Public meetings have been held and the matter gone into thoroughly. It is desired to pave the main streets leading into Bryan, namely, North and South Main streets, East and West High streets, Mulberry, Wilson and Center streets. The village will pay for the intersections, underdrains, etc., and fifteen per cent of the remainder, the owners of the abutting property to pay the rest. Farmers southeast of the city are agitating a move to build a brick pavement from the corporation line in that direction, while toward the southwest it is desired to pave the road the entire distance from Bryan to Farmer Center. Farmers express themselves as not only ready but anxious to spend their money for a permanent road and it is more than likely that Williams county will soon have a network of good brick roads extending throughout the county.

T. O. D.

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POINTS ON THE CONSTRUCTION AND OPERATION OF THE LUBRICATED DIE.

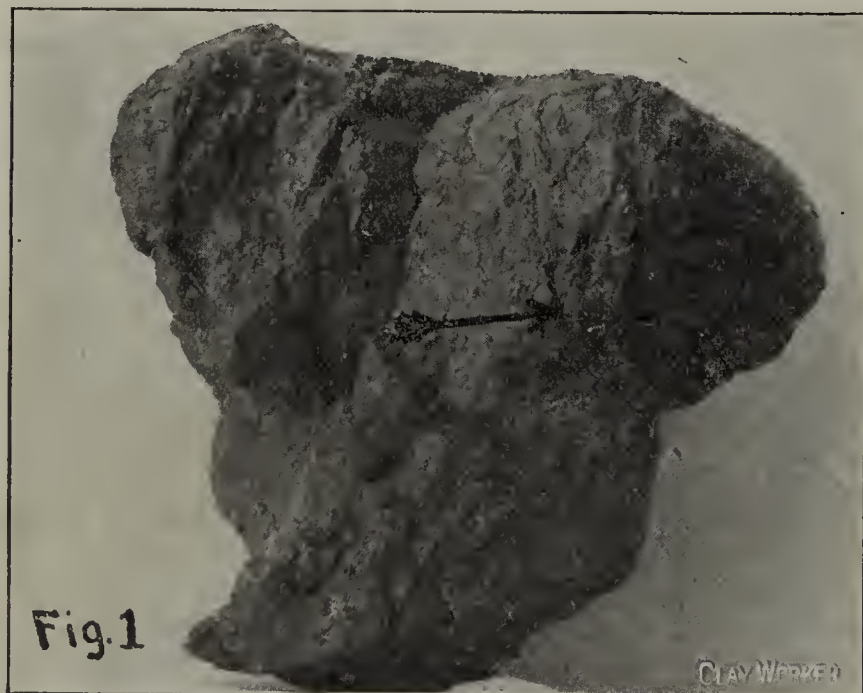
BY R. T. STULL, URBANA, ILL.

Mr. President and Gentlemen of the Convention:

In the manufacture of clay products by moulding stiff tempered clay in a continuous bar on column and wire cutting, the most troublesome defect and the greatest weakness in the produce is due to laminations, of which there are two well recognized forms called auger lamination and differential laminations.

The streams or strands of clay are delivered from the auger wings in helical form, and in this condition the clay is forced into the die. The strands of clay are imperfectly welded as the clay passes through the die, thus giving a structure similar to the twisted strands of a rope. Figure 1 shows the center or core taken from an end-cut brick in which the two twisted strands of clay from the auger wings can be seen. The arrow shows the direction of flow of clay in passing through the die.

On account of the friction of the clay against the iron with which it is in contact the clay flows at a greater speed at the center of its stream, resulting in a structure resembling overlapping cones, giving what is called a differential laminated structure. The overlapping cone or differential structure can be best studied in a clay column issuing from a plunger machine, where



the auger laminations are entirely eliminated. In the case of the auger machine the final laminated structure is the result of the combined influences of the auger and differential flow. This structure is illustrated in Figure 2, taken crosswise of an end-cut brick. The structure resembles an irregular coil protruding at the center.

The laminated structure appears differently when the brick is broken in different directions. The appearance of the laminated structure, due to the combined influences of the auger and differential flow is illustrated in Figure 3, showing the fractured surface of an end-cut brick broken lengthwise through the center. The laminations appear in "zigzag" lines across the brick.

One method of reducing auger laminations consists of an extension provided with cross bars (Figure 4) placed between the auger and the die. The extension with its cross bars reduces auger laminations in two ways. First, it places the die farther away from the auger, which reduces the coiled structure, but at the same time increases the differential laminating structure and decreases the velocity of flow of the column.

The cross bars break up the coils as they leave the auger wings and are most effective when placed close to the auger. If the bars are placed too close to the die the brick may crack or separate in drying along the planes cut by the cross bars. With some clays it seems impossible to use a cross bar or core bridge between the die and auger without causing the ware to split in drying. By placing the die farther away from the end of the auger and using cross bars the auger laminations are reduced, velocity of flow reduced and differential flow increased. The closer

the die is placed to the auger the greater is the velocity of flow, the more prominent are the auger laminations and the less apparent is the differential structure. Auger laminations are far more troublesome than those produced by differential flow, as can be verified by some of our brickmaking friends who have changed from the old plunger machine to the auger type.

Besides the auger structure there is considerable differential structure in the clay on passing into the die. The laminated structure in the clay as it enters the die cannot be destroyed as it passes through the die, but it can be modified by the manner in which the die is constructed and lubricated.

If the die is insufficiently lubricated, the friction of the clay against the die increases differential flow. The object of lubrication is to reduce friction and consequently reduce differential flow. In order to be most effective lubrication should be introduced as close to the intake opening of the die as possible, thus not only overcoming the differential flow which would otherwise take place in the die, but also increasing the velocity of flow of the clay column.

In order to design a die of high efficiency it is necessary to understand the physical behavior of clay and the fundamental principles of lubrication. For the present purpose, stiff tempered clay may be regarded as a semi-fluid, in which an applied force AC at a given point, C (Figure 5), is transmitted unequally in different directions, giving approximately an elliptical diagram of transmitted pressures. The transmitted pressures perpendicular



to the taper lines, or inside face of the die, are the pressures which force the clay against the die and oppose lubrication. The lubricating fluid then in order to be effective must be admitted to the die under a pressure at least equal to the opposing pressure of the clay against the die.

The greater the taper of the die the greater is the pressure opposing lubrication. Figure 6 is an illustration. CD and EF represent the taper lines of a die. The transmitted forces A and A perpendicular to the taper lines CD and EF are the forces opposing lubrication at these points. If the taper of the die is increased so that GD and HF become the taper lines then forces B and B perpendicular to the taper lines are in opposition to the lubricating force. Since B is greater than A it follows that the die of small taper requires a lower lubricating pressure than the die of large taper.

The lubricating fluid will go to the point of least resistance. Therefore, it can be drawn to any point desired in the die simply by reducing the taper line passing through that point.

Friction is greatest in the die at the corners and least at the middle top and bottom. It is desirable, therefore, to relieve the friction at the corners as early and as completely as possible, consequently the die should be constructed with the smallest taper at the corners and greatest taper at the middle top and bottom.

The proper taper lines to give the die is a problem depending upon a number of factors, namely: 1. Nature of the clay. 2. Stiff-

ness of temper. 3. Capacity of molding machine. 4. Amount of back pressure exerted by the carrier and cutting tables. 5. Shape of the column. 6. Length of die.

From practical experience it has been found under normal working conditions that the variation in taper at the middle top and bottom of the die should be from one-eighth inch to one-fourth inch to the foot (Figure 7), and the taper at the corners less than one-eighth inch to the foot, for dies between seven and twelve inches in effective lengths.

Short clays, stiff tempered clays, molding machines of high capacity, high back pressure and long dies require smaller tapers, and the converse of these conditions requires larger tapers.

A long die with a small taper per linear foot gives a much better column than a short die with a large taper per linear foot. This is especially true in lubricated dies for large capacity machines.

In order to provide for lubrication it is necessary to make the die in sections or scales, so that the lubricant can pass through and moisten the contact surfaces between the clay and the scales. For this purpose two or more scales are necessary, a larger number being preferable.

By making extensive experiments in applying lubrication in different ways the best results were obtained by the following method.

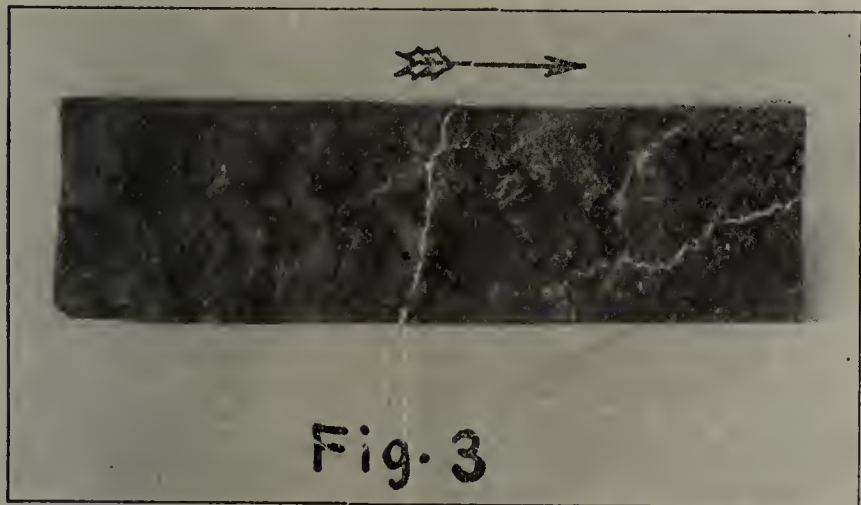


Fig. 3

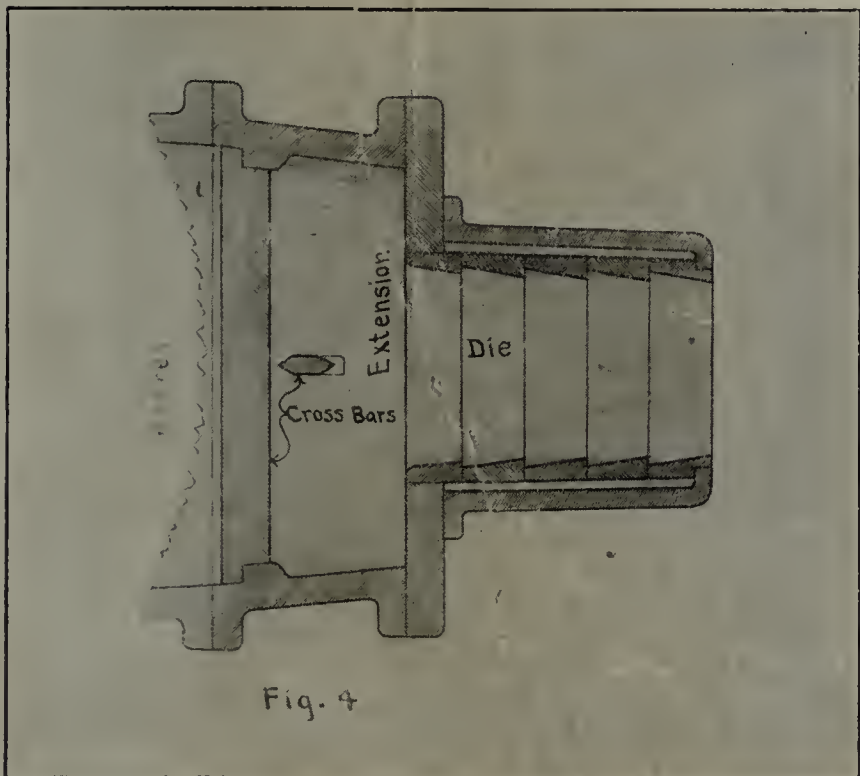


Fig. 4

Paper gaskets scant one-thirty-second of an inch thick are placed between the scales. The gasket nearest the intake die opening is cut out at the top as shown at A in Figure 8. The other gaskets make the contacts between the scales water tight.

The lubricant under sufficient pressure can pass through at A and around the column. In order to provide channels for the lubricant to pass around the column scales of the well-known "offset" type are used, as shown in Figure 9. The lubricant passes through at A to the offset, or channel B, where it flows around the column. Since the die taper is least at the corners the lubricant under pressure passes forward by way of the corners from B to the offset C in the succeeding scale. Here the

lubricant also flows around the column and proceeds in the same manner of successive offsets.

When water is used and the die is lubricating under proper water pressure and volume a little water can be seen oozing out at the corners of the die. If the water is admitted to the die under too low a pressure lubrication is shut off and the column cracks. If the water pressure and volume are too great water is forced into the weakest spots in the column, giving water marks, so that it is essential to provide a suitable pressure regulator for regulating the water pressure to the right degree.

Since the greatest taper of the die should be farthest from the corners and the smallest taper at the corners the shapes of

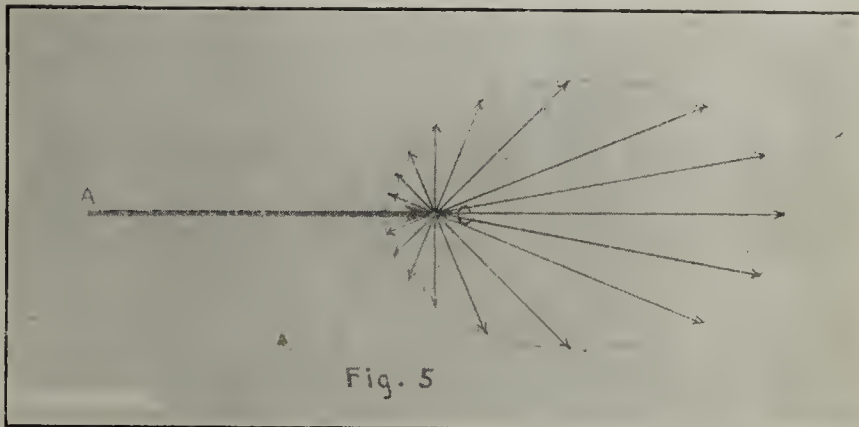


Fig. 5

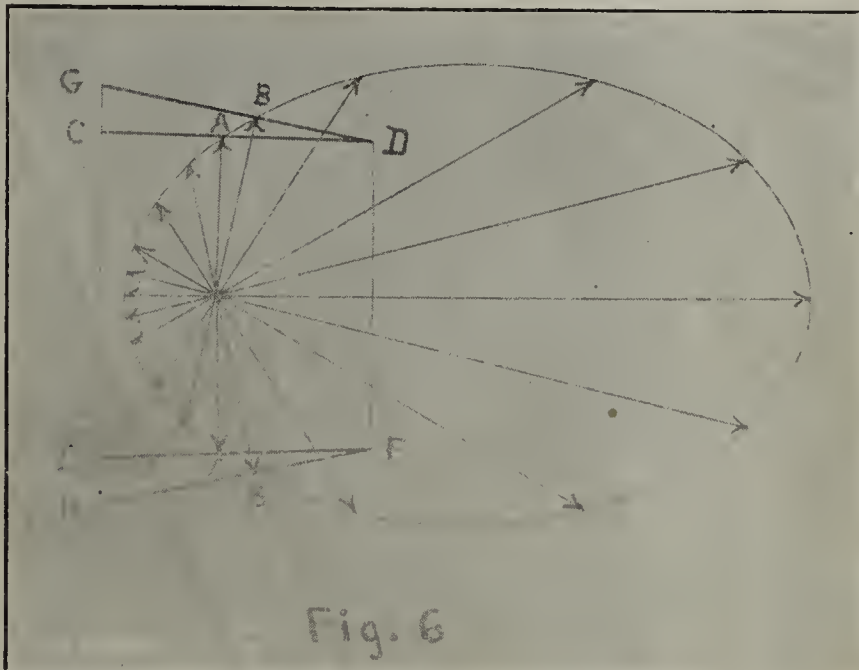


Fig. 6

the intake and outlet openings for the rectangular die would be similar to the diagram shown in Figure 10. The position of the observer is behind the die, looking through it in the direction in which the clay is flowing. The outer lines represent the intake opening and the inner rectangle the outlet opening. A particle of clay moving from point A of ingress to point B of egress passes on the line of greatest taper, while four clay particles, one moving through the die at each of the four corners CCCC would be in parallel motion along lines of least taper. As the clay moves through the die each successive scale acts upon the forming column and gradually changes it from the form it takes on entering the die to the final form on issuing from the die.

The pressure of the clay is greatest along the greatest taper line, AB, consequently the water would flow forward along the lines of least taper at the corners to the succeeding offsets in the scales, each offset serving as a reservoir to hold some of the water. On removing a die from the machine and carefully cleaning out the clay the offsets of the scales were found to be filled with a soft, plastic slip, which is the real lubricant.

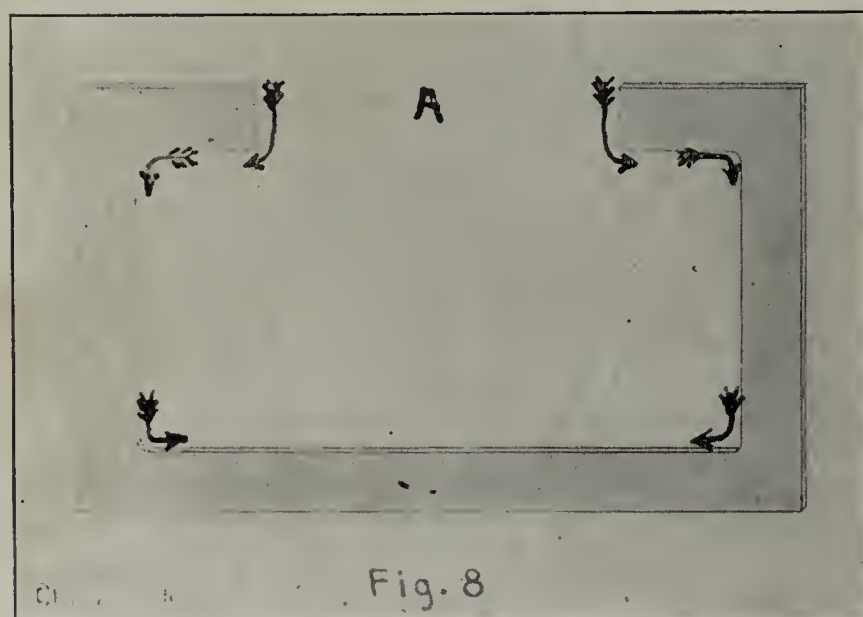
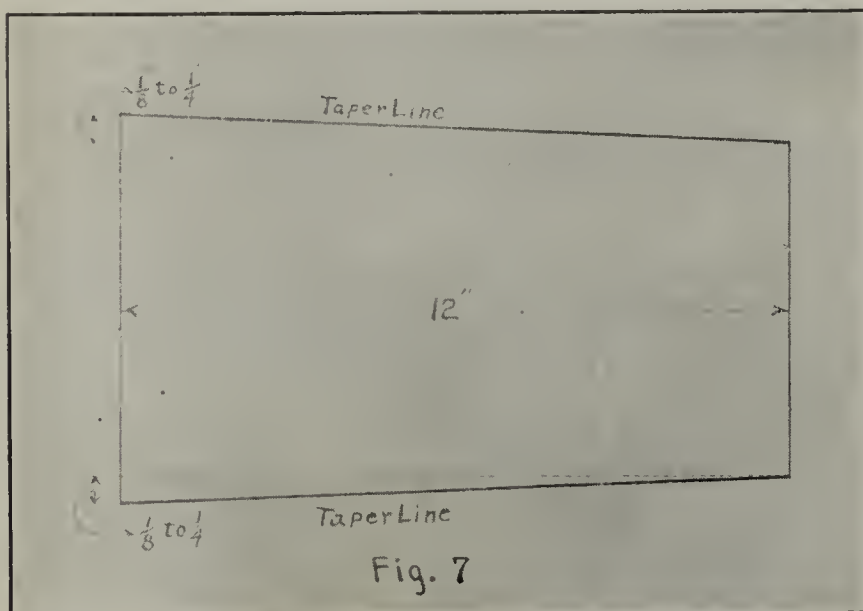
Dies have been in use for years which are built on taper lines directly opposite from what they should be. A working inspection of such a die showed that the lubrication did not take effect from the intake opening up to a point within one and one-half inches from the delivery end of the die. The die for about four-fifths of its length operated as a dry die, the lubrication becoming effective at a point just before the column issued. The form of inlet and outlet openings of this die are shown in Figure 11. The greatest taper is at the corners along the lines EF and the smallest taper farthest from the corners, at D.

A brick plant in Illinois built a die which was designed with

inlet and outlet openings along lines illustrated by Figure 10, providing forced lubrication effective at a point within one and one-half inches from the intake die opening. This die was tried out against a die which had been in use and was built along lines shown in Figure 11. These tests showed that the new die increased the output over the old die by more than 22 per cent.

Improvements in die construction and lubrication not only mean an increased molding capacity, but also an improvement in quality of the product. This is especially true in the manufacture of paving brick. When the lubricating fluid is insufficient or its pressure too low the column cracks at the corners. When the cracked portion of the column is returned to the machine it represents a decrease in capacity.

Seldom are the brick rejected which are cut from the cracked portion of the column, but are allowed to pass on through the repress, where oil gets into the cracks and prevents them from healing. The brick pass on through the dryer and the kiln and still the flaws remain, though they have been partially obscured by the "slicking" action of the repress.



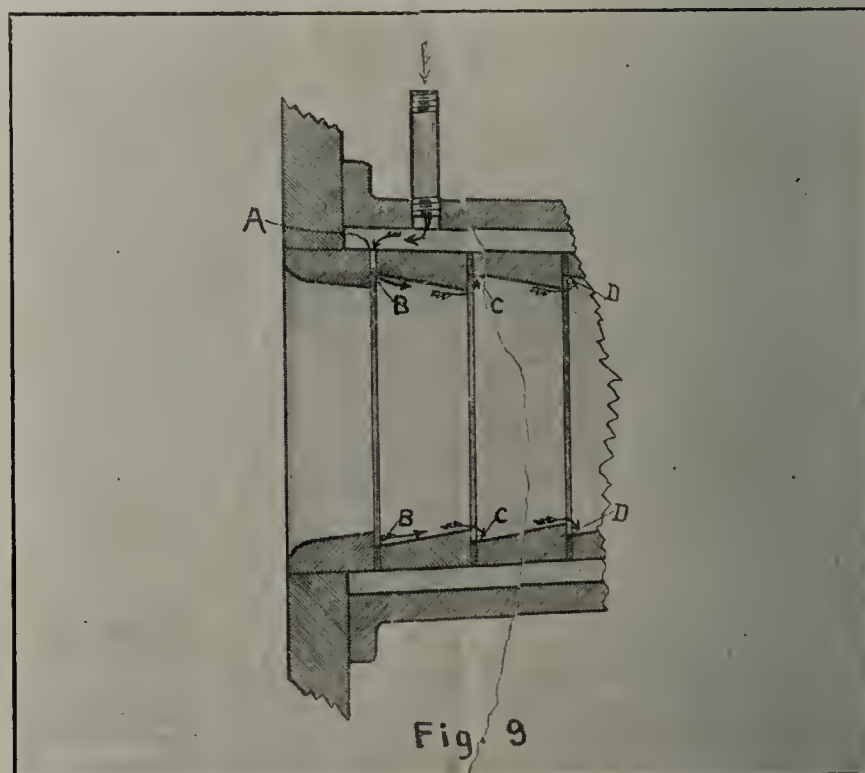
been crude in their construction and imperfect in their operation. Figure 12 shows a die for producing a veneered column of clay in one operation. The veneering mixture is placed in the hopper at D. A shaft provided with blades carries the veneer mixture downward and forces it through slots in one of the scales to the interior of the die. When the veneering substance comes in contact with the clay in the die it is "knit" or welded to it by pressure as the clay and veneer pass through the succeeding scales to the mouth of the die. The column is wire cut and the brick dried and burned in one fire. In order to give a uniform thickness of coating mechanical means are provided for controlling the feed of the veneering at a rate proportionate to the speed of the issuing column. The feed of the veneering is operated by a belt driven from the carrier table, hence the feed is automatically controlled.

Figure 13 represents some of the brick which have been made on this die. The first brick is coated with a mat glaze of soft texture of a peculiar light green shade. The glaze is composed of seventy-two parts of the clay from which the brick is made, twenty-six parts carbonate of lime and two parts barium carbonate. The cost of the ingredients in this glaze is a little less than 15 cents per thousand brick.

The second brick has a rich chocolate brown mat face. The cost of the raw materials in this glaze is approximately 18 cents per thousand brick.

The third brick has a white unglazed china or porcelain facing, the raw materials costing about 52 cents per thousand brick.

The face of the fourth consists of a speckled porcelain veneer and the fifth a light slate gray porcelain. No. 6 is a white enamel which will stand the ink test and which will safely carry a guar-



antee that the enamel will not shell off or crack from natural causes after the brick have been placed in the wall. (Applause.)

General Discussion.

R. B. Vice-President Rogers: This has been a very interesting paper. Is there anyone here who would like to ask Mr. Stull any questions in regard to the matter?

Mr. J. H. Mead: I did not understand clearly whether the gentleman used steam or water for lubrication.

Mr. Stull: Personally I favor water above steam. In fact, so-called steam lubrication is water lubrication. I have known cases where the water coil run from the boiler to the die where the die would not lubricate, but by putting in a series of condensing coils and running it back to the die the die did lubricate. Another case where a long steam line was run to the die too much water was condensed and gets too much water. Personally I prefer water, just the water under pressure.

Mr. C. J. Deckman: May I ask a question? How wide an average of clays have you produced these veneer effects upon?

Mr. Stull: We can veneer most any clay. For instance, take a clay which does not burn a desirable color, the admixture of a suitable red burning clay or a good buff burning clay can be veneered on such a clay and give a brick of a good suitable building face.

The awakening of interest in building brick not only will stimulate a demand for a better made brick, but will bring out all the different colors and textures possible of production from the natural clays. Besides the natural colors and textures the face of the brick can be coated or veneered with an artificial mixture by means of which it is possible to obtain almost any color, from white to black, and any texture, from dull to a glassy surface. Porcelain-faced brick, glazed brick and enameled brick have been made for years, but their sale has been limited, due principally to their high cost of production and consequent high cost to the builder. There is unquestionably a demand for these brick and it is up to the brickmaker to provide means for producing them at a much lower cost, so that a larger number of builders can afford to use them.

In the old method of making veneered or enameled brick the veneer or enamel mixture is applied to the face of the brick by hand, requiring from three to six handlings for each brick.

Several patents have been granted on machines for eliminating hand labor in applying the veneer, but the majority of them have

Written for THE CLAY-WORKER.

BUTTON-HOLE TALKS.

The Man With the Cello.

HE WASN'T at all conspicuous, the Man with the Cello. He was one of the many in the orchestra, and the part he had to play was a small part. In fact, it would seem that his part in life was a small part. Indeed, he lived two lives. Not that he was one of the instances of the notorious double lives. He had one life of the sordid, earthly bread and butter kind, with the rent to pay, and the children to clothe and feed, and the eternal problem of making both ends meet, when the ends are so far apart that they don't want to meet; where the problems are daily and hourly, and are of rent, and clothes and of bills of the butcher and baker. This life he lived day by day and every day. Within him, however, he had that which demanded, and got, something out and beyond. The poet has to eat, but he does something beyond, and dreams, and in like manner the Man with the Cello himself had to eat and feed his flock, but outside and beyond this he had the poesy of music in him, that was his other life.

His wife, harnessed to the drudgery and economy of the

is concluded, the storm of applause is not only for the whole perfect work but for the big parts and the little parts that have made the whole thing perfect.

His part is small, but you see his body weave to the time and swell to the music and his hand wave gracefully to bring out his part. His eyes do not see the audience, but this is his dream life, and he feels the music and feels himself a part and parcel of the orchestral group that by concerted action are producing this melody that pleases and betters mankind.

Someone far away has composed this melody. Someone in a strange land, and speaking a strange tongue. But he has written it in characters universally interpretable so that this little band of men can interpret it and make it vocal.

But just as there comes brilliant moments into all our lives—at intervals—so at times the Cello Man has his. Time will come when he has a solo and all the other instruments will dim or still, so that he may put his whole soul into the vibrating strings and give free utterance to the best there is in him of his dream life, and he will do it.

The Man with the Cello isn't the leader, but takes his orders and does his part, and does it as well as he knows how, and as conscientiously as though the whole performance depended on him.

We are not all leaders in the matter of living our lives, Gates. Most of us are performers of minor parts. If we will be guided by those who are our leaders, and play our minor parts just as perfectly and as well as we know how, just as the Man with the Cello does, we will do our part, and all

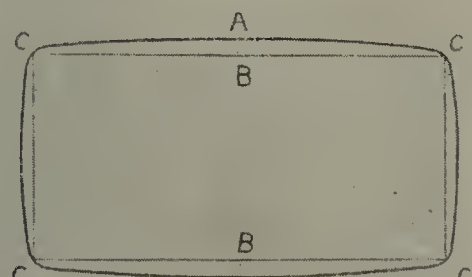


Fig. 10

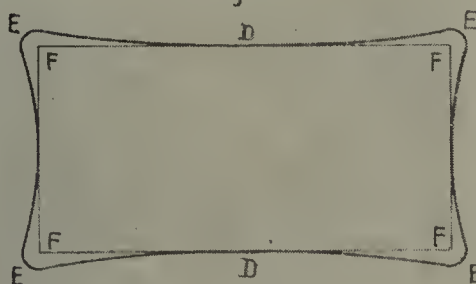
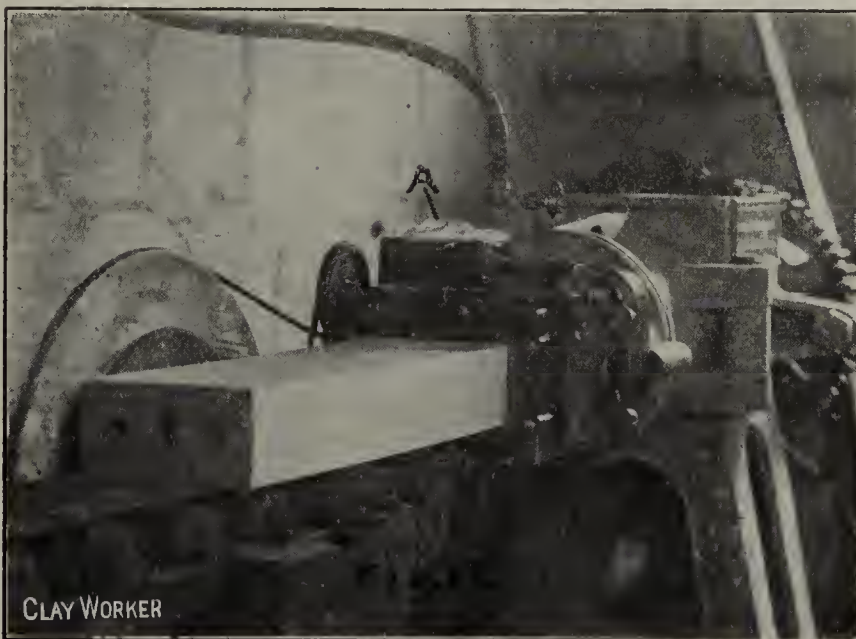


Fig. 11

ome life and its cares, could not comprehend this, and naturally the children could in no way enter into it. When he took his instrument to the orchestra, however, he entered into the other life. Incidentally he earned the bread for the some folks, but practically he entered a different atmosphere. The other members of the orchestra were dreamers like himself. They saw things as he saw them. They heard them as he heard them. Their ideas were his ideas and like him they had a dream life. All the orchestra has to do is to agitate the atmosphere, to untie bunches of thrills, but each one depending to his own, so that the collection of them all will fit and make a complete whole, no tangled skein, but a finished thread.

The Cello Man's part is small, only a little of the great volume of harmony, but yet it is a part, and if that little part is omitted or marred, the whole harmony is shattered. So this man tonight sits at his instrument unmindful of home cares, oblivious and forgetful that there are troubles, and rings out each vibrating note so as to just fit in and fill in its proper place, and because he does so, and because every other individual member of the orchestra does so, and because each one's work is perfect in time and tone, the whole perfect production, so composed of perfect individual effort,



that can be expected of us. When our time comes for our solo we must rise to the occasion, the others being stilled to give emphasis to our opportunity, and give all that is in us and the best that is in us, just as the Man with the Cello does, and we can rest content.

GATES.

THE DITCH DIGGERS.

If the power ditch digger does not help the drain tile business it will miss a good chance, and the farmers will be overlooking a good thing. The great burden of tile drainage is the ditch digging, and now this is being made much easier with power driven traction machines that plow out ditches in splendid shape easily. This not only solves the labor problem of ditch digging, but it also reduces the cost considerably, and makes it easy to do the work when the ground is dry, so the farmer can do his drain tile work in the late summer instead of during the disagreeable weather of early spring when the ground is soft. Some of these power ditchers seem to be an outgrowth of power appliances for sewer digging, and others seem to have been developed primarily for ditching. Also there is a variety in sizes, making them available for sewer work in the smaller towns and cities as well as for open and tile ditch digging in the country. Some use steam power, but in this work it appears that gasoline is the more common and important power agent.

Written for THE CLAY-WORKER.

POTTERY-MAKING—AMERICAN AND ENGLISH.

CHARLES F. BINNS.

IT IS SOMETIMES a matter of inquiry how it has come to pass that, inasmuch as American potters derived their prime knowledge almost exclusively from England, the practice should have become so radically different. It can, however, be shown that the changes which have been made are almost wholly those which have arisen out of the exigency of cost. Labor in England is cheap, absurdly cheap, when judged by American standards. In this country the high cost of labor has led to necessary economies in this direction and these, in turn, have enforced radical changes. These points will be made clear in a review of the methods in vogue in both countries.

The differences will be found to lie not so much in the actual making of the wares as in the preparation of the materials, or, in other words, in the organization and methods of slip-house.

At the time when English wares were being evolved from the product of the crude natural clay to the more or less complicated mixture which now obtains, there was little or no machinery in the slip-house. The blungers were rectangular tanks set below the level of the floor and lined with heavy slabs of slate. One of these was set apart for each brand of clay, usually one ball clay and one china clay. The tank was half filled with water and the clay was shoveled in, only a slight regard being paid to quantity. After a reasonable time for soaking the slip-makers attacked this with long-handled hoes which were worked up and down after the manner of a dasher churn. The hoe made a hollow sound as it entered the fluid and this doubtless originated the term "blunging" or "plunging." After an hour's strenuous work the clay was worked up sufficiently to form slip. Meanwhile the flint and cornwall stone (spar is but little used in England) have been ground in water at the mill. The larger factories run their own mills, the smaller ones buy from centrally located establishments. Of late years the cylinder mills have been largely adopted, but in the time under consideration the paved buhr mill was the only one used. The material was fed to the mill pan in small pieces and the grinding continued until the clay was considered fine enough. It was then run down into a "wash tub," a circular vat half filled with water, and after stirring was allowed to settle. The clear water was then allowed to run away and the suspended material, flint or stone, was drawn off to within six inches of the bottom of the vat. All the settlings were returned to the mill with the next charge. Thus only the ground material which was fine enough to remain in suspension was used in the mix. Before the era of pumping, this "slop," as it was, and is, called, was conveyed to the slip-house in buckets. Later it was considered a marvelous improvement to have a long wooden trough into which the slop was poured, to flow by gravity into the slip-house. If the material was ground outside the pottery it was commonly delivered in large tin cans resembling those now used for the transportation of milk.

All was now ready for the mixing, which was always performed by measure. The modern method differs from this only in the use of machinery. The clays are still blunged separately, but this is now done either in closed iron tanks or in large open containers of wood. In either case the motion is supplied by one or more shafts propelled by power. Pumps are used almost exclusively for conveying the liquid materials from place to place.

The mixing process has not changed in any appreciable degree, probably because the English potter has not found any improved method. When the foreman enters the slip-

"ark" for the mixing, and beneath the floor there are similar arks each containing a separate material in the slop condition. Each has been carefully lawned or screened and it is certain that every bit of the material is fit to enter the mix. The slip-maker now brings a jug filled with one of the fluid clays and the foreman weighs a pint of this with great care. He may either have the material brought to a predetermined weight or he may ascertain the actual weight and, by means of calculated tables, can ascertain the necessary volume of fluid which is necessary. For example, a pint of ball clay should weigh twenty-four ounces. His recipe may call for fifteen inches of this. But if it weighs less he must use more and vice versa. The necessary quantity of the first material is then pumped into the mixing ark, the depth being gauged with great accuracy. This method is then followed with one material after another until the mix is completed. The whole mass is then stirred by a revolving paddle for an hour and finally the finished slip is strained through two



Group of Teco Pottery.

or three decks of lawn into the receptacle provided, which is called the "finished ark."

The filter-press is a comparatively modern invention. In the olden time, slip was made into clay on the slip kiln. This was a line of open, shallow tanks built of brick, under which there passed a series of flues. A fire was kept burning day and night and the excess water was slowly evaporated. The process was slow and not over cleanly, but the potter of the old days will affirm that the clay made on the kiln worked far better than that made in the filter press. Of course, the "good old days" are proverbially the best, but in this case there is good reason for the opinion because the clay became partly "aged" on the kiln. The first filter-presses were made of wood with large leaves. In fact, there are many even now who would not use iron filter-presses because of the danger of staining the clay with rust and iron specks. The pug-mill is an even later invention. There

house to make the body mix, he finds a large square tank or are many old potters, even in this country, who remember the "clay-hole" in the pottery shop, with the "wedging block" beside it. Perhaps conditions have altered quite lately, but we remember the percentage charged the potters for "pugging," marking the introduction of the pug-mill after the prices had been settled. The pug-mill is not an entirely satisfactory tool. It has been found that a short, dry clay is made worse by being pugged and in some places the French rolling table has been introduced as an improvement. This device undoubtedly secures a better working clay, but its output is quite limited.

The English method will be seen to have certain important advantages. Each material is cleansed separately and irregularities in the mix are avoided. The factor of varying moisture is eliminated. All the materials are used wet and it does not matter if a clay has contained five or fifteen per cent moisture. The ground materials, being floated, are in a proper state of fineness, a point which is vital to the construction of a good body clay.

The disadvantages of the method are time and cost. It takes far longer to make a ton of clay by this process than it does by the American plan, moreover, it demands the presence of an expensive foreman for a good share of his time. It is no uncommon occurrence for the foreman to spend a whole forenoon in the slip-house, to the necessary neglect of other duties.

The American method is quite different. The materials are received at the plant in a dry or nominally dry condition. The flint and spar have been ground dry by the miller and are expected to serve without further preparation. The slip-house is provided with platform scales, having a number of weighing arms. These can be set at any desired point and the whole locked behind a shutter which conceals the position of the weights but allows the levers to move. A tally board is provided which calls for so many weighings of No. 1, so many of No. 2 and so forth. The materials are brought to the scales in barrow beds, each load being adjusted to the proper weight. After weighing the load is wheeled to the blunger and dumped. The whole mix is thus blunged at one operation and, of course, the American blunger is of very large size as compared with the English. After a sufficient time for the blunging operation, the mix is run through a series of lawns. The lawn or bolting cloth is often of woven brass wire, sometimes of silk. The mesh varies from 80 to 120 to the linear inch. The mesh used in England is from 100 to 160, according to the grade of ware to be produced. Passing through the lawn the fluid is allowed to fall into a large containing vessel set beneath the floor of the slip-house. This vessel is known as the agitator, because in it the material is kept in constant motion by means of a shaft with attached paddles. The function of the agitator is to receive the finished slip from the blunger and to hold it in readiness for the filter-press. It is usually large enough to contain more than one complete charge, so that the operation of blunging can go on continuously, even if the filter-presses should be temporarily out of use.

Powerful pumps now take up the fluid clay and force it into the chambers of the filter-press. The water escapes through the walls of the cloth lining and the clay, retained within, is stiffened to a plastic condition. When this has been attained the press is opened, the cloth unfolded and the solid leaves of clay are fed to the pug-mill. The pug-mill is a vertical cylinder within which is a shaft armed with blades set at an angle. These blades reach nearly to the inner surface of the cylinder, so that the clay is not only kneaded but is subjected to a heavy pressure. At the bottom of the mill is a side opening about eight inches in diameter and through this the clay, now smooth and homogeneous, is forced in the form of a cylinder. This is sep-

arated by a cutting wire into sections of convenient length which are either conveyed to a cellar for storage and mellowing or are sent at once on an elevator to the potting shop. The supreme advantage of this plan is speed and consequent economy. When the foreman has set the scales and locked the shutter he has no further concern with the mix except as to a general oversight. The work can be done by the regular slip-house force, supplemented by inexpensive labor in the wheeling and shoveling. The machinery, of course, needs the attention of a skilled mechanic, but this is the case everywhere. The disadvantages are, first, the factor of moisture. In calculating the proportions of the mix, allowance will be made for average moisture, but considerable variations are always occurring, and if these were to be closely watched a good deal of valuable time would be expended. There are some superintendents, doubtless, who give attention to this, but it is a question whether they would not save time by adopting the wet method of England in its entirety. Secondly, there is the matter of lawning the whole mix at once. There must be a certain percentage of refuse which the lawns are intended to reject and do reject, but there are no means of knowing from which of the several materials this refuse has come. It may be from a consignment of short ground flint; it may be from a dirty ball clay, nobody knows. And, thirdly, there is the error and irregularity arising from the use of ground flint and spar. The preparation of this material is beyond the control of the pottery manufacturer and it is quite certain that large variations occur which are unsuspected. This is not a criticism of the miller. He may prepare and sell his material in perfect good faith but he, himself, is in the hands of his workmen, and no workman is infallible. By the English plan of water suspension, error in grinding is almost completely eliminated, because the coarse material simply subsides and is sent back to be re-ground. Furthermore, it is certain that material which has been water-ground is more easily worked into the clay mix than that which has been ground dry.

These are the facts as they appear after a long experience and a close study of methods on both sides of the water. It is not to be expected that American potters will change their plans in favor of the older and more careful process. It may not even be desirable that they should do so. At the same time, it is undoubted that each can learn something from the other. In the preparation of a pottery body there is a marvellously wide margin of safety. If it were not so the many variations which are constantly occurring would assuredly result in disaster. Every now and then, as every potter knows, a disease will appear, become acute, diminish and finally vanish. Like the wind, it "blow-eth where it listeth," and, like the wind, no man seems to be able to tell whence it comes or whither it goes. But there must be a reason, a cause, for every effect, and it is by a more careful watch over materials and a more perfect understanding of processes that the practical potter may find that prevention which is proverbially better than a cure.

DIDN'T THINK HE KNEW IT.

Arguments on Biblical subjects often lead into deep water. Governor Oddie, of Nevada, tells of a heated discussion which he overheard between two of his colleagues on the recent trip of the Western Governors to the national capital.

"Why, Governor," said one, "you cannot even repeat the Lord's prayer!"

"You're 'way off, Governor!" the other retorted. "I'll bet you ten dollars I can."

"Taken! Let's hear it."

"Now I lay me down to sleep, I beg the Lord my soul to keep"——

~~"Then ten dollars is mine. I didn't think you knew it."~~

"The ten dollars is yours. I didn't think you knew it."—— Judge.

Written for THE CLAY-WORKER.

THE HIGHLAND FIRE CLAY COMPANY'S FINE PLANT.

ON THE OUTSKIRTS of the city of St. Louis is located a suburb called Cheltenham, which is underlaid with a famous vein of fire clay, called the Cheltenham bed of fire clay. Right in the heart (the best part of it) of this fire clay bed the Highland Fire Clay Company owns a tract of thirty-five acres of the quality of this famous fire clay especially adapted for glass house purposes. The reader can hardly realize the vastness of this deposit, unless he takes into consideration that one acre of this clay only eight feet deep yields 22,000 tons of clay, coupled with the fact that glass house clays are usually found in pockets. The demands and requirements of a glass pot clay are more severe and stringent than for any other type of clay, and a perfect glass pot clay may truly be termed the king of all clays. The clay should be plastic, have a strong bond, perfect shrinkage in drying and burning and furnish a close, dense body under a relatively low temperature. What is meant by the latter is: That there should be a leeway of at least 500 degrees between the vitrification temperature for a dense, close body and the temperature of its breaking down. The physical qualities of



Geo. E. Thomas,
Superintendent Highland Fire Clay Company.

the burnt pot clay must be such that it can stand rapid cooling, alternate cooling and heating, and it must also be of sufficient strength to bear the burden of the molten glass. No mixtures of clays, silica and fluxes will result in a satisfactory product, as is evidenced by the repeated attempts to use china chips (kaolin) and ball clays. But the kaolins do not burn close enough in texture, although the temperature-resisting strength is satisfactory. Kaolin bodies remain too porous and deteriorate very rapidly from the corrosive effects of the fluxes in the glass.

It has occurred, therefore, that fine particles of burnt kaolin have floated around in a batch of glass and thereby been rendered valueless. Ball clay bodies vitrify to a close enough body, but do not have the high temperature-resisting range, cannot carry the burden and are not able to withstand checking from cooling and cannot stand up under repeated heating and cooling.

So, taken all in all, it can readily be seen that glass pot clay is a very valuable clay. In former years the glass pot clays were nearly all imported from Europe, but the St. Louis product, having proven itself of a superior quality, now supplies over 75 per cent. of the total demand.

The deposits of high-grade St. Louis pot clays have been

greatly diminishing within the past fifteen years, and between 1901 and 1904 there was not an abundance of good pot clays. The discovery of this vast body of clay in 1904 by J. M. Thomas (the pioneer of the washed pot clays was the father of the present superintendent) and its superior quality greatly remedied this situation, and today the Highland Fire Clay Company's deposit is practically the only one of any importance.

The thorough tests and the excellent results that have been obtained from it clearly show that the Highland's clay is today acknowledged to be the only clay for glass house purposes.

The Highland Fire Clay Company is a manufacturer of



Weathering Clay at Highland Fire Clay Company's Plant.



A Corner in the Selecting Room.

fire clay for glass house use. The factory, equipment, etc., are solely devoted to the manufacture of glass house clay, and it aims to produce the best possible clay for this purpose.

The Clay Mine.

The writer was placed in the hands of the pit boss, who has charge of the underground department of the plant and who very kindly offered the necessary explanations as we moved along. The vein runs from fourteen to twenty feet high and has only the ordinary dips and run-outs as are found in this type of clay. The vein is worked on the room-and-pillar system and rooms are turned off at predetermined points. There is a rock top thirty feet thick, and thus the

timbering is reduced to a minimum. They make a side top cutting twelve inches wide and from ten to twelve feet deep and top shots force the clay toward this cut, and, as the rock top makes a good parting, it is not very difficult to get this clay out. After undercutting the face, the balance of the clay is shot off the solid. It is nothing unusual to get thirty tons of clay with seven holes, shooting with powder. The clay is loaded into cars, three to five cars constituting a trip, which is hauled by ye gay and festive mule. The mine is exceptionally dry, having only one sump, from which the water is siphoned out 1,100 feet and led into a secondary vat, from which a pump disposes of it. As the clay runs exceptionally pure, the offal and refuse left in the mine is of

From the weathering piles the clay is transferred to a battery of three twenty-foot round tanks for washing. These tanks are each supplied with a revolvable stirring attachment so arranged that heavy, sandy or impure portions may settle to the bottom. There is also a suitable water supply and arrangements are also provided for the removal of both the washed clay and impurities independently of each other. The washed clay is next passed through a peculiar three-compartment screen for separating out any coarse and undecomposed clay particles. From the screen the good clay is next passed to a battery of eight twenty-four combination settling and treating tanks. After being at rest for twenty-four hours, the superimposed water is siphoned off and the result-



Inspecting Burned Clay Before Shipping.



One of the Drying Tunnels.



Clay Blocking Machine.



One of the Kilns Under Fire.

small moment. Ordinarily the mine is ventilated with an air-shaft, with unworked rooms bratticed off. But when draft conditions are not right recourse is had to an electric driven fan. After the clay is hoisted to the top, from there on it is in charge of the ground floor and selecting department foreman.

The clay after coming out of the mine is broken into small pieces or lumps. All impurities and even traces of impurities are carefully removed and sorted out. These clays are then dumped out in the open in separate piles and left there to weather from one to five years. Yet sometimes the larger lumps do not disintegrate in the time period and the hard lumps are dumped back into the raw clay pile.

ant mass of suspended clay in the water is next forced by a battery of plunger pumps into the filter presses. There are eight of these, each holding fifty-eight leaves. After all the water that can be pressed out is pressed out, the presses are taken apart and the cakes of clay pass through a "Mueller" pug mill, which is of great service, in that there are no laminations in the clay bar, no matter how hard or soft the clay cakes are. The fact that there are no laminations in the clay bar is of vital importance in burning the clay to a grog. The pug mill is also supplied with a "Mueller" adjustable reciprocating cutter, moving laterally and cutting on both the forward and backward stroke. The short clay bars are now placed on dryer cars, each holding about two tons.

The tunnel dryer consists of eleven tunnels, each 100 feet long and holding each fourteen cars. When clay is dry, part is ground. Part of the dried clay is burnt in five twenty-three-foot round downdraft kilns and one square downdraft kiln to grog. S. C. 7 has been found to be the best heat for this clay, as the grog is then in the best condition, in that it has good density without being glassy. The burnt clay is next passed through two dry pans of their own design, one eight-foot pan and one ten-foot pan, and thereafter sized by screens.

Mr. G. E. Thomas is the superintendent of the plant and takes pride in the careful and conscientious manner in which the clay is handled in its different travels. He is strong on quality and there is no shipment made that is not certified to by a laboratory test certificate. Mr. Thomas has, so to speak, grown up with the pot clay business and he devoted all of his life to the production and manufacture of high-grade pot clays.

Mr. A. C. Stuever, the president, is a well-known and lifelong resident of St. Louis. He is a firm believer that quality is the keystone of success, and his positive instructions are: Do not sacrifice quality for quantity.

Robert Hafferkamp is the secretary of the company, Robert A. Schlegel is the sales manager and William M. Brown salesman, with headquarters in Williamsport, Pa. These gentlemen's efforts aid materially to the success of the Highland Fire Clay Company.

Written for THE CLAY-WORKER.

MILWAUKEE AND WISCONSIN BRICK NEWS.



THE BUILDING SEASON all over Wisconsin has opened in full blast, and judging from present indications there will be plenty of activity this spring. A record amount of large buildings has been started in Milwaukee, where an unusually large number of big downtown structures are under way. Figures at the office of the local building inspector show that both the number of permits issued and the amount represented are considerably larger than at this time a year ago. Three large bank buildings are being erected, another one of sixteen stories has been planned and contracts awarded, a downtown department store will be started on May 1, and plans are under way for the erection of a new theatre, hotel and office building. Architects and contractors say that a record number of apartment houses and flats are going up this spring and that, as usual, brick is the leading building material.

Reports from around the State from brick manufacturers, lumbermen and contractors would indicate that there is plenty of building going on outside of the larger cities. Many manufacturing plants about the State are building new additions, practically all of them being of brick.

Brick manufacturing concerns all over the State are now in the midst of their busy season. Just as was the case a year ago, so many manufacturing concerns installed new equipment or enlarged their plants during the winter in order to be in readiness for the spring rush. Present plans are that this year's output will be considerably larger than that of a year ago.

Efforts are being made to bring to Milwaukee a portion of the national clayworkers' exhibit, which was on display at the convention in Chicago recently. Superintendent Arthur E. Millies, of the Builders and Traders' Permanent Exhibit Association of Milwaukee, is back of the movement and is still in hopes that he may be successful in securing a favorable decision in the matter. Mr. Millies visited the exhibit in Chicago and declared it to be the most complete demonstration of possibilities ever held.

"Contractors here will derive much benefit if we can close a deal for bringing the show to Milwaukee," said Mr. Millies.

"Naturally the big expense involved makes those in charge careful in transporting the equipment. They want to be assured of the hearty support of the builders. Representatives from the Chicago exhibit looked over the field here and we are expecting a definite answer in the matter within the near future."

The Acme Brick and Sand Company of Milwaukee has been incorporated with a capital stock of \$200,000 by P. G. Toepfer, I. G. Toepfer and Charles J. Pokorny. The new concern has purchased a brick plant northeast of West Bend, Wis., about thirty miles from Milwaukee, and now has the establishment in full operation. William Modes is superintendent and B. Lee Blanchard is sales manager, both of whom will be located at West Bend, while the main offices of the company are located at 193 Broadway, Milwaukee. Officials of the company claim that they are building a brick superior to anything that has been manufactured before, using a caustic lime that was formerly used at the West Bend plant.

The Standard Brick Company of Milwaukee has been made defendant in a damage suit for \$10,000, brought by Reinhold Draver, who charges that on June 28, 1911, while he was sitting in a rig in the company's yard, a team ran away and struck his arm, permanently disabling him.

Mrs. Phoebe C. Burnham, widow of John Q. Burnham, well known brick manufacturer of Milwaukee, who died last August, recently passed away at her home, 498 Juneau Place, at the age of 60 years, after a short illness.

Jacob Zoller, a pioneer brick manufacturer of Kenosha, Wis., recently passed away at the age of 78 years. Death was due to old age. Mr. Zoller was born in Luxemburg, Germany, September 28, 1833. He came to this country when a young man and after living for a time in Minneapolis, Minn., and at Port Washington, Wis., moved to Kenosha. For many years he had been engaged in the manufacture of brick and he had been in active business until about a year ago, when his health forced him to retire. He is survived by a widow and seven children.

Extensive improvements were made at the plant of the Ringle Brick Company, of Wausau, Wis., during the past winter. An addition was erected which will allow the drying department to be enlarged and the general capacity of the plant to be increased. The entire plant has been faced with brick. Considerable new equipment has been installed. John Ringle, head of the company, is president of the Wisconsin Clay Manufacturers' Association and is one of the best informed men on railway rates among Wisconsin brick manufacturers.

The Falls Brick and Tile Company, of Sheboygan Falls, Wis., reports some good orders, among them a contract for supplying 200,000 brick to the H. C. Prange Company, of Sheboygan, Wis.

The plant of the Jefferson Brick and Tile Company, of Jefferson, Wis., is in busy operation, and officials report a fine business. Considerable new equipment was added during the past winter. Anton Stiel is secretary-treasurer and superintendent. The plant now has a daily capacity of about 30,000 bricks.

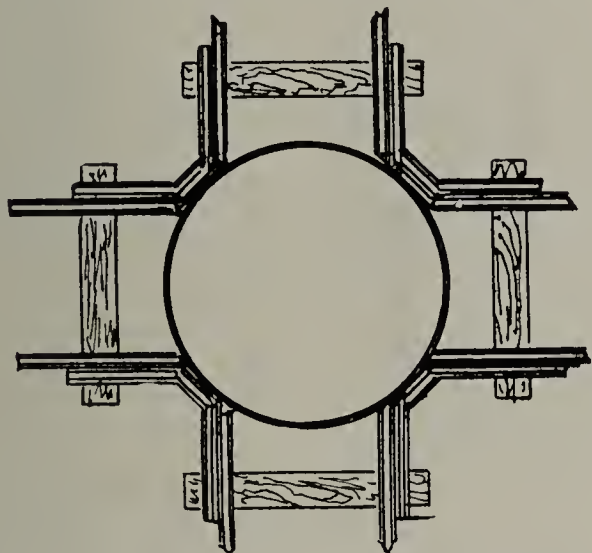
By an almost unanimous vote the common council of Manitowoc, Wis., decided in favor of brick as the paving material to be used on South Main, North Main and York streets, this summer, and awarded the contract to the Schuette Cement Construction Company, of Manitowoc. Mayor Stolze has expressed himself as in favor of asphalt, but even the influence of the mayor could not change the attitude of the council, backed by property holders who preferred that brick alone should be used. The fight over the paving material to be used has been extremely bitter, and charges were made on both sides that the rival brick and asphalt men had used unfair means in circulating petitions. The majority of streets in Manitowoc are paved with brick, this material having given the best of satisfaction. A. BADGER.



Kiln for Roofing Tiles.—With an annual production of 300,000 roofing tiles, the best type of kiln is the down-draft principle. In such a kiln tiles can be better burnt than in continuous kiln. The kiln should be so constructed that it will hold about 25,000 tiles. The cost of the kiln is from \$1,100 to \$1,600. It will cost from \$2.00 to \$2.50 to burn 100 tiles.—Deut. Topf. & Z. Z. No. 4, 1912.

The Cracking of Brick in Burning.—The main trouble when bricks come cracked from the kiln must be found in the first stages of the burning. Usually the watersmoking has not been carried far enough, and the temperature raised too quickly. The temperature in the stack flue should never be below 180 degrees Fahrenheit before the fire can be raised, as otherwise the bricks are not dry in the kiln.—Deut. Topf. & Z. Z. No. 9, 1912.

Turntable for Cars Without Tracks.—In all turntables the tracks have to be watched so that proper connections are



A Turntable Without Tracks.

made. In the sketch herewith shown the tracks are eliminated, and proper safeguards are made around the turntable so that the car can not run off the table while same is turning.—Keramische Rundschau No. 5, 1912.

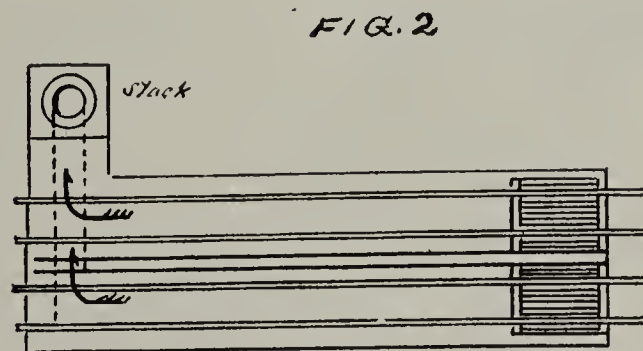
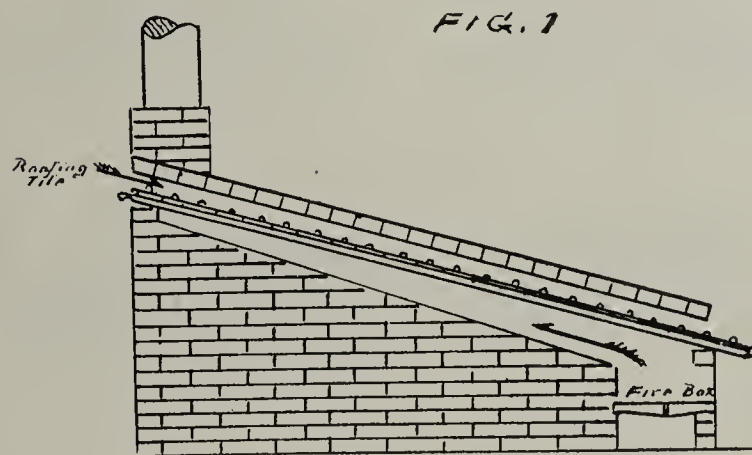
Blue Frits for Salt Glazed Stoneware.—When stoneware is decorated with blue stain it has been found that by salt-glazing the same the blue stain will run over the ware and spoil the effect. In order to make the blue frit so that it will not run, Dr. Berdel has found that the ordinary frits will give just the same results as when lead is used. He therefore has used a lead-free frit of the following composition, 67 parts of feldspar, 35 parts of calcined soda, 55 parts of whiting, 185 parts of flint and 25 parts of boracic acid. Add to this frit, after it is ground, from 11 to 15 parts of oxide of cobalt, and if the color is too light add 17 parts of manganese.—Keramische Rundschau No. 6, 1912.

The Clay and Kaolin Mines in Saxony.—There are twenty-four clay mines in Saxony, of which two are operated by the government. There was mined in 1910, 61,822 tons of clay with a value of 935,086 marks (\$233,771); 13,319 tons of unwashed kaolin, valued at 62,515 marks (\$15,628); washed

kaolin, 25,700 tons, with a value of 662,559 marks (\$165,649), and with waste products of the kaolin washing plants of 5,794 tons of sand, valued at 7,516 marks (\$1,879). The mines employed, including the office forces, 612 people.—Keramische Rundschau No. 5, 1912.

Brickmakers' School at Laubau.—The mechanical equipment of the brickmakers' school at Laubau has been entirely renewed since the starting of this school some seventeen years ago. The main motive power is now electricity, and the large motors installed are sufficient to drive all equipment. The equipment consists now of a full size set of rolls and disintegrator, a brick press, and large pug mill, elevator and glaze mills. There is also a sewer pipe press, and a revolving roofing tile press. In order to test all clay properly, there has been constructed a steam dryer holding 6,000 bricks, so that the drying qualities of the clays can be studied on a commercial basis. The total cost of the improvements was 14,000 marks (\$3,500).—Tonwarenfabrikant No. 4, 1912.

Method for Making Roofing Tiles Water Tight.—As it is rather hard to make fully vitrified roofing tiles, a great many



manufacturers employ tar to close the pores of the tiles. In order to do this in a commercial way, a small furnace can be arranged as shown in cut. The fire in this furnace must be just enough to make the tar hot and of a consistency to flow readily. The roofing tiles are painted before they come to this kiln, and by applying the heat the tar will more easily absorb in the clay burnt tile. The tiles are moved on a continuous chain and, according to the arrangement, from 10,000 to 15,000 roofing tiles can be tarred in a ten-hours' run.—Tonind. Z. No. 137, 1911.

The Blueing of Clay Ware.—Not every clay is fit to be used for blueing. The clay must have certain qualities in order to make the blueing process easy. In order to properly blue a kiln holding between 3,500 and 3,600 roofing tiles, it will take about one quarter cord of pine wood. In the last few years the use of tar and fuel oil has been more and more introduced. A kiln of the above capacity will use about 70 pounds of coal tar, or 60 pounds of fuel oil to obtain the same results. The kiln must be closed up for four days before being opened and air admitted. If the clay will blue quick, it is quite an advantage, as it will take lesser kiln capacity to make the same production. It is possible, with the right arrangement, to burn and blue about 1,400,000 roofing tiles with twelve kilns.—Tonind. Z. No. 139, 1911.



By W. G. WORCESTER.

The Designing of Roofing Tiles.

Of the scores of designs for roofing tiles that have been brought forth, in reality and on paper, there is one thing to be thankful for, and that is, that the greater part of them never got beyond the paper stage. Tens upon tens of the designs that the writer has personally studied have proven more or less worthless, in that some have proven to be impracticable of manufacture, others have not had the correct proportions for a good tile, frequently the locks were

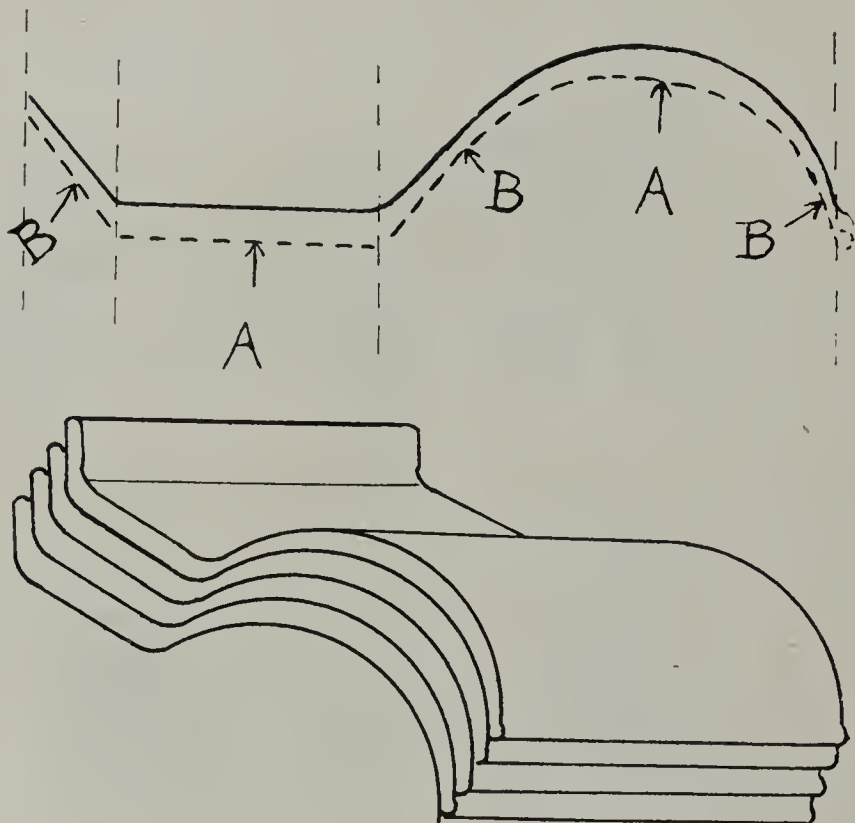


Figure 1. Auger-Made Spanish Tile.

improperly designed. While some have met all of the requirements, they have contained no particular advantages over patterns already in existence. It is, therefore, only necessary to study the best designs now in everyday use in order to see within what limits a tile is practical.

Auger-Made Spanish.—The average auger-made Spanish tile is approximately nine inches by thirteen inches over all, and when layed together 180 of them cover a square. Their weight per square runs from 800 to 900 pounds. The chief point to observe in the design of a Spanish tile for auger machine manufacture is to have them fit perfectly one upon another, thereby furnishing the end lap joint. It is next to impossible to produce on the auger machine, tiles so tapered that the small end of one tile will fit into the large end of the next. To overcome this the tile is so designed that the curve or shape of the under face of the tile is the exact counterpart of the upper face. A clear conception of this can be obtained by a moment's study of Fig. 1.

Our first outlines the upper face of the tile as shown by

the solid line. This line is next reproduced in the dotted line at a distance equal to the desired thickness of the tile, about three-eighths of an inch at the heaviest points (A). It will be observed that the section shows three narrow or thin points (B); this, however, can not be overcome. Tiles designed under like conditions will fit one above another indefinitely. This idea or principle was first made use of in the manufacture of roofing tiles by an American citizen, Mr. Jas. Repp, of Akron, Ohio. Mr. Repp obtained a patent on his invention during 1889 and started upon the manufacture of tiles. While the Repp plant did not survive long, it is interesting to the industry in that it marked the birth of all the modern auger-made Spanish tile of today.

Interlocking Spanish Tile.—Owing to the cross locks and reinforcements on tiles of this type, it is possible to make them in somewhat larger sizes than the auger-made tile. On the average, the interlocking pattern is nine inches by fourteen inches. When properly laid, 160 of them will cover a square and will weigh about 900 pounds. The sketch in Fig. 2 sets forth in their relative proportions the side and end lock of the average commercial size. It will be observed that the first or side lock rib is carried as high up under the roll as possible, then a second rib somewhat lower and about one-half inch distant is parallel with the first. To complete the lock the roll of the adjoining tile is designed to fit down



Figure 2. Interlocking Spanish Tile.

over the two side ribs and to have a bearing on the pan or flat portion of the main tile. In some cases a bearing is also provided along the top of the second or lower rib.

Flat or Shingle Tile.—There is very little to say in connection with the designing of this pattern beyond the average proportions, which are three-eighths to one-half inch for thickness, six inches wide and fifteen inches long. In some instances the tiles are made shorter, but it is not to be recommended. The reason for this will be fully covered under Section 9. There is a demand by some architects for shingle tiles with semi-circular edges or sides; thus, when the tiles are placed side by side there is a small amount of shadow or relief furnished. The usual practice has been to make them with straight or flat edges, the corners only being rounded off slightly to permit of a smoother flow through the die.

Interlocking Shingle Tile.—A tile that has in a measure supplanted the regular shingle tile in most localities is the interlocking shingle, shown below in Fig. 4.

These tile at the present time are very much in demand and will undoubtedly continue so. In size they are about nine inches by thirteen inches over all, and are fitted with a double head lock and a single side lock, as shown in the

sketch. One hundred and sixty-five tiles of this pattern will cover a square, being very materially less than the 400 needed with regular shingle tile. The weight is also reduced from about 1,100 pounds to 850 pounds per square.

Standard Interlocking Tile.—In this pattern of tiles it is natural to expect to find the highest development of the interlocking principles. It is here shown that the locks should not be made to fit tight, but should be given plenty of play room, as shown in the illustrations below. The reason for this is plain; no matter how careful a kiln of ware is burned, there is sure to be some variation, which gives rise to slightly different sizes, hence, the locks, if made to fit tight, would give trouble in laying; then, too, it frequently is desirable to "stretch" the laying width of the tiles in order to cover a given space. In addition to the side play of the tiles it is equally as important to have the gutter of the lock one-eighth to three-sixteenths of an inch deeper than the tongue (see B lock A). This open space is to permit a free flow for any water that may enter the lock. It is advisable to have the tongue C to fit rather close, to form a bearing for the lock and thereby prevent it from being broken when walked upon.

A few of the better and more common forms of side and end locks for tiles are shown below.

Figure A represents the type of side lock that is used



Figure 3. Flat Shingle Tile.

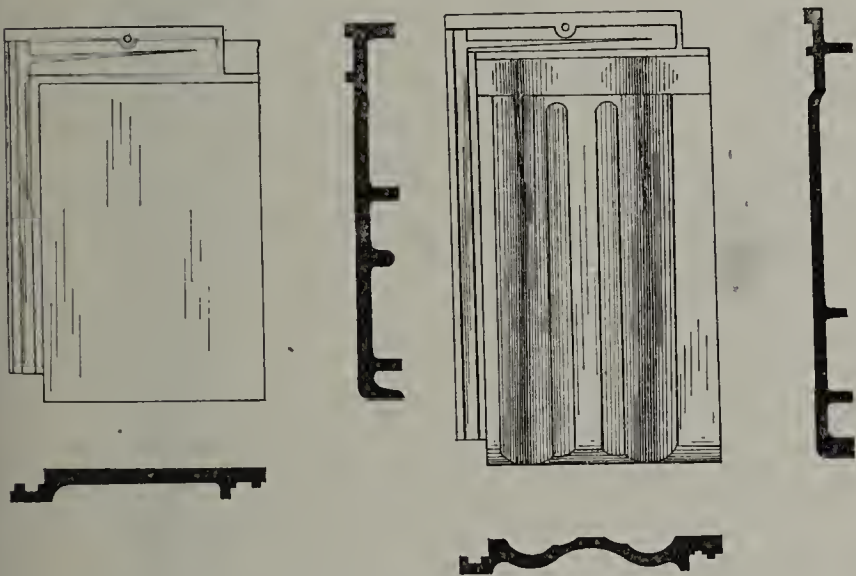


Figure 4. Interlocking Shingle Tile and Standard Interlocking Tile.

more than any other. While it is a single lock it proves very satisfactory. Its real effectiveness is due to the fact that the gutter is made deep and is well protected from drifting rains by the raised portion (A).

Lock B is of the same general type with the exception that the tile does not have the raised part (A). While lock B is serviceable, it does not make so perfect a lock as A.

In C is shown a double lock which has been taken from A, the only difference being that a second lock or gutter has been added. The single lock B can also be made into a double lock in the same manner that A has been modified.

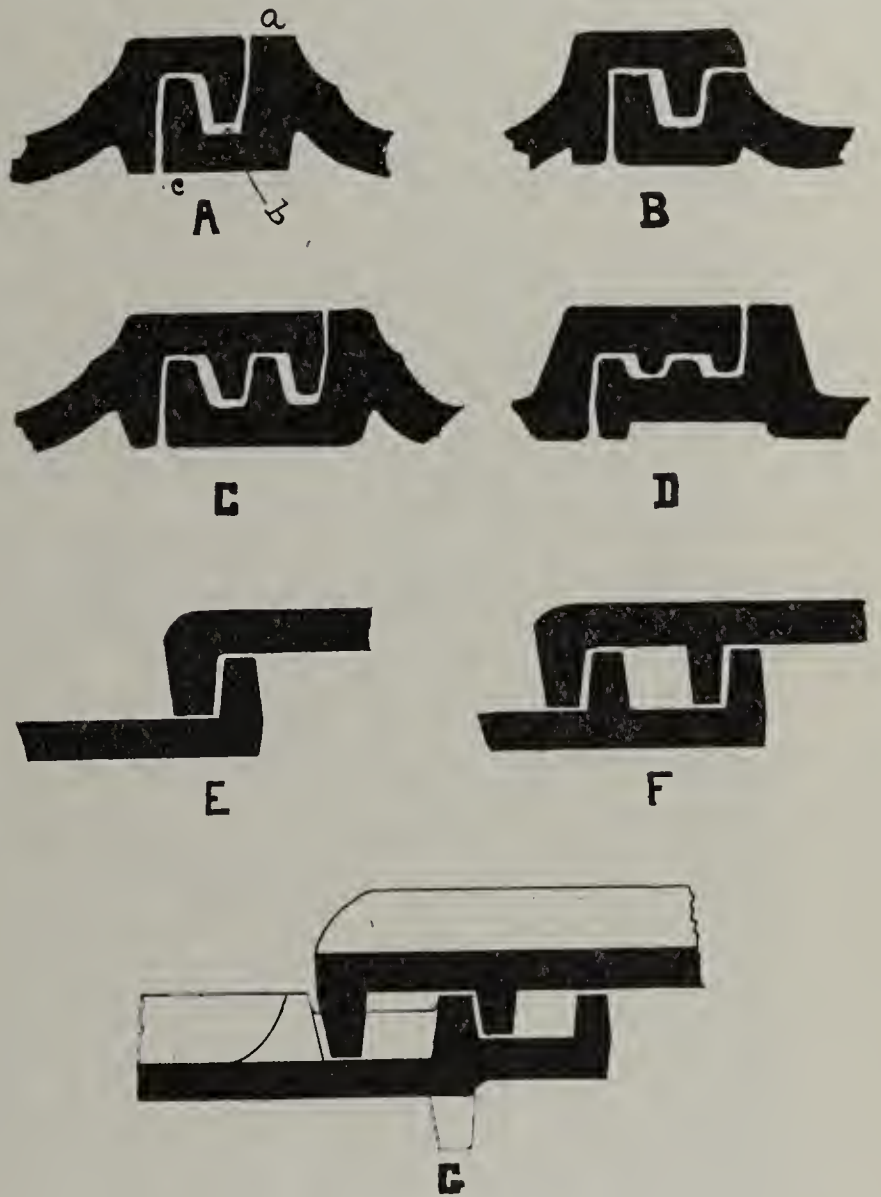
Unquestionably the double lock, if made of the same depth as the single lock, will prove more resistant to weather conditions than will the single ones, but they will give much more trouble in their manufacture. To overcome this, the usual practice is to reduce the depth of the locks, and in most cases they are reduced too much.

Fig. D represents a shallow lock in comparison to A or B. In the case of D, should the tiles be slightly warped or twisted the locks may not intermesh completely and will

thereby prove defective. As most clays warp, it is therefore much better to use a single lock of proper depth than to use a doubtful one that may prove faulty.

End Locks.—In E, F and G are shown three forms of end locks. E is a single lock and is the weakest of all; it provides very little protection against drifting snow and rains. Type F is an improvement in that there are two locks. In G we find the best form of head lock in that it is a double lock and very deep. The end of the upper tile, as at B, sets low in the under tile and is thereby well protected.

In order to produce interlocking tiles at a price to compete with lower grade roofing materials, they should be made as large as possible. The average size, as stated before, is 9 x 16 inches. Made in this size, 125 to 135 tiles cover a square. It is not at all unlikely that there are clays that will permit of larger sizes. If the number would be reduced to, say, 100 tiles per square, the cost of production would be materially reduced. This can readily be understood by considering the output of a roofing tile press; with 125 tiles



per square the average output is 40 squares per day. If the tiles were of the 100 per square size the output would be 50 squares, or a net gain of 25 per cent with the same labor. Further, the cost of preparing a roof and the laying of the tiles would be less in the case of the larger tiles. These points should all be given careful attention at the very start of a roofing tile enterprise, for once a size has been settled upon and the tiles placed upon the market, it would not only prove costly, but a serious setback, to undertake to revise the dimensions.

(To be continued.)

Have you observed that many people and even publications that heretofore paid but little attention to brick and clay products are now taking notice? It is an evidence of progress in the industry.

Written for THE CLAY-WORKER.

THE SECOND CLAY SHOW.

Chicago Coliseum Secured for February 19 to March 10, 1913.

THE CLAY PRODUCTS EXPOSITION held in the Chicago Coliseum last month, a beautiful exhibition of clay products, which proved educational to the clayworkers themselves and drew a large attendance of architects, contractors, municipal officials and the general public, was so successful that a second show in Chicago has been determined on.

The one weak point in this show was the lack of time afforded the exhibitors for the erection and installation of their exhibits. That the show was so splendid with such a short space of time allowed was truly remarkable, and speaks well for the men back of the movement.

to even those who attended the last show, we have little doubt. The manufacturers are alive to the worth of such an exposition, and will give all of the encouragement and support in their power.

Plan early the display you will make at this next show, give time and careful consideration to your ideas and make a studied effort to arrange for an exhibit that will be a credit to yourselves and the trade.

ONE OF THE FEATURES OF THE CLAY SHOW.

WHILE THE CLAY PRODUCTS Exposition was described in detail in the last issue of THE CLAY-WORKER, an exhibit of special merit which we feel deserves extra mention was that made under the direction of the Clay Products Publicity Bureau, of which Mr. Geo. Tefft is secretary. This display was located in the Annex of the



The Splendid Display of the W. S. Dickey Clay Company at the Chicago Clay Show.

In order to make the next clay show better, grander and far superior to any building exhibition ever made in the world, the Clay Products Exposition Company, with the same officers as last year, has taken into careful consideration every important angle of the proposition, the chief of which, that sufficient and proper time for the preparatory work of installation, must be given to allow every exhibitor the opportunity of making elaborate and substantial displays.

Soon after the close of the clay show the Clay Products Exposition Company set to work formulating plans, and the first important step made was the securing of the Coliseum for the dates between and including February 19 to March 10, 1913. This will allow seven to ten days for the installation of exhibits and ten days for the show proper.

That the second show will be a great success, an eye-opener

Coliseum, which made it more distinctive. This section was devoted entirely to the sewer pipe interests.

One of the main features was the two immense box-car-size paintings placed in one corner, showing a farm before and after the making of proper drainage. In one of the illustrations appearing on this page the reader will see the difference between the drained and undrained farms. The left-hand painting shows how unproductive the farm was, owing to the washing off of the rich soil down through the gullies and ditches. The right-hand picture shows the same farm after suitable drainage had been made and the loss of the fertile soil has been prevented. In this instance the farm has been saved and returned to a high productive value through the construction of an intercepting dam and proper drainage lines. In the corner, at the base of these paintings,

was a diagram and line of sewer pipe showing the exact manner in which the intercepting dam was constructed and the water from the floods was carried off, leaving the deposited earth where before was a surface of non-productive land.

Extending along the walls between the entrance ways to the Annex from the Coliseum proper was a gallery of pictures, setting forth the reasons why vitrified sewers are the best. In this set of pictures was a view of the Cloaxa-Maxima, one of the main sewers in Rome, which is twenty-seven centuries old, has been in constant use, and is in excellent shape to-day, showing little effect of erosion.

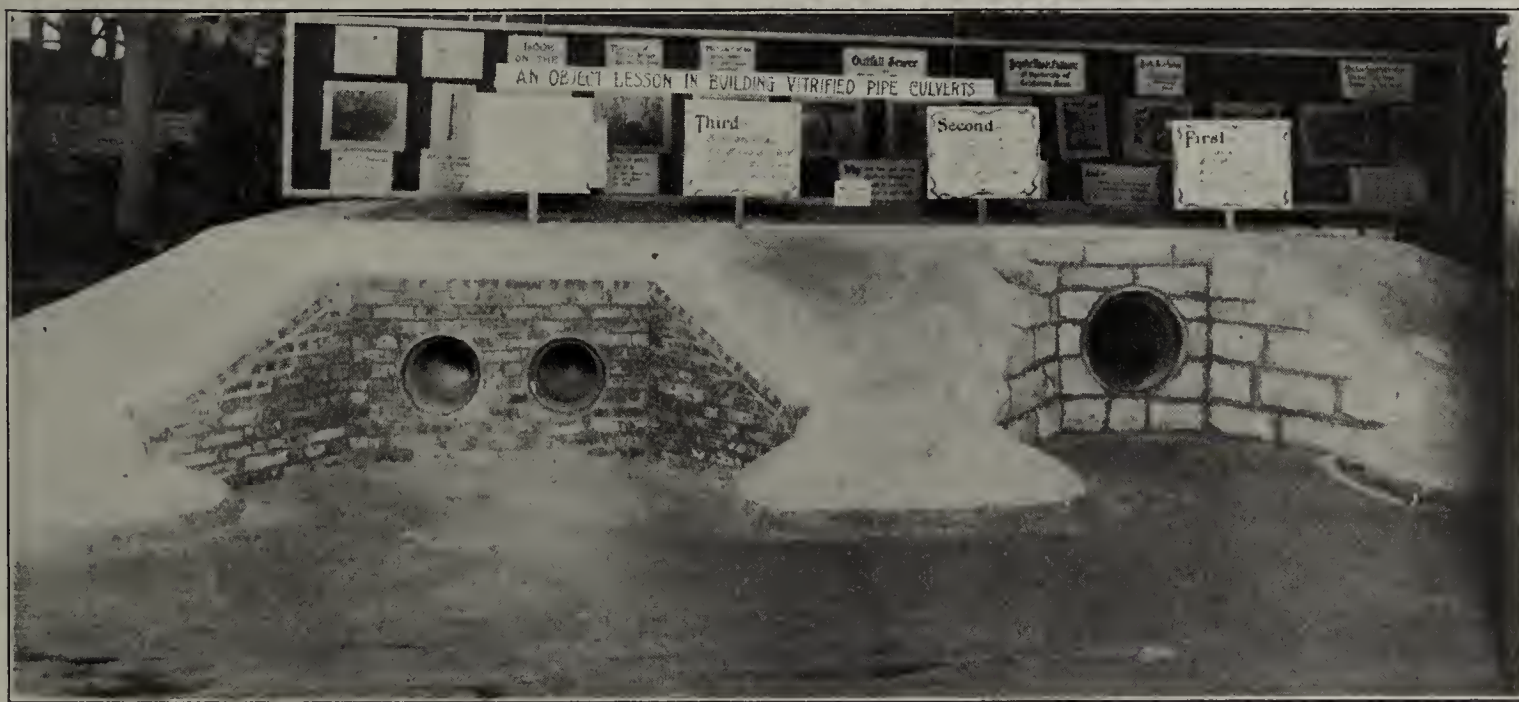
In the center of the Annex was the actual construction of four model road culverts, showing the different stages in construction, from the excavation to the finished culvert, with proper bulkheads or protecting walls. On the top of this was

line were made with G. K. and Marbleoid compounds, which prevents the sewage from leaking out of the pipe and keeps the ground water out, and can be made in all conditions of work, dry or wet. An Austin excavating machine was located at the head of the trench, illustrating the economical method of trench digging.

Back of the trench, along the wall, were pyramids of sewer pipe, varying in size from 8 to 42 inches, furnished by the following firms: Evens & Howard Fire Brick Co., St. Louis, Mo.; W. S. Dickey Clay Co., Kansas City, Mo.; Blackmer & Post, St. Louis, Mo.; Robinson Clay Products Co., Akron, Ohio; Macomb Sewer Pipe Co., Cannelton, Ind.; Red Wing Sewer Pipe Co., Red Wing, Minn.; Denver Sewer Pipe and Clay Co., Denver, Colo.; Denny-Renton Clay and Coal Co., Seattle, Wash.; Gladding-McBean Co., San Francisco, Cal.; Pa-



The Two Paintings Showing Farm Before and After Installation of Dams and Pipes.



Two of the Four Culverts, With the Picture Gallery in the Background.

a splendid brick roadway made of the Dunn wire-cut-lug block. One of the most elaborate displays in the Annex was a complete sewerage system, the purpose of which was to show the importance of sanitary construction from the point where sewerage starts to the place of its disposition. This exhibit included a bathroom, furnished with porcelain tub, basin, toilet, etc., a vitrified salt-glazed sanitary sewer pipe line running from the house line to a trap constructed according to modern sanitary regulations, manholes, built of hard-burned brick, with vitrified brick invert, open catch-basin, automatic flush tank and a main line of sewer laid on the floor of the Annex, with temporary trench, shored and protected on both sides by sheet metal piling, braced apart as in actual practice by trench braces. All joints in the pipe

cific Sewer Pipe Co., Los Angeles, Cal.; Southern Sewer Pipe Co., Birmingham, Ala.; Chattanooga Sewer Pipe and Fire Brick Co., Chattanooga, Tenn.; Texarkana (Ark.) Pipe Co.; St. Marys Sewer Pipe Co., St. Marys, Pa.; American Sewer Pipe Co., Akron, Ohio; Pomona Terra Cotta Co., Pomona, N. C., and the San Antonio Sewer Pipe Co., San Antonio, Tex.

Much credit should be given Mr. Tefft and his associates for the splendid display, which accomplished excellent results, for all who saw it were convinced the salt glazed vitrified pipe are the best. Another display Mr. Tefft had charge of was that of the W. S. Dickey Clay Co., of Kansas City, Mo., which was located near one of the entrances to the Annex. This exhibit covered three sections in Block D. The central and most interesting feature of this splendid exhibit was a

large brick fireplace, built of fire brick. An artificial fire glowed in the grate. A decorative fence made of flue linings, sewer pipe and rustic pieces, topped off with wall coping, inclosed the exhibit. There were comfortable arm chairs and carboys of good drinking water for the tired and thirsty visitors.

Written for THE CLAY-WORKER.

BRICK NEWS FROM THE SOUTHLAND.



THE HIGH WATER has been a feature in the territory in the central southern States of marked importance for the last week, and so continues. The stage at Memphis on the Mississippi is forty-five feet, the highest on record. Several levees have broken and while no damage to speak of has been done in Memphis, except in a limited mill district north of the city proper, in small towns of Tennessee, like Ridgely, in Lake county, that has been under water; Wilson, thirty-eight miles from here in Arkansas, where a levee broke, and even at Hickman, Ky., and Union City, Tenn., some damage has been done. Farming will be much retarded and in a collateral way the disturbance is very great.

Prospects for spring building at Memphis and other towns

the landscape, obscuring the sun, filling his home, nostrils and lungs with undesirable real estate. He asks for \$3,000 damages. This is one of the most unique suits filed here in some time.

It is currently reported around Memphis that Martin J. and Joseph Isle will build a hotel on Madison street, Memphis, in the near future. They own a lot there and have a lease on the Cordova property.

J. P. Verhine, owner of the business block at Union City, Tenn., burned a few days ago, is figuring on rebuilding.

The business section of Martin, Tenn., which burned several weeks ago, will be replaced.

T. L. Herbert & Sons, of Nashville, are furnishing the building material for the big extension of the Marathon Motor Works, at Nashville.

Contract for the erection of a three-story brick warehouse for the dry goods firm of Castner-Knott Company, has been awarded after plans by Architects Asmus and Norton, at Nashville, Tenn. The building will be on Ninth avenue between Church and Union streets, and will cost, when completed, about \$25,000.

THE CLAY-WORKER'S correspondent was recently in New Orleans and called on the Salmen Brick and Lumber Company. They have been erecting new kilns at their works and report a favorable season on brick sales. They have



The Central Display of the Clay Products Publicity Bureau in Coliseum Annex.

in this part of the Mississippi valley are good. Most of the brick industries have but moderate quotas of brick on hand.

The Memphis Manufacturers' Association, just organized here with John M. Tuther, former secretary of the Business Men's Club, secretary, has taken quarters in the Glasslyn building. There will be kept products of the various factories which are members in the city. It is noted that the Memphis Brick Company will put in an exhibit.

The Key-James Brick Company, of Chattanooga, has been incorporated with a capital stock of \$50,000. W. T. James, J. D. Key, C. E. Jones, J. L. Davies and D. F. Beckham are among the incorporators.

The Rector Tile and Brick Company, of Rector, Ark., has filed an amendment to its charter, changing the name to the Clay County Tile and Brick Company, and transferring their office from Rector to Piggott.

The suit of W. C. Jones against the Tennessee Brick Company is on trial in the third division of the Circuit Court before Judge A. B. Pittman. Mr. Jones owns a home on Menager avenue, south of the Parkway, and charges that the constant passing and repassing of the brick company's wagons enveloped the entire neighborhood in dust, hiding

lately had contracts for the Ursuline convent and several schools, including two high schools in the city of New Orleans; also for the National brewery and the New Orleans Manufacturing Company's coffin factory. The plant of the company is at Slidell, La. The New Orleans office is near the St. Charles hotel.

At Mayfield, Ky., W. A. Usher and Ed Gardner, who last week purchased from the Farmers' National Bank the vacant property at Eighth and Broadway, have begun excavating for a handsome two-story brick office building, which will be the largest building in the city.

F. Codman Ford, Inc., is handling a pretty line of pressed brick, glazed brick terra cotta, etc., and reports the spring season opening satisfactorily. The firm is located at 306 Barronne street.

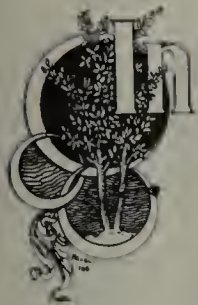
DIXIE.

The lumber people are very earnestly boosting the home building game, and, of course, they argue for lumber. It is up to the brick men to get in, and stay in the same game, to the end that the home builder may use more brick and build better.

Written for THE CLAY-WORKER.

GAS FROM GAS-PRODUCERS AND ITS COMBUSTION.

BY J. J. KOCH.



ASMUCH as kilns burnt with gas, made in gas-producers, are apparently coming to the front, the writer believes that a treatise on such a subject would not come amiss to the readers of THE CLAY-WORKER and would offer to them some data to guide their judgment when considering gas-producer problems. For an example there is offered a typical Illinois soft coal, having the following composition:

48 carbon,
36 volatile matter, assumed in all calculations as being marsh gas (CH ₄),
16 ash.
100 total.

We will take up the theoretical combustion of this coal as a solid fuel, assuming that its combustion is perfect and that the component parts of 36 pounds marsh gas are split up into 9 pounds hydrogen and 27 pounds carbon, which, added to the 48 pounds carbon in the coal, as such, would then amount to 75 pounds carbon, and also take this same coal for gas-producer coal, operating the producers without steam and with steam.

As a matter of preliminary information, the following explanatory statements are offered:

One pound carbon, to form carbon monoxide gas (CO) (which is still susceptible of combustion), takes 1½ pounds oxygen.

One pound carbon, to form carbon dioxide gas (CO₂) (a product of perfect combustion and not able to produce additional heat), takes 2½ pounds oxygen.

One pound hydrogen forms 9 pounds water (H₂O), hence would take 8 pounds oxygen to produce the same.

As the oxygen required is generally furnished by air, its constitution (assumed as normal) is as follows:

By weight—oxygen, 0.232; nitrogen, 0.768; or, as taken for ordinary calculation, or rather, simplification, it is customary to assume that 3½ pounds nitrogen are accompanied by 1 pound oxygen in the atmosphere, if no attention be given to carbon dioxide or moisture and argon be considered the same as nitrogen.

By volume—oxygen, 0.2094; nitrogen, 0.7906; or, for ordinary calculations, for the same reasons and qualifications as given above, the relations are assumed to be 4 volumes nitrogen accompanied by 1 volume oxygen.

Of course, it is admitted that in using the rough calculation factors the results will not be absolutely correct as with the real proportions, but at the same time it must be granted that, taken as a whole, the discrepancies are of comparatively slight moment when using producer gas in brick kilns.

The following table is quoted in which normal air at 32° F. is taken for a standard:

	Density air equals 1.	Cubic ft. per lb.
Air	1.0000	12.388
Oxygen (O).....	1.1052	11.209
Hydrogen (H).....	0.0692	178.931
Nitrogen (N)	0.9701	12.770
Carbon monoxide (CO).....	0.9671	12.810
Carbon dioxide (CO ₂).....	1.5197	8.152
Marsh gas (CH ₄).....	0.5530	22.429
Water as vapor (H ₂ O).....	0.6218	19.922

The first gasification taken up will be of the suction (Siemen's) type, not using any steam, and calculations will be given in detail, whereas later on only calculation results will

be given in the statements. Owing to imperfect operation of most gas-producers, it is assumed by the writer that 5 pounds carbon are converted into carbon dioxide, and thus the efficiency of such 5 pounds carbon is to be considered a loss.

No. 1—Suction Gas (No Steam).

Fuel.	Product in lbs.	Vol., cu. ft.	Per ct. vol.
43 carbon to carbon monoxide	100.32 × 12.81 =	1285.09	24.48
5 carbon to carbon dioxide	18.33 × 8.152 =	149.42	2.84
48	118.65		
36 marsh gas distilled.....	36.00 × 22.429 =	807.44	15.39
70.65 oxygen × 3½ nitrogen =	235.50 × 12.77 =	3007.33	57.29
	390.15	5249.28	100.00

118.65 pounds products—48 pounds fuel=70.65 pounds oxygen, or 1 pound coal gasified under above conditions will produce 52.49 cubic feet of gas weighing 3.9 pounds.

DENSITY.

Carbon monoxide (CO).....	24.48 × 0.96710 =	23.674608
Carbon dioxide (CO ₂).....	2.84 × 1.51970 =	4.315948
Marsh gas (CH ₄).....	15.39 × 0.55300 =	8.528670
Nitrogen (N).....	57.29 × 0.97010 =	55.577029
	100.00	92.095155

Or the gas has a density of 92.09, with air taken as 100.

HEAT VALUE.

CO	100.32 pounds × 4325 BTU =	433.884 BTU
CH ₄	36.00 pounds × 20000 BTU =	720.000 BTU

100 pounds fuel gasified gives.....1,153.884 BTU

The heat value of the CH₄ (marsh gas) is taken at a somewhat reduced value than ordinarily, as the writer has found it to be of advantage to make an arbitrary allowance for condensable hydro-carbons coming from the gas-producer.

HEAT VALUE IN PERCENTAGE.

Energy in coal.....	137.00 BTU
Energy in gas.....	115.38 BTU

Loss in gas..... 21.62

Or only an energy of 84.2 per cent. in the gas.

GAS AND AIR VOLUMES FOR COMBUSTION.

Carbon monoxide (CO)....	24.48 +	12.24 oxygen
Marsh gas (CH ₄).....	15.39	30.78 oxygen
Carbon dioxide (CO ₂).....	2.84	
Nitrogen (N)	57.29	

	100.00	43.02
43.02 O × 4 =	172.08	nitrogen
	215.10	

Or 1 volume gas requires 2.15 volumes of air.

DENSITY OF MIXTURE OF AIR AND GAS BEFORE COMBUSTION.

100.00 vols. gas × 0.92095155 =	92.095155
215.10 vols. air × 1.00000000 =	215.100000
315.10	307.195155

Or a density of 97.3 after diffusion, with air taken as 100.00.

DENSITY OF PRODUCTS OF COMBUSTION.

15.39 volumes marsh gas upon perfect combustion will yield 30.78 volumes water and 15.39 volumes carbon dioxide added to 24.48 × 2.84 = 42.71 volumes carbon dioxide; 57.28 volumes nitrogen in the gas added to 172.08 volumes nitrogen from the air yield 229.37 volumes nitrogen, therefore we would have:

Carbon dioxide ...	42.71 × 1.5197 =	63.906387
Water	30.78 × 0.6218 =	19.139004
Nitrogen	229.37 × 0.9701 =	222.511837

Volume..... 302.86 305.557228 lbs wt.

or a density of 1.099 with air taken as 1.000.

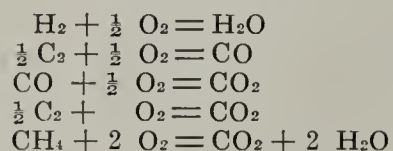
RESUME.

Densities—Of gas	0.9209
Of gas and air mixture..	0.9730
Of product of combustion	1.0090
Volumes—Before combustion	315.25
After combustion	302.86
Decrease.....	12.39

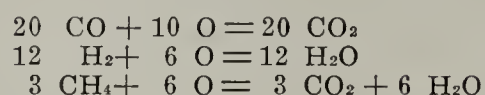
PRODUCTS OF COMBUSTION OF COMBUSTION GAS NO. 1 FROM ONE POUND COAL.

The following table is used, using symbols:

REACTION OF COMBUSTION.



VOLUMES.



In our case we have as follows:

CO	12.8509	=	12.8509	CO ₂	
CO ₂	1.4942	=	1.4942	CO ₂	
CH ₄	8.0744	=	8.0744	CO ₂	16.1488 H ₂ O
N	30.0733	=	.....	.....	30.0733N
From air..	=	.....	.....	.....	90.2922N
				22.41 CO ₂	16.1488 H ₂ O 120.37N

No. 2—Suction Gas Without Steam.

Assuming that 36 pounds marsh gas are broken up into 9 pounds hydrogen and 27 pounds C, thus changing the formula for coal to 75 pounds carbon and 9 pounds hydrogen.

GASIFICATION.

Fuel, lbs.	Lbs. gas.	Volume.	Per ct. volume.
5 C to....	18.33 CO ₂ ×	8.152=	149.42 1.78
70 C to....	163.33 CO ₂ ×	12.810=	2092.26 24.93
	181.66		
9 H to....	9.00 H ×	178.931=	1610.38 19.19
Nitrogen	355.53 N ×	12.77 =	454.012 54.10
	546.19	8392.18	100.00

Or 1 pound of coal gasified under the above will furnish 83.92 cubic feet of gas weighing 5.46 pounds. With this so-called "cracking" of the volatile matter, the possibility exists that the gas from this coal may vary anywhere between:

No. 2—83.6 cubic feet gas weighing 5.46 pounds and

No. 1—52.4 cubic feet gas weighing 3.90 pounds.

PRODUCTS OF COMBUSTION OF GAS NO. 2 FROM ONE POUND OF COAL.

CO	20.9226	=	20.9226
CO ₂	1.4942	=	1.4942
H ₂	16.1038	=	 16.10 H ₂ O
N from gas	=	.....	45.4012N
N from air	=	.....	74.0400N
			22.41CO ₂ 16.10H ₂ O 119.4412N

Or, expressed in percentage volumes:

Carbon dioxide.....	1.78
Carbon monoxide...	24.93 + 12.47 O
Hydrogen	19.19 + 9.59 O
Nitrogen	54.10

$$\begin{aligned} &22.06 \text{ O} \\ 22.06 \text{ O} \times 4 &= 88.24 \text{ N} \end{aligned}$$

110.30 volumes of air

Or the volumes of air and gas prior to combustion would be:

100 vol. No. 2 gas will require
110.3 vol. air for perfect combustion.
210.3 vol. total.

DENSITY OF GAS AND AIR.

Carbon dioxide....	1.78 × 1.5197 =	2.705066
Carbon monoxide..	24.93 × 0.9671 =	24.109803
Hydrogen	19.19 × 0.0692 =	1.327948
Nitrogen	54.10 × 0.9701 =	52.48241
	100.00	80.625227
Air	110.30	110.30
Total volume..	210.3	190.925227

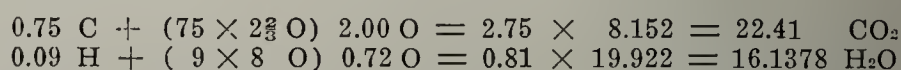
Or a density of 90.78, while the air and gas diffusion of No. 1 gas has a density of 97.3.

The density of gas No. 2 is 80.62, while the density of gas No. 1 is 92, with air taken as 100. Again, if we figure that 83.92 volume gas produces 157.95 vol. combustion gases, we would therefore have for 100 vol. of gas: 83.92 : 157.95 = 100 : X. X equals 187.96, hence 210.3 — 187.96 = 22.34 as the shrinkage in the conversion of the air and gas mixture to products of combustion, with a consequent increase in weight per unit volume.

It will not come amiss to insert here a calculation of the

Products of Combustion of Coal Burnt Direct.

In this case we also take it that the 36 parts of volatile matter while undergoing perfect combustion are split up into 9 parts hydrogen and 27 parts carbon, which, added to the 48 parts carbon in the coal, make a total of 75 parts carbon, the combustion of all of which results as follows:



No attention being paid to the nitrogen.

Yet with all these different conditions, the products of combustion are practically the same:

	Gas No. 1.	Coal.	Gas No. 2.
Carbon dioxide.....	22.41	22.41	22.41
Water vapor.....	16.14	16.10	16.13
Nitrogen	120.37	119.44	.....
	158.92	157.95	

The slight errors are due to decimals.

(To be continued.)

A GAS ENGINE SHOW.

The special show seems to be the "popular kid" these days, and the latest to get taken with the idea is the manufacturers of gas engines. The gas engine show is to be held at Milwaukee, Wis., June 17 to 22, inclusive, in connection with the convention of the National Gas Engine Association. It will be given at the Auditorium, where about 100 exhibit spaces have been laid out.

A GERMAN ADVERTISING LAW.

Over in Germany they have some very strict laws about making extravagant claims for goods in advertising. The sum and substance of them is that when a man knowingly makes misrepresentation of an article in public announcements he is liable to imprisonment up to one year, and to a money penalty up to 5,000 marks (\$1,190). Usually a fine is imposed for the first offense, either a fine or imprisonment for the second, but the third time it is an almost invariable practice to send the offender to prison. Then, to rub it in, when one is convicted of false advertisement he is obliged to insert an advertisement in a certain number of newspapers stating that he has been convicted of unfair competition. Usually he is required by the judge to insert this advertisement in at least twenty-five papers, and sometimes in as many as 100. A law like that in this country would go pretty hard with many who have fattened on promoting and stock jobbing schemes. Also, we are wondering just a little how there emanated from Germany certain and sundry ideas in sand-lime brick and concrete promotion that have failed to live up to all that was hoped from them here. There have been a good many ideas brought over, and there is no desire to overlook or detract from the value of these, but there have been some others that certainly would have found hard sledding under those advertising laws. Maybe that is why they were sent over.



UNDER-DRAINAGE OF ALLUVIAL LANDS.

AT THE RECENT meeting of the Association of Drainage and Levee Districts of Illinois, a paper was read upon the above subject by Jacob A. Harmon, member of the American Society of Civil Engineers and senior member of the Harman Engineering Company, of Peoria, Ill., who have made a special study of drainage of alluvial lands by pumping and otherwise. The following extracts are taken from the paper:

The alluvial lands are found in the valleys of the streams and are the washings from the higher lands, carried down by the floods and deposited whenever the velocity of the carrying stream slowed enough to unload its burden. The coarser and heavier particles, gravel and sand, are first deposited, then the coarser particles of clay and loam, and finely the very finely divided particles of the soil.

These deposits are thus quite unevenly distributed; gravels and sands often near the foot-hills and along the stream's channels, coarse-grained clays and soils with some sand form the banks and characteristic ridges, and back from the main thread of the stream, in the back-water areas, the soils are of fine grain and generally the surface is quite level or very slightly sloping in the direction of the slow-moving currents.

Thus, under the term alluvial lands, we have a great variety of soils dependent upon the character of the adjacent up-lands and conditions of flooding due to local streams and valley foundations. Moreover, the physical structure of the soil varies greatly and within very limited areas.

One farm, or quarter section, may have gravelly soil, sandy soil and close, heavy soils variously located in ridges, swails and pockets, and the under-drainage of each portion requires a treatment quite different from the other kind of soil.

That alluvial lands require under-drainage is not generally recognized, because the flatter and finer grained soils have not been put under cultivation except when the weather has been most favorable, that is, very little rainfall and the evaporation from the encrusted surface of such lands that are frequently overflowed is very rapid and sufficient to remove all surplus moisture. The ridges and higher portions of the bottom lands are of coarser grain and frequently have a natural under-drainage which is not observed or suspected by the owner or occupant.

From these experiences there has grown among a great number of those most familiar with bottom lands, a general conclusion that "bottom lands need only to be protected from overflow to be ready for successful farming." Nothing could be farther from the true state of requirements. The bottom lands are subject to all the conditions of rainfall of the surrounding country and in addition thereto is added the increment of seepage from the stream's channels and springs of natural under-drainage from the higher adjacent lands; the valleys are also subject to heavier dews and fogs, which decrease the evaporation. In short, the requirements for surface and under-drainage are greater for alluvial lands and overflow lands than for up-lands in the same locality. The discovery that the higher of these lands have natural under-drainage, due to their formation and soil structure,

only argues more strongly the necessity for thorough under-drainage of the flatter, lower-lying lands of closer-grained structure.

Many failures have resulted and much general condemnation of the effort at reclaiming these low bottom lands are due to a failure to understand these facts and principles. Large areas of low lands lying in leveed districts frequently serve only as storage space for the accumulation of the surface drain and under-drainage of the higher portions, and under such conditions such low lands are worthless for agricultural purposes until thorough under-drainage is provided.

The recent activity in reclamation of alluvial lands that are subject to overflow has resulted in a thorough development of systems of under-drainage by tiling in a large number of localities and demonstrated beyond question that the tiling of alluvial lands, where natural under-drainage is not equal to the needs of the situation, is quite as useful and profitable as in the wet lands not subject to overflow.

The methods and designs of tile drainage is, as in all other situations, a local problem of detail for the most economical solution of which, careful surveys of the topography of the land and a soil survey are essential. Much is yet to be learned by those most experienced in such matters, and the tiling of alluvial lands is entitled to the study and best thinking that our leading soil and drainage experts can give it.

Naturally, we must follow as nearly as practicable the successful experiences of the tiling of other lands, giving due weight to the effect of differences in the mechanical structure of the soil, the irregular and often pockety formation, and distribution of varying grades of soil; the character and condition of the outlet, which, if by pumping, may not always be operative, but sometimes subject to back-water; the effect of seepage from the river and higher adjacent lands, both from hill lands and the low ridges of coarser material, which readily drain laterally upon the nearby lands only slightly lower.

All of these conditions and more, in detail, will occur to the practical drainage engineer when studying the requirements for under-drainage and planning for the most economical and effective methods for treating any such tract of land.

A TESTIMONIAL.

Nine years ago, Mr. P. C. Theidens came from Illinois to Iowa and purchased a farm of 175 acres. One hundred and ten acres were wet and needed tiling; 70 acres were slough and a part was a peat bog. He began with a mortgage of \$9,200 on the farm. Since then he has drained the wet land by putting in about 2,000 rods of tile, rebuilt the barn, built a hog house and concrete floor at a cost of about \$800, besides raising a large family. Two years ago Mr. Theidens sold \$1,635 worth of hogs at one time and \$1,300 worth at another—all within a year—and paid out on his indebtedness.

SCIENTIFIC AGRICULTURE AND DRAIN TILE.

The farmer is getting to be a scientific man, and both the State and national government is helping him along at it, to say nothing of the special colleges and the agricultural flavor that is being put into the public schools.

The interesting thing about all this to the tile manufacturer is in that the more scientific the farmer becomes, the easier it should be to enlarge the market for drain tile. It should naturally enlarge itself if the teachers of this scientific farming include the doctrine of drainage. If they do not it is time for the drain tile manufacturers to get busy with the powers that be and see that their product has a fair showing.

Even if Uncle Sam and his many States are already giving some attention to impressing the matter of drainage, it is not a bad idea to work for more of it, to get all the good

argument possible going through these educational channels, for it is taken more readily that way and often counts for more than if urged only by the drain tile people themselves.

Scientific agriculture should include all it can be made to carry of tile drainage, so that by the time the present generation of school boys get back to the farm it will not require the drain tile manufacturer to expend a lot of his energy educating them in the benefits of tile, and how to use it.

Written for THE CLAY-WORKER.

CLAY IN ILLINOIS.

THE ILLINOIS SILO COMPANY, of Bloomington, which recently was incorporated in this State, has purchased an eight-acre tract on the Lake Erie & Western railroad at Lincoln and Clinton avenues. Bloomington, and will erect a modern silo factory. This company is distributor for the A. P. Grout vitrified tile silo, which is manufactured by the Illinois Drain Tile Company, a subsidiary of the White-Hall Sewer Pipe Company. A broad campaign has been started by the manufacturers which has resulted in unusually good sales for these blocks. Advertising in leading agricultural journals and in Illinois newspapers plays a prominent part. The general offices of the Illinois Silo Company will be in the People's Bank Building, Bloomington. W. H. Boyer is president and D. T. Garber, secretary and sales manager.

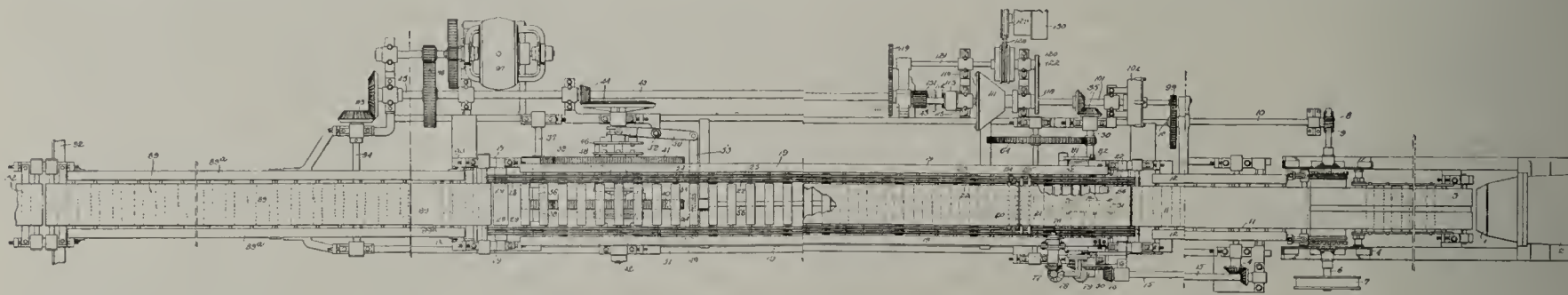
The Continental Brick Company, of Aledo, has been incorporated with a capital stock of \$100,000 for the purpose

RECENT PATENTS.

Material for this department is compiled expressly for The Clay-Worker by Watson & Boyden, Patent and Trade-Mark Lawyers and Solicitors, 918 F Street, Washington, D. C. and to them all inquiries in regard to patents, trade-marks, copyrights, etc., and litigation affecting the same should be addressed. A complete printed copy of the specification and drawing of any United States patent in print will be sent, postpaid, to any address for 10 cts.

Apparatus for Hacking Brick: Raymond C. Penfield, New York, N. Y. 1,020,572. Patented March 19, 1912.—The arrangement of the soft bricks from a molding machine in proper spaced relation and stacked formation for drying and burning, known in the art as "hacking," is usually accomplished largely by hand or by hand controlled apparatus, and is not only a tedious and relatively expensive but also a somewhat destructive procedure, since on account of the soft condition of the bricks the edges and corners are easily chipped off and the bricks liable to be bent or otherwise deformed.

The present invention aims to provide apparatus for receiving the continuous streams of bricks as they are cut on leaving the molding machine, forwarding the same to a hacking mechanism, the forwarding conveyor having provision for separating the bricks into "bunches" which may be complete rows for hacking purposes with a time interval between the delivery of said rows, and providing means for delivering the series of rows of bricks to the drying stack so as to form complete layers of bricks in the stack, all the aforesaid parts being automatically timed and controlled



1,020,572

of manufacturing brick and tile. The incorporators are Lemont Cowles, Peter Nagel and J. L. Buckley.

Manufacturing clay products is the object of the newly incorporated Freeport Brick Manufacturing Company, of Freeport. The incorporators of the concern, which is authorized to have a capital stock of \$40,000, are Frank C. French and Arthur N. and Nellie S. Trunk.

Stiff mud brick will be the initial output of William Kortkamp, Sr., and son, William, Jr., who will build a \$20,000 plant this spring on the Kortkamp farm near Hillsboro. The machinery has been purchased, including a 120-horsepower motor, and a contract has been closed with the Hillsboro Electric Light Company for power. Later, \$15,000 more will be used for additional equipment. William Kortkamp, Jr., will act as sales manager and his father will superintend the plant.

Between eighty and one hundred men employed in the clay pits of the Streator Clay Manufacturing Company, of Streator, were thrown out of work for more than a week because of seepage into the pit. The Vermilion river overflowed, caused a cavein at the pumping station of the Streator Aqueduct Company, seeped through their mine into old workings of the clay company and thence into their pit.

The new board of directors of the Banner Clay Works, of Edwardsville, is as follows: F. L. Luth, O. T. Dunlap and C. W. Terry, of Edwardsville, and Dr. Jules Baron, C. W. Meyer, F. W. Clements and Frank Frohemier, of St. Louis.

Dr. W. H. Brosman, of Albion, president of the Albion Vitrified Brick Company, is a candidate for State senator from the Forty-eighth Illinois district, subject to the decision of the Republican primary election.

S. P. RING.

so as to operate in proper sequence without any manual intervention.

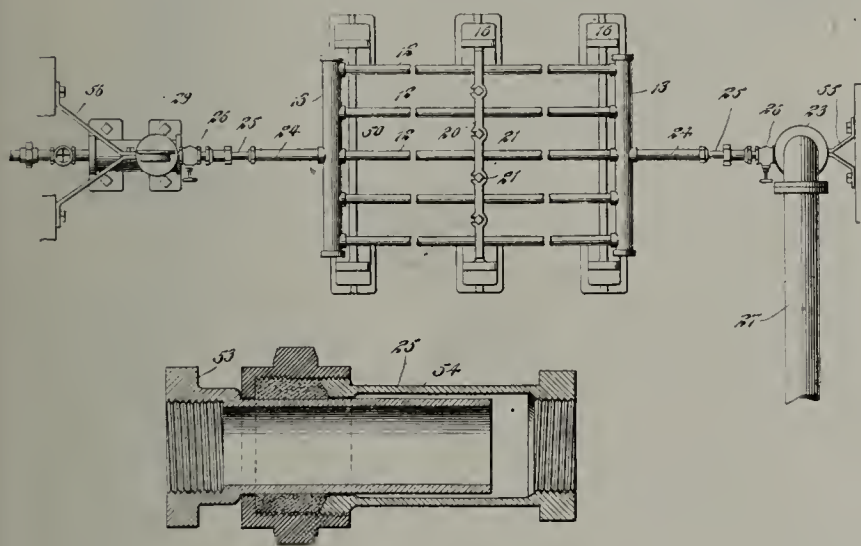
The invention further includes means for building up the successive layers of the stack on the dryer car or other support in proper hacked relation for the drying; providing novel improved features of automatic co-operative control between the driving mechanisms for the several parts of the apparatus; and in other matters of detail which will hereinafter more fully appear.

Taking first a general survey of the preferred embodiment of the invention herein illustrated and of the sequence of operations herein disclosed, any convenient number of continuous streams of bricks are delivered from the molding machine to a usual off-bearing belt having a cutting device adjacent thereto for severing the individual bricks, these parts being movable at the same rate as the brick stream delivery. Immediately beyond the cutting device a more swiftly moving separating conveyor receives the successive bricks and draws them rapidly away so as to avoid injury thereof by the cutting device on its return movement. At this point it may be stated that since a like operation is performed upon each of the streams of bricks being delivered by the molding machine, the treatment of only one of these streams will be considered for the present, for convenience of description. From the separating conveyor the separated bricks are again bunched together in rows upon a conveyor section which, during the bunching operation, moves at a speed less than that of the separating conveyor but substantially equal to the initial speed of the string of bricks.

After being loaded with a full row or complement of bricks, such conveyer section is given a speeded up movement to a subsequent conveyer similarly accelerated, to deliver the rows of bricks to the hacking apparatus, this leaving a substantial time interval before the next row will be so delivered, and during such time interval the row of bricks (and the adjacent rows produced by the other streams) is moved en masse transversely off the conveyer onto a dryer car or other support, which is during the delivery thereto given a step movement at the same rate as the brick movement, so that the rows of bricks are gently wiped off the conveyer and deposited in rows on the car without the possibility of injury thereto. The layer of bricks on the car being completed by the deposit of a series of rows in the manner stated, with a corresponding series of step movements of the car, the table or superstructure of the car is turned a quarter way around so that the next layer will be deposited at right angles to the one below and so on until the loading of the car is completed, means being provided for automatically lifting the laying mechanism for each successive layer to be deposited.

The illustration shows a plan view of the complete machine. The drawing comprises twenty-five figures and lack of space prevents a fuller description. Those interested should obtain a complete copy of the patent.

Brick Dryer: Edward H. Callaway, of Westfield, N. J.,



1,020,186

assignor to the American Clay Machinery Company, of Bucyrus, Ohio, a corporation of Ohio. 1,020,186. Patented March 12, 1912.—This invention relates to a new and improved apparatus for drying bricks, tiles and like substances after they have been formed by the brickmaking or other machines.

The principal object of the invention is to provide a drying shelf composed of a horizontal series of pipes so arranged that they can expand and contract more freely without loosening or disarranging the mechanism.

One of the illustrations shows a top plan view of the complete machine as applied to the system of steam brick drying pipes and their connections, while the other is a longitudinal section through one of the expansion joints which are interposed between the pipe shelves, at the receiving and discharging ends of the latter, and the manifolds.

Apparatus for Striking Off Brick: John H. Davidheiser and Frank Davidheiser, of Stowe, Pa. 1,021,354. Patented March 26, 1912.—This invention relates to new and useful improvements in apparatus for striking off and loosening brick in molds and comprises various details of construction and combination and arrangements of parts.

Reference now being had to the details of the drawings by letter. A designates the frame of the apparatus and B is driving shaft, to which power may be applied in any suitable manner not shown. Said shaft is mounted in suit-

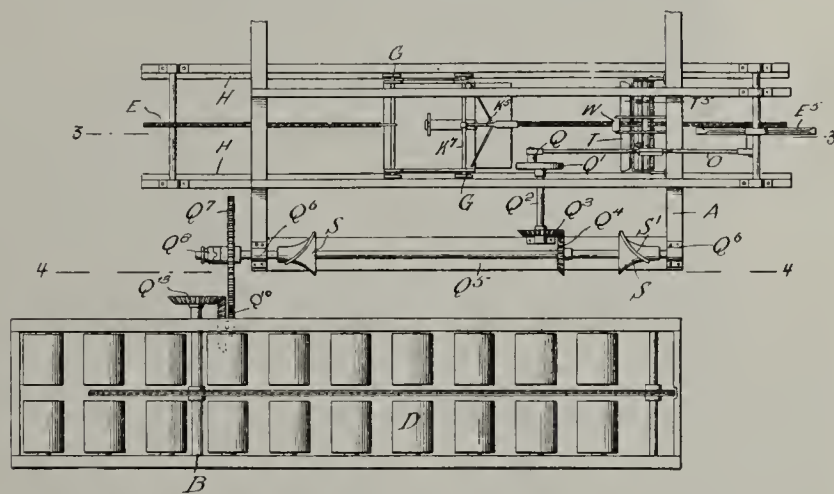
able bearings in the frame and has a sprocket wheel B' fixed thereto and about which and a sprocket wheel B², also mounted in the frame, a sprocket chain C passes, having a finger C' projecting therefrom and forming means whereby the molds may be moved forward upon the anti-friction rollers D after the brick has been struck off and loosened from the mold.

PAVING IN SMALLER CITIES.

There is a modern trade saying to the general effect that a big volume of small business is better than the same volume in big business, and the same idea transformed somewhat applies equally well to the brick paving business—a big lot of it in the smaller cities and towns is better than the same volume of business in the larger cities.

There is a reminder of this fact, and food for thought, in the reports coming in about the spring plans for the smaller cities. For example, there is before us a very bright report from Mt. Sterling, Ky., telling of quite a lot of brick paving begun there the first of April, and that it is currently reported that at its next meeting the city council will introduce a blanket ordinance ordering all streets in the city to be bricked.

That is the kind of town boosting and building that it does one good to read about. Also it is a sort of eye-opener to the great possibilities of development in the paving brick business if all the towns and smaller cities, or even a fair



1,021,354

share of them, get the same spirit. It is the aggregate of these smaller units that really make up the biggest and best kind of trade. And, of course, it makes better towns and a better country generally.

And here is an angle of the matter that may have escaped the attention of some. Not only do lots of smaller cities mean big paving business in the aggregate within themselves, but they open the way to and are the logical starting point for much good promotion in the way of brick road building. It is one thing for the ruralites to theorize over and look at the beautiful pictures of brick roadways leading into or out of large cities, and quite another to have the thing brought home to them in practical form by extensive brick paving in their home town.

Here they begin to realize that it is a tangible and practical proposition and not a mere idealist's dream. It is only a step to extend the paving of the main street for a way out into the country, and this step leads naturally and easily to others in the same direction, with the benefits so real and tangible that it is hard to resist getting enthusiastic over country road building with brick paved surface.

So there is really more to this brick paving in country towns than appears on the surface at first. It is not only a good thing in itself, that is better and easier to get at than the work of some of the larger cities because of the closer personal interest and contact, and is well worth industrious cultivation for that alone, but it paves the way, so to speak, to getting at the brick road building in a way that should get results and not merely theories.

PENNSYLVANIA'S GOOD ROADS CAMPAIGN.

Many Miles of Highways Will be Paved with Brick in the Not Distant Future.

A MOVEMENT OF VAST importance is on in the Keystone State, and judging from the enthusiasm displayed at the meeting of the county supervisors held at Reynoldsville, Jefferson county, Pennsylvania, April 5, great benefits will result to the taxpayers of that section. It was the second annual meeting of the association. The first was held at Brookville a year ago, when there was an attendance of but little more than a score of supervisors. At Reynoldsville there were ten times that number of supervisors actively interested in the subject of good roads. Besides these, there were many farmers and business men who attended the meetings, and by close attention manifested a deep interest in the

of several hundred macadam road advocates to brick roads boosters. The thing that made this possible was a drive over five miles of splendid brick-paved highway extending through and beyond the town. After examining this fine stretch of pavement and learning that it was good for at least a quarter of a century without any repairs at all, the road supervisors declared they would not be happy until they got similar roads in their own districts.

The sentiment of the convention was expressed in a resolution, unanimously adopted, as follows:

"Resolved, That the Jefferson County Supervisors' Association, after experience with various methods of road paving in



The Ideal Brick Paved Country Highway—Smooth, Clean and Indestructible. This Pavement Has Been Down Five Years With No Cost at All for Repairs.

gospel of good roads, which was preached by a number of able speakers.

It is estimated that, all told, more than 1,000 were in attendance. There was one delegation of more than one hundred, who came in a body from a neighboring town, accompanied by a brass band, giving the occasion a holiday appearance. Good roads in general and brick roads in particular were given a mighty boost. Advocates of brick highways may well follow the good example and arrange for similar meetings in their own locality. Great good will result. The meeting was most successful in every way, and there is a reason. It is found in the personality and hustle of Clyde C. Murray, secretary of the Reynoldsville Brick and Tile Company, who, with his associates, arranged the program and provided entertainment for the visitors. Mr. Murray has been an active, though not conspicuous, member of the N. B. M. A. for several years, and the manner in which he managed the convention proved that he had profited by his experiences at the national conventions. How many other members of the N. B. M. A. might follow his example with equal advantage!

One notable feature of the convention was the conversion

the county, strongly recommend that hereafter brick be used on all roads paved by the State, or by the State aid, within the county, believing that they are not only the most durable, but the most economical and satisfactory to the people."

There were a number of noted speakers on the program, among them being State Highway Commissioner Hon. E. M. Biglow, of Pittsburg, who declared that the State officials having in charge the good roads movement would not rest until Pennsylvania leads in well-paved highways as well as in industrial interests. Will P. Blair, secretary of the National Paving Brick Manufacturers' Association, delivered an illustrated lecture on "Permanent Roadways," and gave the delegates much valuable information on the most approved methods of constructing brick roadways. One of the interesting features of the convention was a moving picture exhibit giving views of the recent Clay Products Show at the Coliseum in Chicago. Mr. T. A. Randall, secretary of the N. B. M. A., explained the principal features of the exhibit, which made a very favorable impression on the delegates. Mr. M. O. Eldridge, of the Good Roads Bureau, of the Department of Agriculture, Washington, D. C., gave an instructive and entertain-

Glimpses of the Plant of the Reynoldsville, Pa., Brick and Tile Company.



The Square Down Draft Kilns.



From Dryer to Kiln.



Getting In the Coal.



General View of the Plant.



Taking Face Brick to Stock Yard.



Rebuilding a Kiln Crown.

ing lecture on the "Importance of Good Roads to the Farmers of the Country," and illustrated same with many fine pictures of notable roadways in America and Europe as well.

The Reynoldsville Brick & Tile Company's Plant.

The feature of the meeting which was especially appreciated by those interested in brickmaking was a trip to the plant of the Reynoldsville Brick and Tile Company, which is located just beyond the town limits, on a branch of the Pennsylvania railroad. There is an immense deposit of fine shale; the bank, as they are now working it, ranges from eighteen to thirty-five feet in height, and overlays a twenty-inch vein of good soft coal, and, beneath that, clay to an unknown depth. The plant is situated at the base of a hill, from the top of which the shale is hauled over a tram incline five hundred feet in length. It is a gravity proposition, the loaded cars hauling up the empties. Two dry pans are used, one Chambers and one Phillips & McLaren. After being crushed, the shale is run through a steel perforated screen, and thence to an immense Freese machine. They make both building brick and paving brick, the output being about equally divided. They make both a red brick and buff brick. The paving blocks are made with Dunn wire-cut lug method exclusively, and are of excellent quality. The brick are dried in furnace-heated tunnels, and burned in both round and square down-draft kilns.

Mr. Murray presented the delegates with a little pamphlet, entitled "Proper Construction of Brick Roads," from the pen of W. P. Blair. One page of the booklet is devoted to the Reynoldsville B. & P. Co.'s products, and reads as follows:

"We are manufacturing a paving block of such a character as to enable us to challenge competition. We aim at all times to market only such paving blocks as will stand the test of time. We want to build up the paving brick industry on a basis of quality in the product that we market. To enable us to do this we are going to insist upon quality in the workmanship in road building. The ability of a brick manufacturing plant to accomplish this task is small, but the strength of a united public demanding proper construction of highways is Herculean.

"The fact now seems to be sufficiently well and clearly demonstrated that brick roads are the only highways that admit of construction at moderate cost for building and without the necessity of repairs. If you believe in 100 per cent. efficiency for the money expended in road building, then you should insist upon the building of brick streets and highways, properly constructed."

Mr. Murray did not admit the fair impeachment, but we judge he is a Hoosier by birth. At any rate he is given to poetry, or at least we are led to think so by the following, which appeared on the back cover of the book:

"Every time I come to town
I find folks kickin' my brick aroun';
Makes no difference if brick's red or brown,
They gotta stop kickin' my brick aroun'."

SHAWMUT PAVING BRICK COMPANY'S PLANT DESTROYED BY FIRE.

Alfred Yates, general manager of the Shawmut Paving Brick Works, Shawmut, Pa., has had two distinct and severe losses during the present year. First, he was taken sick and was unable to attend the N. B. M. A. convention at Chicago. He has not missed a convention before for many years and will not miss another for as many more if he regains his old-time health and vigor. Let us hope he will. Again, March 29, misfortune overtook him. A disastrous fire well nigh destroyed the splendid paving brick plant to which he has devoted himself for years past. The fire started about 6:30 o'clock in the boiler room and had gained such headway when discovered that nothing could be

done to check the flames. All the buildings were burned and much expensive machinery destroyed. The loss is placed at \$50,000 and is partially covered by insurance.

The fire is a big loss to Shawmut. Not only did the brick works give employment to many residents of the town, but the burning of the plant necessitated closing the mines operated by the same company.

The brick works used the products of the mines. Over one hundred men are thrown out of employment. The plant will be rebuilt.

A LIFE SACRIFICED THROUGH CONCRETE FAILURE.

ANOTHER disaster has been added to the long list made through faulty concrete work. It seems as if hardly a week passes without a report from some part of the country that a concrete structure, or bridge, has collapsed. Tuesday, April 16, a life was sacrificed in Indianapolis through a concrete failure. We print the following accurate report from the Indianapolis Star:

Herman A. Johnson, 32 years old, a laborer, 215 South Oriental street, was killed instantly yesterday afternoon when a section of the roof and the fourth floor of the Cole Motor Car Company's building, Davidson and Market streets, collapsed. Johnson's body was so imbedded in the debris that it was half an hour before it could be extricated. Johnson had been employed at the building only since noon.

The building is of the reinforced concrete construction and three floors have been occupied by the automobile company only a month and a half. The fourth floor and roof had not been accepted from the contractors, and the wooden braces were being removed from that floor at the time of the collapse. In view of the recent collapse of the Prest-O-Lite building, in which ten workmen were killed, and which also was a concrete structure, Building Inspector Winterrowd says he will advocate a measure at the next session of the legislature prohibiting the construction of concrete buildings. Building Inspector Winterrowd said he could not account for the collapse of the building unless the severe weather last winter had caused the concrete to freeze.

The section of the roof that collapsed was about thirty feet square. This fell on to the fourth floor, carrying down a square of about twenty feet. The mass fell into the office of the stock room, but no one was in the office at the time. Several persons escaped narrowly being caught under the pile of concrete, tiling and twisted steel rods.

The contractors who had the construction of the building are Halstead & Moore. The architect is Herbert L. Bass & Co. Johnson was employed by the contractors and was clearing up the fourth floor, which was to be occupied soon.

Davis Showalter, foreman, said the braces under the part of the building that fell had been removed three or four hours before the collapse. He said that section of the building seemed safe.

The consensus of opinion was that the concrete had frozen and then the warm weather had caused it to thaw. Mr. Moore, of the contracting firm, said he could not make any statement. Mr. Bass, the architect, also said he was unable to tell further than it was probably the thawing that caused the collapse.

The building was started last fall and was under construction at the time of the collapse of the Prest-O-Lite building. The construction of this building was ordered stopped by Building Inspector Winterrowd to prevent the pouring of the concrete after freezing weather began.

Coroner Durham will begin an investigation of the collapse of the building today.

Mrs. Johnson was notified of the death of her husband by W. H. Benton, employed by the contractors. She was working at the Bemis Bag Company. Mrs. Johnson said she and her husband and one child moved here a few weeks ago from Terre Haute, Ind.

When will proper laws be made in this country to stop the sacrifice of human life through the careless and improper use of concrete work?

Written for THE CLAY-WORKER.

CLEVELAND BRICK NEWS.



WITH THE RETURN of warm weather Cleveland is enjoying a building boom of unusual pretensions. Many projects which were planned during the winter or held over from last year are now in full swing and the prospects are that the year will be an unusually active one.

Business is brisk with the brick companies. Paving brick plants are hard at work getting out stock for spring and summer deliveries. The hollow tile plants are also turning out many millions of their product, which is now in so much demand. In the offices of the various brick dealers many inquiries are being received and considerable stock is being delivered. An analysis of the building situation indicates that brick is coming into its own. The local newspapers have been carrying ads of a number of brick companies and have been printing news stories about the value of brick as a building material. The public is being educated in this way to artistic possibilities in building construction when brick is utilized.

Several big building structures which are waiting until weather permitted are now in full swing. A fourteen-story skyscraper for D. R. Hanna, which will be the largest office building in Cleveland, is being rushed along and it is expected that the steel work will be under roof by midsummer or early fall. The building will contain the largest number of square feet of office space of any structure in Cleveland.

Another downtown structure which is being proceeded with is the twelve-story mercantile and office building for W. G. Marshall, at the northwest corner of the public square. This building replaces an old four-story structure which has just been demolished, and is the first unit of the big building which is expected to extend between the public square and West Third street.

A new six-story office building is being erected on East Fourth street, between Euclid and Prospect avenues, by the Fourth Building Company. It will have a frontage of 162 feet and will be 100 feet in depth. Plans for the structure have been prepared by William Hirsch, architect, Swetland building, calling for a strictly fireproof building in all details. The exterior will be of glazed white terra cotta, with walls of brick. The building will be completed during the coming fall.

A new \$150,000 building is to be started this month at East Thirteenth street and 260 feet on Dodge Court. It will be used for an automobile garage and will be 247 feet on East Thirteenth street and 260 feet on Dodge Court. It will be erected by the Wigmore Realty Company and leased for ninety-nine years.

A new building of unusual proportions is being planned for Superior avenue opposite East Third street. This location is directly at the head of the Hall, which is a part of Cleveland's group plan of public buildings. On this site plans are now being made to erect a white terra cotta building with the tower rising to a height of 280 feet above the pavement. Plans for the building have been prepared by Architect J. Milton Dyer. Real estate men are now engaged in securing leases to enable the structure to proceed. Sufficient money has already been secured to insure the building of the structure if arrangements can be made with persons who now have leases on the building occupying the site.

Contracts have been let for a ten-story fireproof hotel building to be erected on Superior avenue for the Harvey Madison Realty Company. Plans were prepared by Architect George Griebel and provide for a brick, steel and terra cotta building 66 x 132 feet in size and twelve stories high. The masonry contract was awarded to Connelly Construction Company, and work is now in progress.

A new building to cost \$125,000 is to be erected on Euclid Heights this summer by Godfrey Fugman, architect and promoter. The building will be four stories high and will con-

tain eight suites. Tapestry brick will be used, so that the building will look attractive from all four sides. Owing to the unusual location, and the care which is being taken to make the building artistic, it is expected that unusually good rents can be secured.

An indication that Cleveland is booming ahead in the manufacturing line is seen in the number of contracts for new factory buildings and additions. The Ferro Machine and Foundry Company has plans prepared by Architect Ernest McGeorge for a four-story factory building 70 x 200 feet in size, with brick walls, steel, cement and tile floors, at East Sixty-sixth street and Hubbard avenue. The contract for the work has been awarded to the Crowell & Sherman Co.

Plans have been completed for a 250-room addition to the Hotel Euclid, located in the rear of the present hotel on Euclid avenue at East Fourteenth street. The building will be twelve stories in height and will be fireproof. It will have a frontage of 84 feet on East Fourteenth street and will be 150 feet deep. The new building, which is planned by A. E. Sprackling, is to cost \$25,000, and it is expected that it will be ready for occupancy some time next winter.

The city council has appropriated \$176,000 for buildings in connection with the new 2,000-acre city farm. This will provide money for the completion of a new workhouse group and for various other buildings at the city farm. An administration building alone will cost \$71,000. In connection with the work of the city farm the sum of \$11,000 has been appropriated for a new tile and brick plant. Some excellent clay beds exist on the city property and it is proposed to employ prisoners at the city workhouse in the brick and tile plant.

An experienced brick and tilemaker will be engaged to operate the plant, the brick of which will be used exclusively by the city. It is not intended to go into competition with other dealers in disposing of the brick and tile. The \$11,000 will be used to supply the first unit in the plant. The work this year will be largely of an experimental character. The city farm consists of 2,000 acres, much of which will be greatly improved by tiling. The output of the plant can be used for many years in tiling the city parks, at the same time giving employment to the workhouse prisoners.

The sum of \$575,000 is to be spent this year and next on buildings for a new city hospital. They will be located on the grounds of the old infirmary on the Scranton road. The plans were prepared by Myron T. Vorce and call for a total outlay of \$1,240,000. They will be of brick throughout. It is the present plan to proceed with the administration building, service building, one section of the nurses' home and one ward. The buildings are to be erected on the unit plan. The entire institution will be completed within the next two or three years. The buildings are to be of gray brick with stone trimmings and roof of red tile.

Action was taken by the city council during the past month whereby an amendment was made to the city building code which permits hotels to be erected to a height of sixteen stories, or 200 feet. The maximum height for hotels up to the present time under the new code has been twelve stories. As a result the new addition which is to be made to the Hollenden hotel will be sixteen stories instead of twelve in height.

Another corporation of the past month was that of the Sharon Clay Products Company, Brookfield township, Trumbull county. It was incorporated for \$30,000 by W. C. Taylor, Charles A. Lytle, A. W. Krause, Bess T. Krause and Frank C. Thompson.

The Trimble Manufacturing Company, of Trimble, Ohio, has increased its capital from \$40,000 to \$55,000.

The Vaughan Fireproof Products Company has been incorporated in Cleveland, with a capital of \$10,000, by Benjamin A. Gage, C. C. Wise, A. S. Deal, M. H. Coyne and R. A. Wilbur.

During the past month the Franklin Builders' Supply Company was incorporated at Columbus by W. A. Fritz, J. J. Fritz, Albert C. Cook, C. B. Rumer and Harold R. Lakens, with a capital of \$36,000.

During the past month William H. Marlatt, accompanied

by a delegation of building material men, appeared before the Cleveland delegation to the constitutional convention to urge the placing of a clause in the proposed new constitution providing liens on buildings for material and labor. The material men want direct liens for the benefit of sub-contractors for material and labor and urge a clause similar to those in the constitutions of California, Texas and Idaho.

A NEW BROWN ELECTRIC RECORDING INSTRUMENT.

A NEW TYPE of electric recording instrument particularly adaptable for use as a recording electric pyrometer, recording voltmeter or ammeter has been designed by the Brown Instrument Company, of Philadelphia, the pyrometer manufacturers.

Recognizing the necessity of a recording instrument which is both accurate in operation and simple in construction, the Brown Instrument Company, of Philadelphia, Pa., has spent much time in designing a recording instrument which can be mounted on the wall or switch-board and used by the most inexperienced workmen.

In the common form of recording instruments no means



Figure 1.

are provided for shifting the recording pen arm out of the way when the chart which received the record is changed, consequently there is serious danger of bending the pen in removing the chart. In this respect the new recording instrument is most novel in construction, in that the essential parts of the instrument are mounted on the door instead of in the case. The clock mechanism and chart alone remain in the case when the door is opened. Consequently there is no possibility of bending the pen, because there is no occasion to handle it for any reason whatsoever. As soon as the door is thrown open the entire voltmeter system and the inking device is swung aside automatically, permitting the old chart to be easily removed and a new one substituted.

Fig. 1 is a photograph of this recorder in operation with the door closed, while Fig. 2 shows the instrument with the door thrown open ready to have a new record chart installed.

The millivoltmeter system, which is used in this new recording instrument, is a simplified form of the D'Arsonval system, which is the only system used in electric instruments

of precision. Also the recording pen comes in contact with the paper momentarily only for the purpose of making a dot, thereby eliminating all friction between the pen and the chart.

An inking pad is placed immediately beside the pen carrying sufficient ink for a week's supply, and this inking pad touches the pen frequently, keeping it damp. When the door is closed the arm seen at the left of photograph Fig. 2, and operated by the clock mechanism, comes in contact automatically with the inking device, and every half minute, or quarter minute if preferred, it pushes the inking pad away from the pen permitting it to swing freely. It then falls, allowing the inking pad, by its own weight, to press the recording pen against the paper.

An instrument so simple and free from unnecessary parts and operating without friction on the paper has never before been designed, as is clearly realized by an examination of Fig. 2. In no apparatus is simplicity more desirable than in recording instruments, and the simplicity of the improved features of this new recorder will particularly appeal to those who have come in contact with the delicate construction of electrical recording instruments heretofore on the market.

AN APRIL FOOL FOR THE CLAY-WORKER.

We were greatly surprised and nonplused the first of the month by receiving a summons and complaint from the United States Supreme Court; at least, that is what we



Figure 2.

thought it was. The Mathews Gravity Carrier Company, noted for its excellent conveying machinery, was the plaintiff. We were fooled, all right, for we were greatly taken in by this clever way of putting the merits of its product before us. There were exhibits in the evidence, including seven letters from well-satisfied users, speaking highly of the Mathews gravity carriers, and depositions of forty-seven firms, testifying to the numerous advantages of the carrier over the old method of handling brick by hand labor and wheelbarrows.

CHAMBERS' CHICAGO REPRESENTATIVE.

Mr. E. G. Biechler has been engaged as western representative for Chambers Brothers Company, of Philadelphia. He expects to take charge of their Chicago office the latter part of this month, and will devote his attention to Chicago and adjacent territory.

Mr. Biechler has had previous experience in this line of work, is very much interested in it, and comes to the Chambers Company highly recommended.

We would bespeak for him the kind consideration on the part of the trade which has been extended to the late Mr. E. R. Frazier, his predecessor.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Installing Electric Drive.

Editor CLAY-WORKER:

Enclosed find check for \$4.00 in payment for THE CLAY-WORKER for twelve months ending January, 1913. Also \$2.00 in payment for Professor Bleininger's book, "Effect of Heat Upon Clays." As soon as we complete the improvements we are making, which includes the installing of complete electric drive of all of our machines, we will send you photographs and full description of our plant.

Boone, Iowa.

Yours truly,
J. L. STEVENS.

The Chicago Demonstration.

Secretary Randall:

Dismissing all personalities or any question of selfish motives, the initial meeting of the recent N. B. M. A. convention may be regarded as another manifestation of that general unrest and spirit of discontent with existing conditions that so marks our present business life. Out of it all, we are told that ultimate good for the greatest number will be evolved. Some of us may well be concerned as to how long the process of evolution will require.

The idea that a different management of N. B. M. A. affairs could succeed in making it the organized instrument for an aggressive, broad-gauged movement for better commercial conditions in the clayworking trades, however commendable in purpose, is open to serious question.

If from the total registration of nearly 860 names we eliminate the associated industries, duplicate representatives, etc., there remain less than 450 actual clayworking firms on the roster. It is doubtful if among these, one-half are men willing to stand an assessment of \$100 each per year for the good of the cause.

Its immediate good results to the individual are not sufficiently assured, and the fear that some other person may profit earlier as a result of joint effort is too pregnant. We are still lacking sufficient faith, or of the spirit typified in the verse of a mailing slip received this morning:

IF I KNEW YOU AND YOU KNEW ME.

If I knew you and you knew me,
'Tis seldom we would disagree;
But, never having yet clasped hands,
Both often fail to understand
That each intends to do what's right,
And treat each other "honor bright."
How little to complain there'd be,
If I knew you and you knew me.

The yearly increase in N. B. M. A. membership is largely due to its nominal fees; and, while its most ardent friends must admit that it has not arisen to the the opportunity of the present time, it, nevertheless, has done and still has good work to perform. Through it has grown the acquaintance among competitors—the "I know you and you know me" spirit that was and is the necessary prelude to such sectional organizations as have already sprung from the N. B. M. A. ranks.

If the 4,000 brickmakers that were appealed to by letters, circulars, posters and offers of rebates during the past

year from the office of the Building Brick Association could have gathered around the long table, looked into the faces, heard the discussions during its board meetings in Chicago, and experienced the earnestness with which that little band of enthusiasts sought ways and means to accomplish some measure of their job, those 4,000 men would dismiss from their minds any fear of undue personal gain or advantage.

Possible mistakes were discussed and admitted; men from different sections of the country presented their needs and then considered fairly the rights of the other fellow as well as their own; economies suggested and adopted (even to a 40 per cent. cut in salary), so far as possible without actual risk to the organization itself.

Why did they do this? Many of them, perhaps all, had affairs to which their time could have been devoted to better immediate advantage, but through association the spirit of "I know you and you know me" had gotten under their hides.

The initial burden of progressive movements will always be shouldered by the comparatively few, whether they claim Chicago or some other place as their own. But the time is here when, in self-interest alone, the spirit of the verse should dominate the individual brickmaker.

Philadelphia, April 4, 1912.

J. H. CHAMBERS.

Clay-Worker Always Welcome.

EDITOR CLAY-WORKER:

Enclosed find my annual subscription. THE CLAY-WORKER is always a welcome caller, and we would not like to miss a single number. Business prospects are very bright here at present and we have been very busy the past year. Wishing you every success for THE CLAY-WORKER, we remain,

Yours respectfully,

GESSEL PRESSED BRICK COMPANY.

Logan, Utah, March 27.

Enjoyed the Convention Issue.

Friend Randall:

The last number of THE CLAY-WORKER was fine. We read it and had the convention all over again, and a lot of the convention we did not get. One thing you omitted, and that is to confess that someone either pinched the granddaughter, or stuck a pin into her at the opportune moment to carry the convention by storm. Why, that single cry was worth more than all the speeches put together.

Anyway, we had a good scrap and we enjoyed it. It was a good thing for the N. B. M. A. We needed stirring up and got it.

The Chicago bunch did a lot of work and put up a lot of money. The success of the Clay Show is largely due to them and we must give them credit for it. We hope the show will be repeated in the near future and hope to see all the clay industries represented.

If Chicago is the only city in which we can have a clay show, then we favor Chicago, but we hope that the clayworkers will rise to the occasion and duplicate the good work in some other city. The clay products of the country count up one hundred and seventy millions and far exceeds that of the cement industries.

We certainly ought to do as well as the latter industry, and it does not have to limit its shows to one city.

We are not in favor of going to Chicago next year, nor the year following, but if we can not put up another clay show the second year at least, then Chicago may have us body and soul so far as we are concerned.

We like that Chicago bunch; we envy their hustle, and if we don't get up and hump they will get our goat all right.

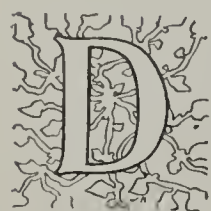
Yours truly,

Columbus, Ohio, April 3, 1912.

ELLIS LOVEJOY.

Written for THE CLAY-WORKER.

ORGANIZATION IN NEW ENGLAND.



URING a recent flying trip to New England a representative of THE CLAY-WORKER had an opportunity to talk with one gentleman who has given the brick situation in New England some consideration. It will be remembered that last fall mention was made in these columns to the necessity of some organization, some form of getting together which would result in the abrogation of some ruinous trade practices and in the end be a potent factor in placing the industry upon a more profitable basis.

Manufacturers insist that they have made no money during recent years, and they make this assertion in face of the most prosperous conditions so far as consumption is concerned, which have ever existed. Within the past decade practically all New England cities have added a substantial proportion to their population. Some have doubled in size, others range down considerably less, but growth has characterized every city.

Brickmakers have had their share of prosperity, or should have had it, and it is difficult to believe that they have made little or no money. Yet, so common is this declaration throughout New England that one hesitates to undertake any refutation of it. Indeed, it may be well, for the sake of argument, to admit that it is true. There are, of course, individual exceptions, but for the purpose of this article the industry will be treated as a whole and the statements of a majority of those engaged in it will be accepted as genuine.

First, what is the principal complaint? Unstable prices. Whatever cause they may be ascribed to, unstable prices appear to be the basis of the entire difficulty. Of course, different reasons are assigned for this unsatisfactory condition, but perhaps the principal one is the lack of unity in shipment. One week the markets will be overloaded and prices will decline because of over-supply. The next week the supply will be inadequate and dealers and commission men will advance the quotations. Contracts are frequently made which result in losses, either because insufficient care was exercised in investigation before the contract was drawn, or else expense of manufacture increased through some unforeseen or some unsuspected cause after the work began.

Other factors probably enter into the problem, the same as they do in every similar question, but those named seem to be the principal reasons for the unstable and frequently unsettled market of which makers complain.

No concerted discussion of the difficulties which confront the manufacturer has ever been undertaken. But unquestionably a sentiment is springing up through New England which favors some method of getting together. The successful operation of the Greater New York Brick Company, formed solely for selling purposes, has caused New England manufacturers to consider something similar. The onslaught upon the New York selling plan and its investigation by the attorney-general to determine if it violates the Sherman anti-trust law, constitutes a disagreeable contingency which will influence other manufacturers to exercise conservatism in undertaking anything of this character. Perhaps in the end they will do better than they would have done without this set-back, but for the present, manufacturers are more disposed to watch and wait than they are to act.

New England manufacturers are badly scattered. It is almost impossible for individuals or firms to know each other unless something is done to bring them together. They surely have a common basis now and should not hesitate to do something.

The various interpretations placed upon the Sherman law by different individuals and different attorneys afford little satisfactory basis for action. Whatever is done there

is always the possibility of trouble from some source. In New York some of those whose business had been injured by the transfer of selling accounts filed the complaints and the attorney-general took up the matter to investigate it as thoroughly as he can. No decision has been reached, but competent attorneys declare that the New York manufacturers are violating no law. Therefore they are adhering to the policy adopted more than a year ago and await the decision with equanimity.

The selling end of the business seems to be the storm center. Manufacturers appear to carry on that department of the business without much difficulty; but selling is not managed to suit some of them, at least, and unless a change is made there many seem to fear a continuation of the troubles which have confronted them for years. HIRAM.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.



EARLY IN THE MONTH of April various firms in this State got well started with their preparations for the season's business when a cold snap descended upon them which shut off all work for a week or so. It was as severe as it was unexpected, and so completely ended operations that nothing was done as long as it lasted. This cold snap was a serious matter for some manufacturers, since they were looking forward to an early opening, and with a good market ahead of them they wanted the opening just as early as it could be made. The severity of the winter in New Jersey set everyone longing for spring, and not the least among those who desire it are the brickmakers of the State.

In Berkeley Heights, Kressner & Holland have employed thirty to forty men each year in making common brick. They will work quite as large a force this year as heretofore. Union county is developing fast and with this development goes improvement in their business.

The Bordentown Brick Company, whose name designates its location, will open the season with its usual complement of operatives. A steadily increasing demand during the past few years has had its influence in helping build up a profitable business. Moreover, Bordentown has come to be an important industrial center, and the product of this company has been wanted for structural purposes.

The Ironside Pottery Company, at Bordentown, is running about 100 men. Their wares have enjoyed a good demand all the season and this year has opened favorably. Conditions have apparently been favorable thus far this season, and buyers have taken the bulk of the product turned out.

At Mountain View, in Passaic county, are three brick yards. The Enterprise Brick Company employs twenty to thirty men; Aschwald & Ulrick employ sixty or more, and the Standard Brick Company employs seventy-five. All three firms make a good quality of building brick, and generally find their orders quite sufficient to consume the supply. Not many were left at the close of last season and they begin this year with virtually clean decks. They have good shipping facilities and a considerable portion of their make goes to Paterson.

The Clifton Art Pottery, at Newark, employs but few men, rarely to exceed a dozen, but it turns out a very high grade of hand-made pottery. The work is usually made from exclusive designs and it is the intention to send it out with the assurance that no duplication will be permitted. Some of the decorative work is exceptionally attractive.

The Standard Brick Company, of Newark, makes a good quality of common brick, but its fifty employes produce only a moiety of the immense quantity used in the city's great

structural operations. The company is always sure of a good market. There are many jobs in Newark which would swallow all this company produces without minding it. So far as its home city is concerned it has the field to itself. It is the only firm claiming Newark as its home.

The New Brunswick Tile Company, New Brunswick, makes an excellent grade of wall and floor tile, and so liberal has been the demand during recent years that enlarged works will be required to satisfy the requirements of buyers. About fifty men were employed last year, but the firm hopes to increase that number this season.

The Great Eastern Clay Company, South River, makes a specialty of chimney brick, though it turns out other clay products as well. It keeps six hundred operatives at work and its products are scattered wherever clay manufactures are needed. Its chimney brick are too well known to require extended description here. Furthermore, it is the only firm in the State making chimney brick, hence it may be said to enjoy a special opportunity. The quality of its product insures a continuation of its present well deserved prosperity.

South River is something of a brick center, and of its population of 4,500 a considerable proportion is composed of workmen connected with the various brick establishments. The American Enameled Brick and Tile Company makes enameled brick, and employs one hundred and ten men in its factories. James Bissett makes common brick and has fifty employes. The New York Silica Brick Company makes fire brick and keeps one hundred at work. Pettit & Co. make common brick and have one hundred and fifty at work. The South River Brick Company has seventy-five people at work on common brick, while Yates Brothers are running about the same number on common brick. Whitehead Brothers & Co. have fifty men at work handling clay and sand. They do not make these up themselves, but dispose of them to other parties who need them. All these firms report a promising outlook this season and are preparing to operate their works to their full capacity.

Trenton has a number of enterprising firms manufacturing front brick—Applegate & Co., Donahue & Nolan, Fell & Roberts and the Trenton Red Front Brick Works. In recent years the increasing use of front brick in building construction has improved the outlet for brick of this type, and these firms have benefited proportionately. The quality turned out is beyond criticism, while uniformity of product has influenced a steadily increasing and profitable trade. The clay from which the raw material is taken is especially adapted for such manufacture, and the makers and purchasers share alike in the excellence of the product.

The United Porcelain Faced Brick Company, of Newark, is meeting a steadily increasing demand for its product. Brick of this kind is peculiarly adapted to certain classes of work and for that reason it is purchased liberally. No other firm in the State makes a similar brick, consequently it is practically a monopoly.

B. H. Reid & Brothers, of Heightstown, a small place not far from Trenton, make a hollow brick and repress brick, together with some common grades. The works are busy most of the time and in some instances orders remain unfilled because it is impossible to get out the stock in time. Improvements which have been made and are to be made will eliminate this difficulty in the future. The truth is that the demand for brick has increased so suddenly that many manufacturers have failed to appreciate the necessity of introducing improvements to enable them to go ahead and keep their customers satisfied.

The Foxhall Brick Company, of Passaic, is making an excellent sand-lime brick, and virtually has the State in its own possession in this direction. The right quality of clay for making common brick is found in New Jersey in abundance and there is such a tremendous and steadily increasing demand for that grade that manufacturers obtain but little encouragement to take up something else.

From a relatively small concern, this company has developed to one of importance during recent years.

Donahue & Nolan, of Trenton, are about the only ones making moulded and ornamental brick. They have filled some important orders of late and have made up exclusive designs which have been favorably criticised by experts in this direction. Ornamental brick is not yet as popular as it should be, but the quality of the product offered by this firm has done much to popularize the article. It is gradually coming into its own.

BURTON.

G. C. STOLL JOINS THE BONNOT FORCES.

For nearly a quarter of a century G. C. Stoll, until recently a resident of Wheaton, Ill., has represented the American Clay Machinery Company in Illinois and the adjoining States. For many years he was secretary of the Illinois Clayworkers' Association, and perhaps no one man has a wider acquaintance among the clayworkers of the "Sucker" State than he, and they will no doubt be surprised to know that he has decided to leave them and become a resident of Los Angeles, Cal., where he has opened an office, 631 Higgins building, as a representative of the Bonnot Company, Canton, Ohio. The clayworkers of the Pacific coast will find in Mr. Stoll an able and conscientious adviser,

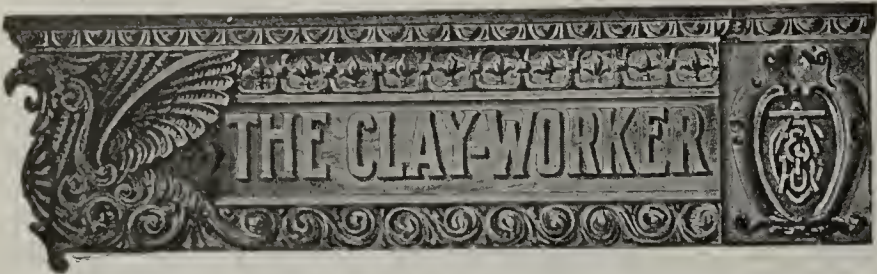


G. C. Stoll.

for he has had a wide experience in handling clays and in the erection and use of brick and tile machinery. His genial disposition and straightforward way of doing business has won him many friends, and we predict that he will, meet with success in his new field. We are sure he will, for he is deserving.

THE HERVEY HAIGH KILN TAKEN OVER BY THE AMERICAN CLAY MACHINERY COMPANY.

Our readers will surely be surprised, as we were ourselves, to learn that Hervey Haigh, of Catskill, N. Y., has disposed of his continuous kiln to the American Clay Machinery Company, as per announcement on page 675 of this issue. Few men, if any, are so well and favorably known to the brick manufacturers of the United States as Hervey Haigh. He is so frank and kindly by nature that to know him is to like him. He has been identified with the brick business for many years, and the name Haigh is intimately associated with the continuous kiln as constructed and operated in America. He has not yet announced his purpose, but knowing his enthusiasm for and firm faith in the brick business we are willing to stake our reputation as a prophet and predict that he will not be long out of the brick business, and that sooner or later he will again be identified with it. Whatever he may do, he will have the kindest of good wishes of thousands of our readers.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-NINTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to 226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

LVII. APRIL, 1912 No. 3.

CURRENT COMMENT.

The popular place for a soft-toned face is on a hard burned face brick.

* * *

If we would just root as hard and as persistently for brick as we do for our favorite ball team, what a time there would be.

* * *

Every failure, even in clay burning, teaches us something worth learning, so it is not all loss even when it looks that way on the surface.

* * *

There is a floating exposition scheduled to make a trip around South America this summer that may furnish an opportunity to exploit some lines of clay products.

* * *

Sit down and think up all the good things that you think ought to come your way during the season, and then make up your mind that you are going out after them and bring them home.

* * *

There is more room to use science advantageously on the farm than anywhere else in the world; but it is taking the farmers a long time to awaken to this fact. Were it not so there would long ago have been lots more drain tile used.

* * *

While you are putting in improved methods for manufacturing brick don't forget that improvement at the selling end helps, too. A few hard working, intelligent salesmen could do a lot to help enlarge the market for brick.

* * *

Milwaukee has registered an effective voting objection to Socialism, after having tried it once, and now the public will have to read reams of rigmarole in the way of explanations that really do not explain why things are. Meantime Mil-

waukee—well, it has its beer for consolation if the political change back fails to satisfy.

* * *

The man that doesn't get a part of his education from everyday experience fails to get all he needs in the business of today.

* * *

If things keep on the way they seem headed now, we will wake up some day and find that something has really happened down in Mexico.

* * *

Have you given consideration to the fact that the feminine mind is one to appeal to in boosting building brick. There is an inherent desire in the mind of nearly every housewife to own a brick house.

* * *

The city that has experimented with an inferior paving brick is a harder one to get a good showing for brick paving in than the city that has never tried brick. The answer is that it hurts worse to make and sell a poor paver than not to make any at all.

* * *

The familiar implements of the political trade are in evidence early this season, including the "steam roller," the "machine," the "big stick," the "Annanias Club," and several others. We may even discover some "represses" and "dry pans" when the game gets a little further along.

* * *

There has been a big surplus of water this spring that we didn't want now, but may need in broken doses before the summer is over. It looks like the lesson that nature is trying to teach us has something to do with conserving the headwaters with dams for irrigation needs in the summer, and to prevent floods in the spring.

* * *

If you have installed some new machines give them the same fair show you ask others to give your product, and be not quick to condemn for the first short-coming that manifests itself. Men and material vary at different plants, and it takes a little time to get some of the new machines tuned up to the work you have for them to do.

CELLARS AND FOUNDATIONS.

There is a better chance this year than there has been for a long time for the clay products men to get their fair share of the cellar and foundation trade. People are getting over the cement craze, and at the same time they are converting the old partial cellar into a full basement and are looking more for real quality walls. Then there is the hollow tile building block to choose from and help out along with brick. Getting more of the trade is this year simply a matter of hustling for it, and both the brick men and the makers of hollow wall tile should get more of the trade this year than they ever have before.

PARK, PORCH AND PERGOLA.

To the mind of not only the writer, but also several others talked to at the time on the subject, one of the strongest suggestive effects of the great Chicago clay show was an impression that we have been neglecting many opportunities to use brick and other clay products in beautifying the landscape of home, garden and park. There was something very appealing about the many walls, piers, pergolas and garden and landscape effects shown. It made one want to see more brick and terra cotta in porches, pergolas and in gardens and parks.

The dead gray color of concrete in porches and columns paled into insignificance when brought into mental comparison with the soft but rich colors shown in the walls

and piers at the clay show, and then to complete the desire for brick piers and parapets in porches, there were those terra cotta steps.

Surely, after seeing the many things shown and the beautiful effects produced, there should appear to us both the opening and the inspiration to get busy at boosting and pushing clay products for parks, porches and pergolas. There is no question about getting the stuff or producing desirable and beautiful effects—it is simply a matter of boosting and promoting, and it looks like time to get busy.

COAL STRIKE AFFECTS ENGLISH POTTERIES.

Consular reports say that most of the 220 potteries in the federated borough of Stoke-on-Trent have been having their troubles almost ever since the beginning of the coal strike over there, because being near the coal mines none of them made it a practice to carry any great supply of coal in stock. As a result, there has been much less production, and there has been a pretty lively interest in substitutes for coal in firing pottery kilns. It is said that one potter who has been experimenting with oil and other fuel has succeeded in firing enamel kilns by means of a mixture of waste slack and a chemical compound which is a trade secret. This one concern has therefore been put to but little inconvenience and seems to have kept going steadily. Much talk is heard about the possible use of oil for firing potters' ovens, but so far it seems that but few actual efforts have been made at it, and the potters are doing comparatively little work.

THE CLAY SHOW IDEA.

That the clay show idea is a good one has been abundantly demonstrated by the first big effort to put it into action. It is good enough that we unquestionably need more of it, more of it in both little and big efforts. We need more showing of a wide range of clay products locally, and also in a national and international way. Of that there is not much room for question or argument—the place for the argument is as to the where, how and when.

The lumber manufacturers are preparing to spend a fund in general advertising, and the indications are that a prime factor in this work will be a show or series of shows of wood products. One idea is to give a show at some central point like Chicago, and then take the main features of the same show to different cities in the country. This is an idea that was carried out on a small scale once before, when the yellow pine people equipped a cottage at the world's fair at St. Louis and then afterward took it to many different cities.

The clayworking industry is widespread, and clay products are used the country over, so it does not fill all the bill of all the needs of the country to give one show in a central city, no matter how great that show may be in itself. It is the building and the brick and clay using people everywhere that the trade wants to interest, and, like the mountain and Mohammed, there will have to be some "going to it" done. In other words, to handle the clay show idea in a broad way, it will have to be spread out and made cover more territory than can be reached from one central point. How to do it, how to make the most effective showing of clay products to the most people during the next few years, and during the present year, is the vital question.

A big annual show should be a good thing, the having of a sort of national exhibition once a year under some favorable conditions as to time and place, and then this might be supplemented by many shows of more or less local character, from both material and ideas of the main show. If the main show could be made at a different center each year, shifted about as the annual meetings of the N. B. M. A., have been, it should serve to reach many more people and do lots more for the industry than if repeated in one

place, no matter how central that place nor how good the facilities.

In the east there are several cities that a big clay show would be effective in. Then there is to be a big time in San Francisco in 1915 that will furnish a good western opportunity. There are many important centers in midcontinent, and south, even down to Panama, there are opportunities. Indeed, there are so many places that the great clay show idea could be repeated that it appears to call for a dozen shows at once, and it will take some broad thinking to determine just where and how to make the next move that clay products may be kept to the front as they should.

Meantime, those who went to and were enthused over the big show at Chicago may take some of the same ideas and material and do some effective local advertising by putting in displays, and by getting in at the State and local fairs during the summer and making a showing with clay products that will make the people take notice.

THE MOTOR TRUCK PROBLEM.

That the brick fraternity is interested in the motor truck for delivery was abundantly manifested by the attention given the talk on that subject at the convention in March, and that there are certain features to be developed was evidenced by the nature of the discussion. The requirements of the brick trade are peculiar in themselves, one of the important characteristics being the quality in a truck of dumping, and dumping low, or gently, so that the brick may not be damaged much. Practices vary, not only with different kinds of brick, but also in different localities for the same kind. But just the same it is evident that one of the things required in the brick motor truck will be the quality of dumping readily, and getting down close to the ground to do it, so as to lessen the shock.

Unloading is a factor even for face brick and other stock that must be handled carefully, and there are several others that enter, such as trailers, or some means that will lessen the comparative time of idleness of the motor while waiting for loading or unloading, going onto more or less soft ground, etc.

The interest of both the brick men and the motor people is keen enough that there is not much question about the motor truck being a factor in the future. There may be a few problems to solve here and there to make it meet all the needs, but it is a pretty safe guess that these will soon be solved. And even as it is they are entering successfully here and there and may be counted as the coming thing.

SALESMAN OR SUPERINTENDENT.

Now that the selling end of the brick business is in for more attention, there are here and there through the country men operating brick plants who are in a quandary as to whether it is a salesman they want or a superintendent. That is, whether they should employ some one to do the selling and give most of their personal supervision to the manufacturing end, or whether they should do the selling themselves and employ a competent superintendent to run the manufacturing end.

Either one can, and often does, prove an expensive experiment. A man on the road can spend lots of money and do but little good, and a superintendent that is either incompetent or negligent can prove a much greater expense than his salary will indicate. In fact, the salary is no indication of the cost of a superintendent.

But there are a good many worthy men at both callings, men who do their work as well as it could be done by their employer, and the brick man that has one of these is fortunate—and if he has one of each he is more so. The practical gist of it is this: If the brick man has a good superintendent and his manufacturing down to a good enough point that it does not require his personal attention, then he may well turn salesman awhile himself, go over his territory, do

mission work, build up trade and find out from personal experience what a salesman should do, then he is in a position to send a man out as a salesman and pass fair judgment on his work, determining with a fair degree of certainty whether he is worth while or not before he makes the experiment too expensive.

It is a bit difficult for the brick man to be everything himself and make the progress he should, for the man that tries to do everything generally winds up by doing nothing well. So if you are going to give personal supervision to the manufacturing, the chances are a good salesman can help you extend your business. And if you intend to do your own selling, it is time to get a superintendent on the job that you can safely leave the manufacturing to—unless you are fortunate enough to have him there already.

AN INTERESTING PAMPHLET ON THE METROPOLITAN BLOCK.

The Metropolitan Paving Brick Company, of Canton, Ohio, has recently published a very attractive pocket pamphlet on the Metropolitan block. On the cover is a view of a well-paved brick street with the title, "What Experts Say About Metropolitan Paving Brick," in red letters, appearing at top and bottom of the picture. The pamphlet contains high recommendations of the Metropolitan block by many of the best expert engineers in the United States and a number of tests made in different cities proving Metropolitan block to be uniform and of a high standard.

GRATH FIVE MOLD PRESS DOING EXCELLENT WORK.

The Illinois Supply and Construction Company, of St. Louis, Mo., manufacturer of the Grath five mold special brick press, has been very successful in its line of machinery which is used for both clay and sand-lime brick manufacture. In a recent communication received from Mr. Grath, he enclosed a neat pamphlet of the Sacramento Sandstone Brick Company, which contains numerous endorsements of its product by California architects and the Sacramento Board of Trade. On the inside cover page is the statement: "We manufacture the most perfectly pressed facing brick in the world. Can supply them in buff, red, brown, white, gray, granite and other colors, also any shade of same color."

The following interesting letter from Mr. W. P. Grath gives further light on the subject:

ILLINOIS SUPPLY AND CONSTRUCTION CO.,
ST. LOUIS, MO.

My Dear Mr. Randall: April 11, 1912.
I am enclosing a booklet just received from the Sacramento Sandstone Brick Company, a firm that is using the Grath five mold special brick press. I also received a sample of the brick made by this company, and am glad to say that the corners and edges are as firm as a clay brick, and when hitting the brick with a hammer it gives forth a ring as good as a hard-burned dry press brick made of the best material. Also wish to state that the Atlas Brick Company, of El Paso, Texas, is also using a Grath Five Mold Special for making sand-lime brick, and they report a good and increasing business. I wish to state that both of these presses have been in use for over three years, and we have never had a single breakage of any of these presses. When taking into consideration the heavy pressure required in the manufacture of sand-lime brick, this certainly speaks well for the press. Furthermore, I wish to state that I furnish the same press exactly for making dry press brick from clay or shale as is furnished for sand-lime brick. No change is made in the press at all, as is the case in other presses. If desired, sand-lime brick can be made one week and dry press brick from clay the next week. All that would be necessary for the user to do would be to drop the lower ram a little when making clay brick, as it requires more clay in the mold for making press brick than it does sand and lime, on account of the sand and lime being denser and more compact.
Yours very truly,
ILLINOIS SUPPLY & CONSTRUCTION CO.
W. P. Grath.

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"GETTING THE MOST FOR A DOLLAR" has been given as a definition of good engineering such as is done by

The Richardson-Lovejoy Engineering Company.

[See page 698.]

FOR SALE, WANTED, ETC.

A GOOD INVESTMENT.

We are offering a small amount of stock in a modern brick plant in successful operation. This is your opportunity to secure stock in a paying enterprise. Full particulars on request. Address BOX 699, Oklahoma City, Okla. 4 4 d

WANTED.

Superintendent at present in charge of a large paving and face brick company desires change, and would like to connect with a large, progressive concern where services of a live wire as manager will be appreciated. Only those needing services of high-grade man need answer. Would invest small amount as guarantee of good faith. Gilt edge references. Address
BOX 4, ST. LOUIS.
1 1 d Care Clay-Worker.

A QUALITY OF MACHINERY ABOVE ALL OTHERS.

Haigh's Improved New System of CONTINUOUS KILN

*Owned and Controlled by The American Clay
Machinery Co., Bucyrus, Ohio.*

**Arranged to Suit All Locations, Capacities and
Conditions.**

These kilns can be seen burning Roofing Tile, Drain Tile, Dry Press Facing, Fire, Paving and Common Building Brick, and burning from 5,000 to 200,000 brick per day.

Points of Superiority:

Cheapness in construction. Easy to understand and operate. Perfectly free from any nuisance. We save more than one-half the fuel and half the labor used on other kilns.

With our new draft flue arrangement we get absolutely the highest economy. Our new waste heat arrangement, both for water-smoking in the kiln, and for drying the brick in the dryer, has no equal.

We claim the nearest to 100% No. 1 product, and want you to see them.

Read the Following Letter from the Wise County Brick Company:

BRIDGEPORT, TEXAS, August 5, 1911.

Mr. H. Haigh, Catskill, N. Y.:

Dear Sir—We have your favor of 1st inst., and are handing you herewith check to balance our account, for drawings, specifications and rights for your system of continuous kiln. In this connection we desire to thank you for the many courtesies extended. Our relations with you have been very pleasant, indeed, and the kiln is a fuel saver.

Business conditions have been such here that we have not been crowded with orders this year, but even under these conditions we are now adding four additional chambers to the kiln, which will then give us twenty-four chambers.

With best wishes for your continued success, we are

Very respectfully yours,

WISE COUNTY BRICK CO.

J. V. Montrief, Sec'y.

(This kiln was constructed from plans and written instructions wholly; neither myself nor any of my men have ever seen it, yet the company has operated it successfully for two years, which is ample proof of the simplicity of the construction and operation of my kiln.—Hervey Haigh.)

**This Kiln can be fired with Coal, Oil, Wood, Natural
or Producer Gas.**

For further particulars and information address

The American Clay Machinery Co.
Bucyrus, Ohio, U. S. A.

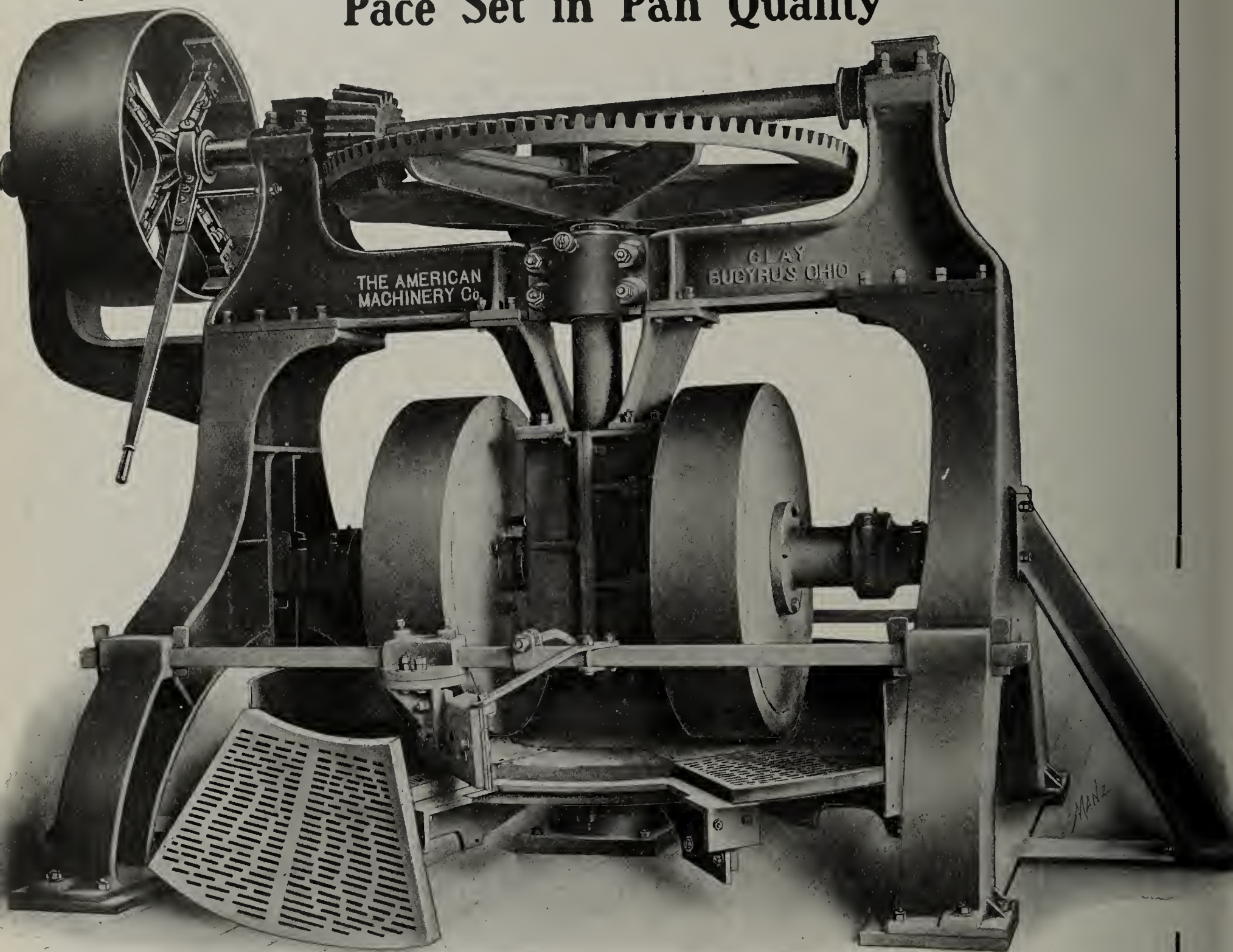
H. HAIGH, Consulting Engineer.

L. HAIGH, Manager Kiln Dept.

Much the largest manufacturers of Clayworking Machinery in the world. And much the best.



Pace Set in Pan Quality



No line of Dry and Wet Pans on the market will measure up to the quality of the "Built Right Run Right" line.

There is no skimping in proportions to save metal, no saving in machine work to cut the cost, or shoddy work to save time. Every pan is correctly built and goes into the field with that promise of success back of it which is founded on proper design, flawless material and faultless workmanship. With these attributes of success built into these pans there is a quality value away beyond the price and a sure satisfaction to the purchaser.

Write for full information on any pan you may want or any machinery or appliances for making clay products by any process.

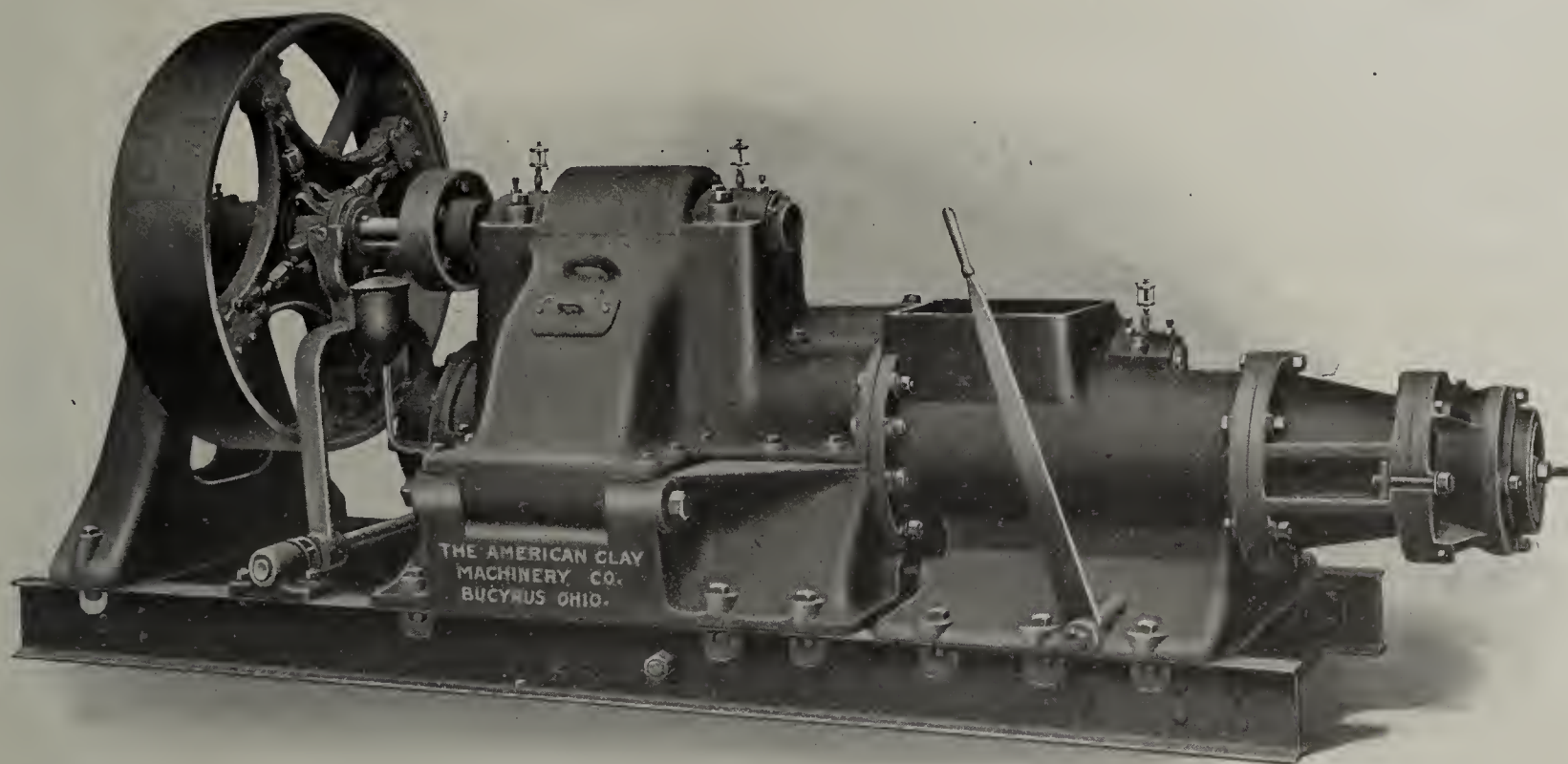
The American Clay Machinery Co.
Bucyrus, Ohio, U. S. A.



Much the largest manufacturers of Clayworking Machinery in the world. And much the best.

A QUALITY OF MACHINERY ABOVE ALL OTHERS.

World's Greatest Tile Machinery



No. 218 Tile Machine

The World's Greatest Line of Tile Machinery is the absolutely new line just put upon the market by the American Clay Machinery Company. It is making good everywhere and has been installed by the largest manufacturers of Drain Tile and Fire Proofing in the country.

The first of this line was the No. 218, which was a record-breaker from the start. It makes tile up to the capacity of the plant, and that, too, without noise, fuss or waste of power.

The No. 231 and 233 are brothers of the 218, with the same racy quality lines which have won them pedigrees. The one is for those who consider economy in first cost, the other is the big brother of the 218, with a correspondingly wider range of sizes and capacities.

For those who want less capacity our Centennial and Acme, with newly designed augers, will prove satisfactory. These new augers can be installed in your present machine if you have a Centennial or Acme.

Our line of cutting tables, elevators, trucks, cars and other equipment for hollow ware is complete. Write for cuts and descriptions of these machines. We build everything in clayworking machinery and appliances.

The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.

Much the largest manufacturers of Clayworking Machinery in the world. And much the best.



THE KEYSTONE OF SUCCESS IN Steam Pipe Rack Dryers

We have a number of vital patents on the Steam Pipe Rack Dryer which are the Keystones of Success in the operation of this type of dryer so far as efficiency and economy are concerned. Those who are using our improved dryer are loud in its praise. It is at once a model of neatness, comfort, light and convenience and in its operation will distribute the heat to a better advantage

and at less cost than any other dryer of the kind on the market. This dryer has been selected by those careful to investigate and has won out in competition with all others. One user says: "We have used your dryer long enough to convince us that its success is complete and its operation will be a decided economy.



Brick made one day are set in the kiln next day uniformly dry throughout entire holding capacity of dryer, which means a considerable saving in burning. We dry with exhaust steam during day and finish with 5 to 10 lbs. live steam during night. Cost of drying with our hot air dryer was 65 cents per thousand. With your dryer it is 25 cents. We believe you have the best dryer on the market."

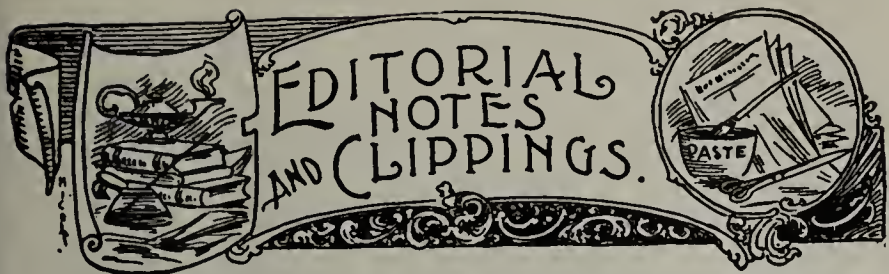
Let us figure with you on one of these dryers or any other
Clayworking Machinery or appliances.

Send for Pipe Rack Dryer Catalogue Just Out.

The American Clay Machinery Co.
Bucyrus, Ohio, U. S. A.

Much the largest manufacturers of Clayworking Machinery in the world. And much the best.





M. T. Smith contemplates the establishment of a brick-making plant at Milan Junction, Texas.

Isadore Kannitz and others are interested in the establishment of a brick plant at Tampa, Fla.

Morgan F. Smith, of Elgin, Texas, contemplates moving his brick plant from that place to Cameron, Texas.

The Easton Brick and Tile Manufacturing Company, of Easton, Pa., has been reorganized with a capital stock of \$25,000.

G. H. Atherton, of Big Stone, S. D., has under way plans for the consolidation of the four brick plants located at Big Stone, Mina, Mitchell and Aberdeen, S. D.

Anson S. Paine, for a number of years superintendent of the New England Brick Company's plant at Rochester, N. H., died March 22, after a long illness. A widow and one son survive.

The Champion Brick Works, of Wellsville, Ohio, was sold recently at a private sale by George A. Frick to R. M. Schroy, of Haydensville, Ohio, for \$24,667, one-third of the appraised value of the plant.

The Lockesburg Brick Company, of Lockesburg, Ark., has been incorporated with \$25,000 capital stock. The incorporators are R. A. Gilliam, M. L. Norwood, A. N. Davidson, Custer Steel, R. S. Hunsucker and others.

The plant of the East Liverpool Brick Manufacturing Company has been purchased by John Forwell and William Bird. The entire plant is being overhauled and remodeled and when completed will turn out a high grade of face brick.

The Elk Fire Brick Company, which has plants both at St. Marys and Dagus, Pa., will make extensive improvements on both the plants. The Dagus plant will be practically rebuilt and the present frame structure replaced by brick and steel construction.

The Clark Brick and Coal Company, of Pittsburg, Pa., has recently been incorporated with a capital stock of \$10,000. The incorporators are Charles B. Clark, of Pittsburg, Pa.; Campbell Jones, of Bethany, W. Va., and Alexander Fleming, of Uniontown, Pa.

Selwyn Mitchell, president of the Mitchell Brick Company, died at Delhi, Ohio, March 29, after an illness of three months with a complication of diseases. He is survived by a widow and two sons. Mr. Mitchell had been a member of the N. B. M. A. for many years.

The Helm Clay Company is the name of the new concern which has been organized to take over and develop a large tract of clay land at Carbon Hill, Ohio. J. M. Helm is president and L. D. Friedman is secretary. The construction of the plant, which is to be modern in every particular, will begin at once.

The New England Steam Brick Company, of Barrington, R. I., which went into the receivers' hands last fall, has been reorganized and will operate hereafter under the name of the Barrington Steam Brick Company. The plant, which employs two hundred and seventy-five hands, will be started at once and run to full capacity.

S. K. Leacox, who has been operating the Keota Brick and Tile Works, at Keota, Iowa, for the last twenty-five years, writes us that he has sold his plant to Arthur Blattner, who took charge of same the first of April and will operate it along the same lines as in former years. Mr. Leacox was compelled to retire from active business on account of ill health.

The plant of the Mechanicsville (N. Y.) S. S. Brick Co. was recently purchased at sheriff's sale by a company known as the Mechanicsville Building Brick Company. The plant, which has a capacity of 100,000 brick per day, and which has been closed down for nearly a year, will be put in operation at once. The officers of the new company are J. M. Purcell, president; James R. Smith, vice-president; M. L.

Welling, secretary and general manager, and Richard A. Moore, treasurer.

Certificates of dissolution have been filed by the Brenham Pressed Brick and Machinery Company, of Brenham, Texas.

Plans are under way to enlarge the plant of the Hillsboro Brick and Tile Company, of Hillsboro, N. C. The capacity of the plant will be almost doubled.

S. Haley, N. B. Williams and C. D. Bolinger, of Waco, Texas, are interested in a brick plant that is being built at Aquilla, Texas. They will turn out 35,000 to 40,000 brick a day.

The Garrison Press Brick Company, of Garrison, Texas, has been incorporated with \$30,000 capital stock. Those interested are J. L. Watson, J. C. McVee and R. S. Manning, Jr.

The Denton Pressed Brick Company, of Denton, Texas, has been purchased by the Acme Brick Company, of Madisonville, Ill. The plant will be enlarged to almost twice its former capacity.

John M. Ward & Sons, brick manufacturers of Pittsburg, Pa., have purchased eleven acres of land adjoining their brick plant for a consideration of \$20,000. They have under contemplation the enlarging of the present plant.

The plant of the Danville Brick Company, of Danville, Ill., was closed down March 28th on account of the coal shortage. There is no definite assurance that the plant will be started again until the miners' strike is ended.

The plant of the Neshannock Brick Company, at Volant, Pa., which was destroyed by fire December 19, has been rebuilt and started operations recently. The new plant, which is modern in every way, will have a daily capacity of 30,000 brick.

The plant of the Little Falls Fire Brick Company, at Tacoma, Wash., has been ordered sold by Judge Clifford, of the Superior Court. The sale will take place May 11 at ten o'clock, and no bid for less than \$75,00 will be considered. The plant is to be sold as an entirety.

A company composed of R. L. Poindexter, W. S. Gough, S. F. Arnold and C. W. Madison has been organized to take over the plant and property of the Elkins Brick and Light Company at Elkins, N. C., and will move the brick plant to property recently purchased by S. M. Arnold.

The Salisbury Brick Company, of Salisbury, Md., which recently purchased W. B. Elliott's brick plant at Delmas, Md., is rebuilding the plant, which, when completed, will have a capacity of 40,000 brick per day. They will erect five kilns with a capacity of 100,000 per kiln.

Isaiah N. Gardner, one of the pioneer manufacturers of Hackensack, N. J., died at his home in that city April 9. Mr. Gardner's father founded the first brick factory in Haverstraw and the son succeeded the father in business, moving to Hackensack more than thirty years ago. He is survived by four sons and one daughter.

Ground has been broken for the erection of a \$40,000 plant at White Hill, N. J., for the White Elephant Brick Company, composed of George C. Zeller and William Graham. The company has a clay deposit of exceptional quality and will turn out a high class red building brick. The plant will be fitted out with modern machinery and appliances.

The firm of Dunham & Peck, at Gloversville, N. Y., will remove its plant to Waterford, N. Y., and will consolidate with the Waterford Brick and Machinery Company. The directors of the new enterprise, which is capitalized at \$20,000, are Wm. J. Dunham, E. W. Peck, H. E. Peck, F. B. Williams and others. Later it is expected that the firm will embark in the manufacture of brick machinery.

The use of dynamite for loosening shale is responsible for two suits of \$2,000 each which have been brought against the Western Brick Company, of Danville, Ill. The brick company is charged with damaging houses of the plaintiffs by the firing off of heavy charges of dynamite at their shale pit. While some of the houses damaged are said to be from three hundred to five hundred feet distant from where the blastings have been made, it is claimed that ceilings have been knocked down, foundations cracked, porches damaged and china ware thrown from cupboards. It is said a number

(Continued on next page.)

EDITORIAL NOTES AND CLIPPINGS—Continued.

of persons whose homes have been so damaged are awaiting the outcome of the suits which have already been filed.

Laurel Ruby, of Madisonville, Ky., has purchased the plant of the Providence Brick Company, of Providence, Ky., and will at once enlarge the plant and put it in operation.

J. W. Turner, who has been located at Burnham, Neb., for many years, advises us that he has purchased a plant at Seward, Neb., and will operate under the firm name of the Seward Brick Works.

The Pennsylvania Fireproofing Company, of St. Marys, Pa., will erect another large plant the coming summer, which will be larger than the present plant and have a capacity of about 200,000 bricks per day.

During the month the Chardon Brick and Tile Company was incorporated at Chardon, Ohio, with a capital of \$10,000. The incorporators are B. F. Pease, H. C. Bichle, Ralph Pease, S. S. Smith and John Beech. They will manufacture a line of clay bricks.

The Connecticut Unit Brick and Tile Company has been incorporated at Bridgeport, Conn., with a capital stock of \$100,000. The incorporators are Ernest R. Hunter, of Riverside, Henry S. Osburn, of Bridgeport, and Harry C. Turner, of North Canaan.

Herman J. Spaan, one of the oldest brick manufacturers of Keokuk, Iowa, died at his home in that city March 22. Mr. Spaan was fifty-four years old and had been engaged in the brick business there since he was a mere boy. A widow and two sons survive.

Wilfred Tuthill, assistant manager of Sayre & Fisher Brick Co., was recently elected president of the Builders' Exchange at Brooklyn, N. Y. All of the larger firms are manufacturers or dealers in building materials in Greater New York and vicinity.

Articles of incorporation have been filed by the Key James Brick Company, of Chattanooga, Tenn. The incorporators are W. B. James, J. D. Key, C. E. James, J. L. Davies and D. F. Beckman. They will manufacture common building brick and other clay products.

During the past month E. A. Roberts, secretary of the Cleveland Builders' Exchange, went to Lima, Ohio, and assisted in the organization of a builders' exchange in that city. It was incorporated during the past month by J. M. Morgan, Lawrence Hull, W. O. Dean, W. A. Smith, H. D. Campbell and S. S. Shurick.

Extensive improvements are being made at the plant of the Eureka Brick and Tile Company, Eureka, Cal. A kiln of 100,000 capacity is being built and a brick tank with a capacity of 40,000 barrels of oil has just been completed. The company expects to operate on a larger scale than ever before during the coming summer.

The Western Brick Plant, of Danville, Ill., has purchased the plant of the Burlington Brick Company, at Aledo, Ill., and it is planned to spend \$100,000 in the reconstruction of the plant. The new company has been incorporated under the name of the Continental Brick Company, and J. L. Buckley, of Danville, will be general manager of the concern.

Charles W. Baird, of Milton, Iowa, has purchased the Villisca (Iowa) brick and tile yards, which have been closed for more than a year. Mr. Baird will put the plant in operation at once and will run same to full capacity. The plant at Milton formerly operated by Mr. Baird has been closed down and part of the machinery from same will be moved to the Villisca plant.

A. J. Hazelton, who has been with the Hydraulic Pressed Brick Company for years, and has lately been in Omaha, has been transferred to Kansas City to take charge of their office, succeeding Charles W. Reer, who has had charge of their business here for several years. Mr. Hazelton reports that they have completed their shaft to the new level at the Diamond plant, and are taking out shale right along, but it will be some little time yet before they will have the rooms big enough to take out shale as fast as it can be used by the plant, and just as soon as this preliminary work is finished the plant will begin operations again.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

THE clayworking industries in the Pacific Northwest are making a determined effort to push the sale of their materials. All yards are getting ready for a busy season's run, and, according to the building records, the demand will be great for brick, tile and sewer pipe. A building boom which will probably equal any ever known in Seattle is about to be realized. The amount of new building which will be started in the near future is astonishing. It includes every conceivable kind of building, and the building to be done in the business district is of the most substantial character. The new buildings in this area will cost close to \$2,500,000 alone, and with the buildings which are contemplated, but not yet assured, no less than \$3,000,000 will go into new blocks in the north end of the business district.

Some of the large buildings on which work is already under way are the Cobb-Healy building, the Green building, the Grandin building, a ten-story steel frame fireproof structure. The first unit of the Washington Securities will be started in the near future; this building will cost about \$1,500,000.

The clay resources of the Canadian Pacific provinces are coming more and more to the front. So far the clayworking industries of Western Canada has been in the manufacture of common brick, but the production in many localities does not supply the demand, and large quantities of brick are imported. The Seattle brickmakers have had an excellent trade in the past with Vancouver and Victoria. Among the new plants started are the Mountain District Brick and Tile Company, of Nanaimo, Vancouver Island, and the Heaps Brick Company, at Ruskin, B. C.

The Northwestern Brick and Lime Company, whose plant is located on Whimby Island, and which has been shut down for some time, is now considering to reconstruct the plant and putting the same in operation again.

The Far West Clay Company, of Tacoma, has made an elaborate test on their Dennison building blocks, and the results show that their blocks stood 70 tons to the square foot. They have secured a contract for 2,300 tons of their tile for the Sacred Heart Academy, and 2,000 tons for the St. Paul hospital, both in Vancouver, B. C.

The Geijsbeek Engineering Company, of Portland, has been commissioned to prepare the plans for the new clayworking plant to be erected at Ruskin, B. C., for the Columbia Trust Company, Ltd., of Vancouver, B. C. This plant when completed will be the most up-to-date plant in Western Canada. Mr. A. Dowker, who was formerly engaged in the brick business at Fort Francis, Ontario, will have charge of this new plant.

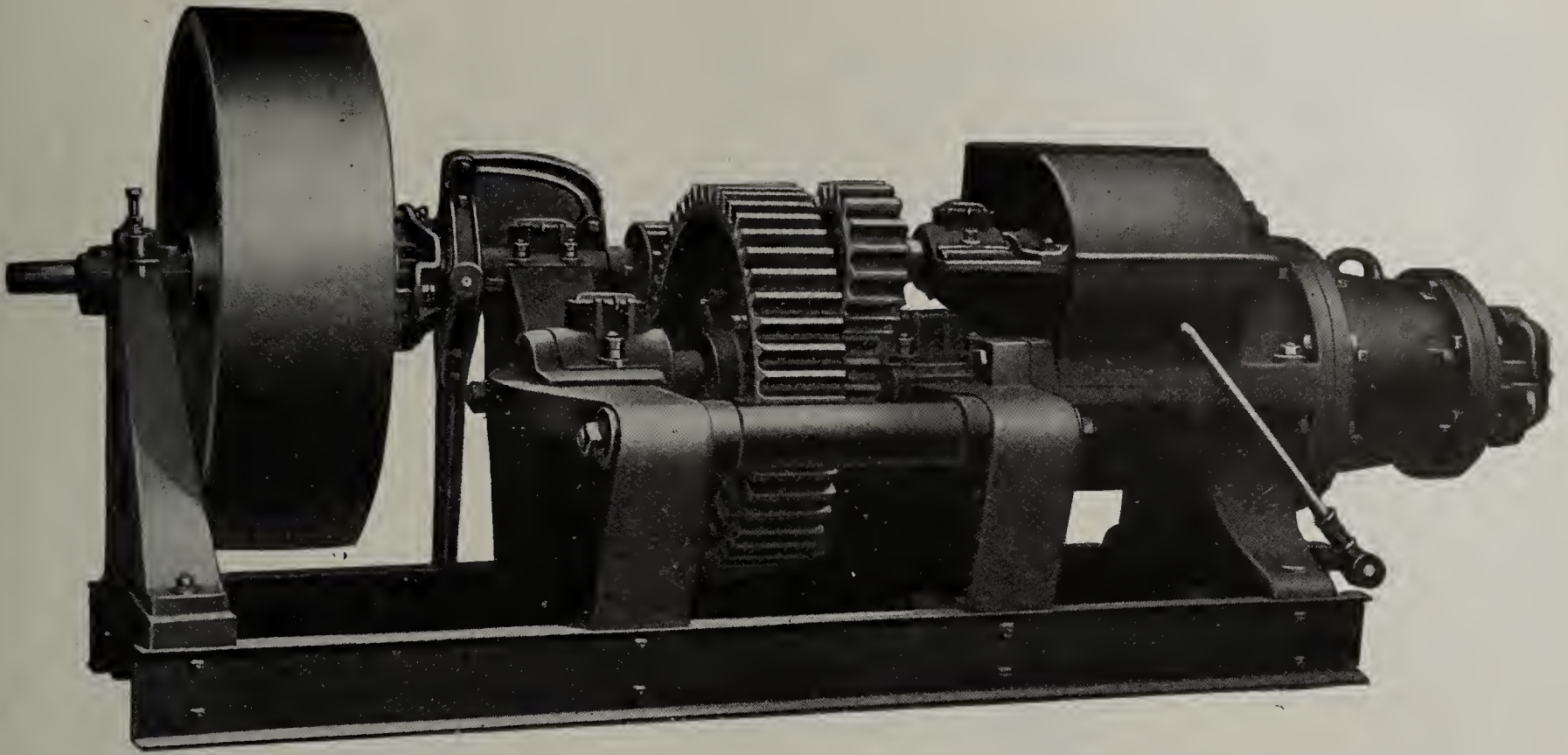
Mr. W. O. Keith, a pottery manufacturer of Milwaukee, Wis., will in the near future visit Coeur d'Alene, Idaho, and personally investigate the clay deposit in that vicinity. He has been in correspondence with the Commercial Club of that city, and samples have been forwarded to him at Milwaukee. If these tests turn out all right, Mr. Keith will erect a large pottery at that place.

A petition for the appointment of a receiver for the Newberg Brick and Tile Company, with headquarters in Portland, and whose plant is located at Newberg, Ore., has been filed in the Circuit Court by C. E. Fuller, a large creditor and stockholder of the company. The petition states that the company has an indebtedness of \$70,000, of which \$58,976 represents commercial paper.

Hoskins & DeSart, who are operating the Donald (Ore.) Brick and Tile Company, have just completed the installation of a large boiler and engine at their works, and are now putting in some new Fate machinery and other improvements so as to be able to make a large run for the next season.

Mr. G. W. Clarke, of San Francisco, has bought an interest in the Beaverton clay plant at Beaverton, Ore., and will put the plant in operation as soon as the weather permits. He contemplates some very needed improvements and will build a large continuous kiln this summer.

SIWASH.



Model "GA" Auger Brick Machine

In general design, this machine is similar to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and avoiding the use of high speed gears. The result is less wear and tear on gearing, less noise, less power lost through gear friction and consequently less expense for maintenance. Owing to the slow speed, the operation is unusually smooth and quiet. There is very little vibration to work loose nuts and keys. It is a reasonable conclusion that an almost noiseless machine will require less care and last longer than one which is continually shaking itself to pieces.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled for the foundation bolts, thus providing a very rigid construction. The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

This type of machine is built in several sizes—further particulars on request.

E. M. FREESE & COMPANY, Galion, Ohio

Written for THE CLAY-WORKER.

BRICK NEWS OF THE TWIN CITIES AND THE NORTHWEST.



THE BUILDING SEASON has started actively in the Twin Cities, after being delayed for some weeks by the unseasonably late spring. The severe winter checked all building activities, and the general commercial situation has made it inclined to be conservative. But in spite of that atmosphere in the commercial world, there is more tendency to take hold than seemed likely to be the case a few weeks since. This is to be observed in the way that some of the larger structures are being taken up—at least to the point of having preliminary plans made and estimates of costs taken. There has been very little of this done heretofore, so it is a mark of an improved condition that is occurring. But there are some nice jobs being figured and in some cases some nice contracts being let. General building trade conditions are favorable in the northwest. There is scarcely a point in this section where serious labor troubles are threatened. So far as can be anticipated, the first of May will see little or no trouble in the building trades.

The clay interests of the northwest welcomed the appearance of the clay show in Chicago. They felt that it was a step toward progress and one which might and ought to put their industry upon the road toward that popular success and popular favor which similar publicity and displays have done for the cement industry. They felt that the displays must of necessity be more interesting and more effective than the poorer and less attractive materials. They were not disappointed at the showing which was made in the display. The exhibits which were offered there were all of them excellent and were calculated to arouse an interest in clay wares which might not have existed before, to the average beholder. The show was a great success. But there were complaints that the unions used the show as a place for making "easy money" to such an extent that many were thoroughly disgusted with the whole situation before the show had even opened.

The brick yards of the northwest are gradually beginning to get in shape for operation. There is no urgent rush with most of them. Stocks carried over from last fall were somewhat larger than usual, and the demand during the winter and early spring has not been sufficiently large to create any scarcity. Hence the yards are taking their time and are seeking to avoid the dangers which were encountered a year ago when some of the early ones had good sized lots of green brick ruined by late frosts. Spring seems to have started in for a more settled career than last year, and it seems likely that it will have less fluctuations than occurred a year ago.

The Minneapolis Builders' Exchange has made an important move in installing a credit bureau covering credits of contractors and sub-contractors of the city. There are eight different credit bureaus, covering as many different branches of the building industry. This means much duplication of record as well as much incomplete information. The new plan is to offer a service which will cover all and enable them to come into the new plan, cutting down waste effort and concentrating the eight into a single office where all may get the combined and, therefore, complete information which they could not get under the old circumstances.

A move has been made in the matter of the Fairmount Drain Tile and Brick Company, of Fairmount, Minn., whereby the company has filed a trust deed running to Albert L. Ward, H. W. Sinclair and H. P. Edwards, all well-known business men of Fairmount, the amount being \$30,000. These men were reluctant to accept the commission and were induced to do so only upon the condition that they were to be given full swing in the conduct of the business. They propose to make a very thorough investigation of the clays which

have been located on the Blue Earth river. Several carloads of clay will be given a thorough test before they will proceed with the construction of sidetracks or of stripping off the overburden above the clay. There will also be tests made of the clays from Mason City before any definite decision will be made. The trustees also demand full authority to put in command an experienced brick and tilemaker, and one has been secured. The expectation is that the plant will prove to be of satisfactory condition and worth and that the product will be a satisfactory one when it is completed and ready for market.

The new Barr Clay Products Company, of Wanamingo, Minn., has a large force of men at work on its new plant. A large number of kilns are now being constructed as well as other buildings. The plant is to be a good sized one and is to be operated on a large scale. Several other plants are projected within a few miles, the latest one being at Cannon Falls, Minn.

The Ingemann Company, of St. Paul, was awarded the general contract for the erection of a new court house at Wahpeton, N. D., at \$102,000. Buechner & Orth, of St. Paul, are the architects.

The city of Buhl, Minn., on the Mesaba Iron Range, has had plans prepared by Keith's Architectural Service, of Minneapolis, for a city hall building to cost about \$35,000. The building will be of pressed and common brick and Bedford cut stone trimmings.

Frank H. Raidt received the general contract to erect a three-story pressed brick building at Twenty-second street and Hennepin avenue, Minneapolis, for R. G. Winter, replacing a one-story structure which was burned out. The new building will cost about \$20,000.

James Leck & Co. received the general contract for the erection of a row of seven stores to be erected at Hennepin avenue and Twenty-fourth street, Minneapolis, for H. H. Vehon. It will be of pressed and common brick and will cost about \$35,000. An apartment building is also planned in connection, to have seventy suites, of two, three and four-room apartments. This structure will cost about \$100,000.

J. E. Pilgrim, a general contractor of Minneapolis, received the general contract for the erection of the Bancroft school building, at \$115,963.

The Boeth Fisheries Company proposes to erect a nine-story cold storage plant in Minneapolis, at Fifth street and Third avenue, North, to be of brick construction.

August Cederstrand, of Minneapolis, received the general contract for the erection of the new club building for the Elks lodge in Minneapolis, the building to cost about \$250,000 complete. It will be five stories and basement, of brick and terra cotta. Kees & Colburn are the architects.

Friedman Brothers will erect another section of their apartment building at Aldrich and Franklin avenues, Minneapolis, of press and common brick. The structure will cost \$50,000.

A nurses' home is to be erected at the city hospital in Minneapolis, adjoining the present structure, to cost \$100,000. It will be of the same general architecture with exterior walls of corn-colored pressed brick. It will be planned for twelve stories but only six are to be erected now.

The Russian-Greek Orthodox Congregation of Northeast Minneapolis, will erect a brick addition to its building for a parochial school and orphans' home. Cost, \$15,000.

Charles Skooglun, of St. Paul, received the general contract for the new hospital for the Northern Pacific Beneficial Association, to be erected at Glendive, Mont. It will have pressed and common brick walls. The building will cost \$100,000. Reed & Stem, architects, St. Paul.

T. WIN.

ALTON BRICK COMPANY

Makers of High Quality Brick for

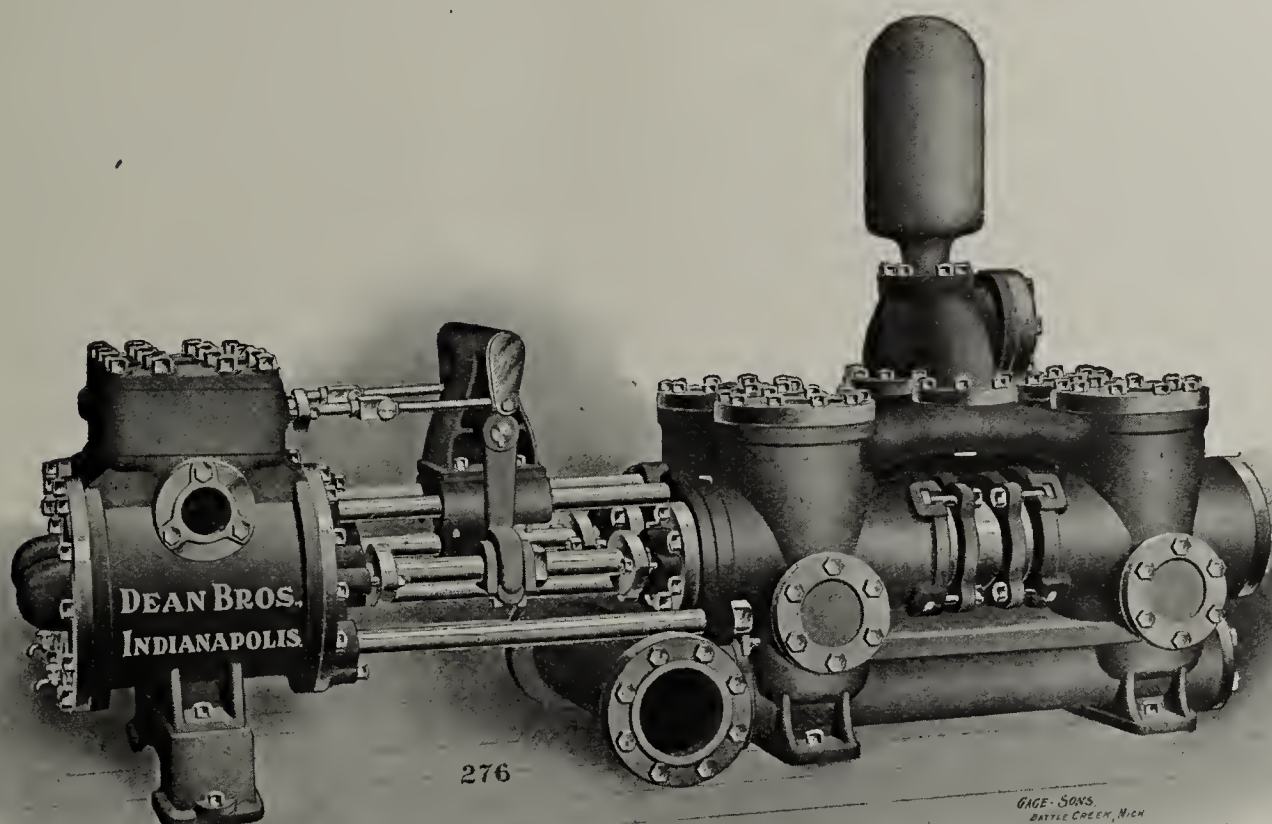
Roadways and Permanent Buildings.

Repressed and Dunn Wire-Cut-Lug Block.

ALTON, ILLINOIS.

DEAN BROS. STEAM PUMP WORKS. INDIANAPOLIS.

NOT IN THE PUMP TRUST.



Durable Duplex Outside Center Packed Steam Pump

These pumps are remarkably durable—the only wearing part in the pump end being the packing of the plunging stuffing boxes. No leak can occur there without being observed, and is easily stopped by setting up the packing. The plunger not touching the pump castings, there is no cutting or wear, consequently they require no re boring or refitting when working on gritty or sandy water.

SEND FOR CATALOG NO. 55

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



GENERAL BUSINESS conditions on the coast show considerable improvement this month, though as yet the demand for clay products has not come up to expectations. That manufacturers are confident of a good building season is evident from the fact that most of the plants

which have been closed for several months during the winter are again in operation; also, a number of large plants have worked continuously all winter, especially those having special contracts for materials. Common brick is still selling at \$7.50 per thousand, and the price holding firm. The supplies of common brick are large, but there seems to be no likelihood of a cut in price, as the present price is already too low for reasonable profit. There is a scarcity of high grade fire brick in central California, and one firm is said to be entirely sold out of these products. A very high grade fire brick is being made at Stockton, and no trouble is had in disposing of this product at good prices.

The greatest present demand for clay products is that for vitrified sewer pipe. A number of coast cities are improving their sewer systems, and for certain sizes, especially those below thirty inches, the vitrified pipe is preferred to concrete sewer pipe. Frederick C. Davis, manager of the Pacific Clay Products Bureau, whose office is in the Crocker building, San Francisco, is doing valuable educational and exploitation work at present in the interests of vitrified clay products, and by reason of his demonstrations and activities a number of towns and cities have expressed their approval of vitrified sewer pipe for new sanitary work about to be commenced. Prominent engineers, also, have seen fit to recommend this pipe for municipal work of certain characters. Thus, despite the fact that concrete pipe can be bought somewhat cheaper, the demand for the vitrified product is steadily growing.

With the advance of the spring season there is considerable new building, especially of apartment houses, small hotels, flats, residences and other work of the smaller types. While many big office buildings and business blocks are planned, as yet no actual work has been begun, with one or two exceptions, other than has already been mentioned in previous reports. The largest office building now in the course of construction here is the new Standard Oil building at Bush and Sansome streets.

N. Clark & Sons, whose headquarters are on Tehama street, near Second, San Francisco, are making extensive improvements at their manufacturing plant in Alameda, Cal. New kilns are being erected, new engines and machinery installed, so that the present capacity of the works will shortly be doubled. This company is just ready to start delivering brick for the seventeen-story Walker building at Salt Lake City, Utah, one of their largest contracts recently taken.

The Steiger Terra Cotta and Pottery Works report the market rather inactive for terra cotta products, but somewhat better for sewer pipe. By reason of large special orders this company has operated its plant at South San Francisco all winter. They are now delivering terra cotta and pressed brick for the girl's high school on Scott street, San Francisco, and will shortly deliver the terra cotta for the large German House Association building now being erected at Polk and Turk streets.

The plant of the Carnegie Brick and Pottery Company, in San Joaquin county, is not in operation at present, owing to legal difficulties in connection with the California Safe Deposit and Trust Company. It was hoped that the works could be started this month. Business with the Carnegie company, however, has been very good and collections easier

the past month. The company still has a large stock on hand of certain products, but they have entirely sold out their supply of sewer brick. This brick, being very high grade, brought them \$25 a thousand.

C. K. Hollaway, who recently gave up his lease on the Oakland Paving Brick Company plant, at Desoto, Cal., has now taken over the management of the Livermore Fire Brick Company, and the offices of the company have been removed from Oakland to Livermore, Cal. Mr. Hollaway has appointed A. L. Young as chief engineer of the plant and he expects to have greatly increased the capacity of the works before the close of the summer. New kilns are now being put up and other improvements being made. A San Francisco selling office has been opened in the First National Bank building.

F. O. Walker, the well known brick expert, formerly with the Carnegie Brick and Pottery Company, is now in charge of the works of the Stockton Fire and Enamel Brick Company at Stockton, Cal. From the latest reports this concern is turning out an extra fine product.

Early this month the plant of the Port Costa brick works, which has been shut down for the last few months, will be started up again. This concern makes common brick and is represented here by the United Materials Company.

Gladding, McBean & Co., San Francisco, have been awarded the contract for cream enamel terra cotta for the new Standard Oil building in San Francisco. This company is also supplying terra cotta for several large structures in the northwest.

The Wade Encaustic Tile and Pottery Company has purchased a five-acre tract at Fifty-second and Alameda streets, Vernon, Cal., and will build their factory there instead of at Wilmington, as was first announced. In addition to the kilns the plant will consist of six corrugated iron buildings.

The San Diego Vitrified Brick and Clay Products Company has formulated plans for erecting a large factory on Davidson street, between San Diego and National City, Cal. This company will manufacture vitrified paving brick, sewer pipe, drain tiles and other clay products.

The Los Angeles China Company expects soon to erect a factory building at Ellendale avenue and Chestnut street, Glendale, Cal.

The Pocatello Pressed Brick Company, with a capital stock of \$50,000, has been incorporated at Pocatello, Idaho. The company expects to be ready for business in the near future. This is a reorganization of the former defunct company of the same name. The leading stockholders are C. A. Valentine and R. A. Douglas.

It is expected that work will shortly be started on a new tile and pottery works at Antioch, Cal. The concern has been incorporated by the Antioch Holding and Investment Company, and the capital stock is placed at \$200,000. The officers of the company are W. Barnes, of San Rafael; W. H. Hall, of Oakland, and H. F. Geede, of Antioch. SUNSET.

One of the interesting, though apparently not very prosperous, branches of clayworking in Germany is the making of dolls. Most of the poor families in and around Sonneberg, about twelve miles from Coburg, are engaged in this industry, and it is said the children begin to learn some part of the work while very young.

F. JULIUS FOHS MINING GEOLOGIST AND ENGINEER

Special Attention Given to Examinations of Clay Properties,
Mines located, Plants designed, and Efficiencies increased.

LEXINGTON, KY.



Barrett's PAVING PITCH



It Wouldn't Have Happened with Pitch Filler

Valparaiso, Ind., made the mistake of filling the joints of a brick pavement with cement, thereby making the pavement a rigid monolith with insufficient provision for expansion and contraction. The result was trouble at 2:30 P. M., July 30th, 1911, when a section of the pavement rose up as shown in the photograph, making expensive repairs necessary.

Sometimes cement filled pavements explode with a noise like a cannon, scattering broken brick in all directions, but the most common trouble with them is the unsightly cracks which usually develop.

Engineers know the dangers and try to avoid them by expansion joints, in which a plastic bituminous filler is used. As expansion is thus provided for at a few isolated places, wide joints are necessary, and the wider the joint the greater the wear at that point.

The proper procedure is to use pitch filler in EVERY joint instead of cement. A close joint is thus possible, with ample room for expansion. "Every joint is an expansion joint." The pitch maintains a continuous waterproof seal throughout the pavement, automatically repairs itself if the seal is punctured, is applied easily and does not require the prolonged closing of the street. After excavations the old brick can be used again, whereas in a cement-filled pavement new brick must be supplied. A cement-filled pavement thus adds to the cost of every underground pipe or wire laid or repaired and the people ultimately pay the bill.

The best pitch filler is Barrett's Paving Pitch, the kind which has been used for thirty years with uniform success.

Booklets on request.

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Boss
SYSTEM

DRYING

The BOSS TEN HOUR DRYER

is completed and has proven to be what every brick-maker is striving for:

A DRYER THAT WILL DRY BRICK IN TEN HOURS.

Your brick are dried exclusively with the exhaust from the engine that makes the brick. No extra fuel and no extra power required.

A dryer that does not have to be operated at night time.

Requires no expensive dry kiln, and no iron cars.

Cost of drying reduced to less than 4 cents per thousand.

TRIAL TESTS CAN BE MADE ON APPLICATION.

ORIGINAL
Boss
SYSTEM

JOHN C. BOSS COMPANY
Write for catalog.
ELKHART, IND.

ORIGINAL
Boss
SYSTEM

BURNING

Do you want to burn hard coal, culm, lignite, slack or screenings? There is just one way to do it, and that is by using air under pressure, which is

The BOSS System of Burning Brick

Burns all kinds of Brick and Clay Wares.

Applies to both Up-draft and Down-draft Kilns and

Will reduce your fuel cost fully 40% over the old way of burning.

Kilns last longer and give better service when equipped with the BOSS SYSTEM.
Try it.

Written for THE CLAY-WORKER.

AMONG PHILADELPHIA BRICK MEN.



INDEPENDENT Brick Selling Company, 1001 Crozier building, Philadelphia, has taken over the Darlington Face Brick Company and will occupy its offices at 1002 Crozier building. The company will now be able to supply, in addition to face and red hard bricks, roofing tiles and sewer pipe. J. F. Brady will be the

manager of the company.

The Independent Brick Company has received contracts for eighty-five houses for Edward Seeds, Sixty-first and Jefferson streets; twelve houses for George W. Bourne, Fifty-eighth and Lansdowne avenue, and a very large store and storage warehouse for J. F. Worth & Co., at Riverside, N. J. Also twenty houses which are being erected by John W. Gilpin, of Germantown (Philadelphia, Pa.).

The National Fireproofing Company, 317 Land-Title building, has just received contracts for two high schools, one in Mount Holly, N. J., the other in Doylestown, Pa.

S. B. Dobbs, 303 Bailey building, has shipped 1,000,000 bricks and has orders for 2,500,000 more; besides the contracts for the Bellevue-Stratford, the new Ritz-Carlton hotel and the Stock Exchange, other smaller ones are keeping things very busy. Mr. Dobbs says: "The outlook is very bright and we expect to have a banner year."

E. C. Stokes, 1208 Harrison building, reports business to be above normal and that he has several large contracts in view. Mr. Stokes spent from April 1 to 6 in Chicago.

J. Parry Lukens, 346 Mint Arcade, Philadelphia, for twelve years representative of the American Sewer Pipe Company, has severed his connection as exclusive representative and will hereafter represent all the up-to-date manufacturers. Mr. Lukens says: "The outlook for sewer pipe, soft glaze vitrified, now recognized as the best for sewers, is better than ever for seventeen years past; the demand shows an increase of forty per cent." Mr. Lukens is working on several large contracts in New Jersey and Delaware.

Bids will be opened early in April at Bridgeton, N. J., for 8,500 feet of thirty-inch sewer pipe, 2,900 feet for immediate delivery and the balance to be delivered any time called for within a year. After the city of Bridgeton has purchased the pipe it will advertise again for contractors to lay it.

The coal strike is causing great uneasiness among the trade, since the supply of the commodity is very scarce. The product so necessary in the manufacturing of sewer pipe may be the cause of serious delay to the contractors.

An important era of new building operations on the part of the city will be inaugurated if the plans of the present administration are carried out. The mayor has sent to council a message asking for a permanent loan for the purpose of completing the western part of the proposed parkway, upon which will be erected the new public library and other large municipal and semi-municipal buildings. This project is part of the "Comprehensive Plans" scheme of the present and past administrations. The engineering experts employed by the city estimate that by 1950, at the present rate of growth, the population of the city will reach 3,000,000, and they urge far-reaching changes in the building lines in order to prepare for the congestion. Most important is the proposed widening of the streets in the central part of the city, around City Hall, a project which, if carried out, would cause the destruction of some of the most costly sky-scrapers in the city. Chief Webster, of the Bureau of Surveys, suggests that a circuit of wide streets be made around City Hall, including Thirteenth, Arch, Walnut, Locust and Fifteenth streets.

A tract including about eight acres at York and Luzerne

streets, Philadelphia, part of the old Peerless Brick Company property, has been sold to Caleb J. Mine, a builder, for the consideration not made public. It is said, however, that the property is worth about \$110,000.

A delegation of operative builders called upon Chief Clarke of the Bureau of Building Inspection, to protest against the recent order of the bureau forbidding builders to use anything but Jersey gravel in foundation work, unless the material had first been submitted to the bureau and had withstood the test imposed upon it. The builders complained that the order was unjust to them, as the Jersey gravel is controlled by a combination, which keeps prices up. Chief Clarke refused to rescind the order, calling the builders' attention to the fact that Jersey gravel was not specified as the only material that could be used, but that other materials were permissible, if they came up to the standard of strength required by the bureau. The order on the use of Jersey gravel was issued as the result of the collapse of several buildings, in the construction of whose foundations it was found gravel of inferior strength had been used.

William Steele & Sons Co. will start work on the erection of a one-story brick and steel, fireproof machine shop and boiler room, at Lehigh and Sedgley avenues, Philadelphia, for the C. H. Wheeler Manufacturing Company. The new plant will be erected at a cost of \$65,000.

The brick works at Winslow, N. J., have shut down for an indefinite period, throwing two hundred men out of work. It is said that the company has 13,000,000 bricks on hand.

Frank Davidheiser, a Pottstown, Pa., brick manufacturer, has purchased twenty-six acres adjoining his present plant.

The spring revival of activity in the building trades was indicated in the number of permits issued by the Bureau of Building Inspection. Sixty permits for ninety-four operations, at a total estimate cost of \$1,105,955 were granted in one day. This is the largest number of permits, and for the greatest amount of work, obtained on any one day during the present year.

A. QUAKER.

ELECTRIC TRANSMISSION.

Electric transmission for clayworking machinery is not merely a thing of the future—it is quite an important thing of the day. There is electric power, bought outright and eliminating the power plant investment and operating cost, and then there is electric transmission instead of belts, shafting and gears from the brick man's own power plant. Sometimes one is cheaper and sometimes the other, but all the time there is the electricity making its way into the plant.

There is no longer much argument about the relative efficiency of electric as compared to the more cumbersome power transmission. There are other points about it that hold the attention. One of them is the ease and convenience of locating machines where they may be wanted to fit into the work best without having to take into consideration the line shafting and how the power to drive can be gotten to them. The clayworking industry has been a little slow to take up electric transmission because it was thought for a while that the moisture incident to clayworking would be a troublesome factor. It is being found, though, that electricity is just as useful and usable in clayworking as elsewhere. So it is today an important feature that is worth while to be and keep posted on.



PULSOMETERS

costs less to purchase, install and operate than any other type of brickyard pump. They handle gritty water and never need lubrication. Over 25,000 in use for pumping out trenches, caissons, cofferdams, clay banks, sand pits, etc. Write today for our "Pulsometer Handbook. It shows many novel installations and contains data on pumping problems.

PULSOMETER STEAM PUMP CO., 14 Battery Place, New York, N. Y.
Chicago Office: 223-231 North Jefferson Street

Classified Advertisements

FOR SALE, WANTED, ETC.

Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

FOR SALE

FOR SALE.

Ten thousand pallets, 10 x 34, five-lath $\frac{7}{8}$ x $1\frac{7}{8}$, four cleats. Address
4 1 c Box 99, Portland, Ind.

FOR SALE—Cheap, iron Quaker brick machine, perfect order. Make offer. Address
4 tf d BOX 4—HERMAN, Care Clay-Worker.

FOR SALE.

One Berg four-mold side draft brick press. Going out of business and will sell cheap.

GREENVILLE LUMBER CO.,
4 1 cm Greenville, Ill.

FOR SALE.

At one-fourth value, No. 4 Steele brick machine, engine, boiler, pug, trucks, end-cut machine, hoist, cable. In good condition. Fine bargain. Write.
4 1 cm E. S. BRODDUS, Monticello, Ga.

FOR SALE.

1 Turner, Vaughn & Taylor nozzle machine.
1 Newell disintegrator, 19 inch C, No. 123 with cutters No. 54.
1 Adams brick machine.
1 Jeffrey Columbian separator, 6x7 ft.
10 Carnell type hand represses with an assortment of dies, etc.
4 vertical pug mills.

Address,
4 2 d WRECKER, Care Clay-Worker.

FOR SALE.

Will sell part or controlling interest in modern 40,000 stiff mud brick plant, located in city of 10,000 in the central west. Up-to-date oil burning system, new Raymond dryer and American machinery, with Eagle repress. Plant on main line of railroad running north, south, east and west. Ten acres of No. 1 shale. Within 30 miles of city of 75,000. No trouble to sell brick. Will bear investigation. Can show a good profit. Address
3 2 cm K. C. A., Care Clay-Worker.

FOR SALE—CHEAP.

Two new, up-to-date Patterson throwing wheels. For full information, address,
2 6 cm 39 N. Bennet Street, Boston, Mass.

FOR SALE—One New Departure tile mill, R. H. Used only one season. One steam power Quaker brick machine. For particulars write

E. F. MOCHER,
2 3 cm R. R. No. 6, South Bend, Ind.

FOR SALE OR RENT—Our brick manufacturing plant. Complete and ready for operation. Large drying shed and 5,000 pallets. A bargain for some one, and you had better write.

R. M. JAQUA, Secretary,
2 3 cm St. Francis, Kansas.

FOR SALE.

Steam brick yard, capacity 60,000 per day. Inexhaustible supply of clay. Plant includes 90 acres fruit and farm land. Only yard working in this section. Would sell yard and land separate. Orders for brick now coming in.
KEYSTONE BRICK CO.,
3 2 dm Traverse City, Mich.

FOR SALE—Brick plant, 25 acres of clay and shale. Equipped with Chambers machine, dry pan and Virgin screen. Local market for 2,500,000 brick per year. Canal runs through entire length of property. Pennsylvania railroad and P. & R. railroad within easy access. For further information call or address

W. M. HAGGINBOTHAM,
2 3 c Mont Clare, Pa.

FOR SALE AT A BARGAIN.

A modern, up-to-date Dry Press Brick Plant in a thriving town of 8,000 population and within 19 miles of another town of 80,000 population, consisting of one Andrus press, capacity 25,000 per day; 50 horsepower engine, 75 horsepower new boiler, new brick buildings for machinery and good clay sheds, and all other machinery necessary. Is in first-class condition, including three down-draft kilns, each 320,000 capacity; 21 acres of good clay land. Plant located in Ohio river town in Indiana at crossing of C. & E. I. and L. & N. railroads, just outside of city limits. Tracks to kilns from both roads. Good reasons for wanting to sell. Price and terms reasonable. Address

I. B. C.,
2 3 c Care Clay-Worker.

FOR SALE—CHEAP.

Forty thousand pine pallets, 10 in. by $\frac{1}{2}$ in. by 33 in. In good condition.
BURNHAM BROS. BRICK CO.,
3 3 c Milwaukee, Wis.

FOR SALE.

Lot of pallets in good condition and brick machinery in fair condition. Price very attractive.

H. C. MASON,
2 3 dm Henderson, Ky.

BRICK MACHINERY FOR SALE.

One stiff mud brick machine, 20 to 30 thousand capacity. One cutting table (automatic). Disintegrator and pug mill. All Steele's make. Address,
COLUMBIA BRICK CO.,
2 4 cm Box 208, Lake City, Fla.

FOR SALE.

One 60 h. p. slide valve engine.
One American Clay Machinery Company's pug mill and brick machine.
One Brewer automatic cutting table.
Write for full information.
PORTSMOUTH PAVING BRICK CO.,
3 3 cm Portsmouth, Ohio.

FOR SALE AND EXCHANGE BY FRANK P. CLEVELAND.

72 acres of land and modern 40,000 per day capacity brick plant at a good shipping point in Roanoke county; local demand for entire output of plant. Owner wishes to retire. Price, \$55,000; will arrange terms.

Virginia.—Soap stone and talc mill in Fairfax county; mill building 30 x 40 feet in size, 3 stories high; this plant is well equipped with all necessary tools and machinery. Price, \$25,000; or will sell half interest.

Iowa.—Dry pressed brick plant in Waupello county, capacity 22,000 per day; local demand for entire output; business well established and a money maker. Price, \$30,000.

Indiana.—Tile factory adjoining city of 25,000 population; modern plant and $8\frac{1}{4}$ acres of land; no competition. Price, \$9,500.

Indiana.—Drain tile and hollow building block plant and 40 acres of land at a good shipping point in Allen county; sales average from \$35,000 to \$40,000 per year; business well established and a money maker. Price, \$30,000; will arrange terms.

I bring buyers and sellers together, no matter where located. If you want to buy, sell or exchange any kind of business or property, write me. Established 1881.

FRANK P. CLEVELAND,
965 Adams Express Bldg.,
Chicago, Ill.

Classified Advertisements.

FOR SALE—Good red pressed brick plant, built in 1905. Paid up capital, \$100,000. In active operation. Majority of stock will be sold at bargain. Reason for selling given on application.

SPHAR PRESSED BRICK WORKS,
3 3 cm Maysville, Ky.

FOR SALE.

Hercules (senior) soft mud brick machine in splendid condition. Also Wellington sander, turntable and 10,000 pallets. Have changed system.

A. C. OCHS BRICK & TILE CO.,
3 3 cm Springfield, Minn.

FOR SALE—40 acres of shale land near Aberdeen, So. Dak. Milwaukee Coast Line runs through land. Material for pressed brick and tile manufacturing purposes. For sample of shale and particulars, write

H. W. ERICKSON,
4 1 1 p Box 86, Albee, So. Dak.

FOR SALE.

REBUILT ENGINES AND BOILERS.

Engines—Corliss.

18x42 Lane & Bodley, 18x36 Ohio Heavy Duty, 16x42 Allis, 14x36 Sioux City, 12x30 Lane & Bodley, 12x30 Hamilton.

Engines—Automatic.

14½x24 Buckeye, 11x16x12 Buffalo compound, 13½x15 Taylor, 13x16 Atlas, 13x12 Harrisburg-Ideal, 13x12 Phoenix, 12x14 Green, 12x12 Armington & Sims, 11x16 Atlas, 8x14 Noyes.

Engines—Throttling.

18x24 Atlas, 14x18 Sinkers-Davis, 14x14 Lewis vertical, 12x16 Reed, 12x14 Brownell, 10x16 Bass, 10x12 Atlas, 9x14 Lane & Bodley, 8x10 Erie, 6x8 Industrial.

Boilers—Stationary.

72x18, 66x16 high pressure, 72x18 standard, 72x16, 66x18, 60x16, 60x14, 54x14, 48x14, 44x14, 44x12, 42x12, 36x16, etc.

Boilers—Fire Box.

100, 80, 60, 50, 40, 35, 25, 20, 16, 12, 10 and 8 horsepower, etc.

Boilers—Vertical.

50, 40, 35, 30, 25, 20, 16, 12, 10, 8, 5 and 3 horsepower, etc.

Heaters.

All sizes, open and closed.

Pumps.

All sizes, single and duplex.

Electrical.

30 k. w. generator, direct connected to 8x10 Skinner engine; 20 k. w. generator, direct connected to 8x10 Economic engine; 18 k. w. belted generator.

Miscellaneous.

Saw mills, lath mills, edgers, cut-off saws, resaws, blowers, exhaust fans, tanks, etc. Write for list. Also a full assortment of new machinery. Sole manufacturers of the celebrated "Leader" injectors and jet pumps. Send for circular.

THE RANDLE MACHINERY CO.,
1733 Powers St. Cincinnati, Ohio.

FOR SALE.

A two-kiln brick and tile plant in eastern Iowa.

DE WITT BRICK & TILE CO.,
11 8 c DeWitt, Ia.

FOR SALE OR LEASE—Drain tile and hollow ware factory in Iowa drainage district; 10,000 5-inch tile capacity daily; 5 down-draft 24-inch kilns. Permanent buildings. Modern dryer and equipment throughout.

BOX 2—BROWN,
2 tf d Care Clay-Worker.

FOR SALE—Brick yard. A modern, up-to-date brick yard in live town of 40,000; good market. Capacity, 35,000 brick daily. Plant established five years. Will sell reasonable or lease to good party, as owner is going west. For full particulars address

E. S. KINKEAD, JR.,
3 2 cm 427 Second St.,
Lexington, Ky.

FOR SALE.

A mining property and brick plant located at Ralston, Lycoming county, Pa., on the Northern Central railway. The brick plant is complete and has a capacity of 20,000 per day. The coal property consists of about 3,000 acres of land, of which about 500 acres are underlaid with a vein of bituminous coal and shale of excellent quality for making brick. The mines are developed and in working order with a complete electric equipment; capacity 350 tons per day. Besides the power-house and other necessary buildings, there are on the property a church, school-house and over 70 dwellings. The two plants can be worked together economically. For particulars inquire of IRVING ELTING, president, Poughkeepsie, N. Y., or JOHN B. ALLISON, secretary, and general manager, Roaring Branch, Pa.

2 3 cm

WANTED, ETC.

WANTED—Position as superintendent of dry press stiff mud, front or paving brick plant. Wide experience handling men, machinery and burning with oil or gas. Best of references.

BOX 4—F. J.,
4 1 c Care Clay-Worker.

WANTED—Head burner for vitrified shale and fire clay face brick and paving brick plant. Preference given to man combining practical experience with technical education. In reply give complete qualifications, salary wanted, past positions filled and employer's name. Address **BOX 3—COAST,**
3 2 cm Care Clay-Worker.

WANTED.

A man with 17 years' experience as foreman, and who thoroughly understands all patterns, clays and machinery connected with roofing tile wants a position. Am a German and expert in roofing tile manufacture. Address

BOX 4—FRED,
4 1 cm Care Clay-Worker.

WANTED—Position as superintendent or plant manager of stiff mud brick works. Have had 16 years of experience in manufacture of paving brick and plant construction. Can furnish satisfactory reference for honesty and ability and do recommend myself. Address

BOX 2—F. P. N.,
2 3 cm Care Clay-Worker.

CASH FOR YOUR PLANT OR BUSINESS.

No matter where located. If you want to buy, sell or exchange any kind of real estate or business anywhere, at any price, address

FRANK P. CLEVELAND,
4 tf d 965 Adams Express Bldg.,
Chicago, Ill.

WANTED.

Situation by man who understands the trade in all its branches. enamel brick, building brick, all colors, paving brick, pottery wares. Can mix my own glazes. Am also familiar with sanitary wares. Thorough knowledge of all kinds of kilns and machinery. Can handle men. Can build plant at small cost if necessary. Address

BOX 3—H. W. H.,
3 tf d Care Clay-Worker.

(Continued on next page.)

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FOUNDRY AND MACHINE SHOP

which is in position to make up

Iron Castings to Replace Broken or Worn Out Parts of Machinery, Dies, Drier Cars, Screen Plates, Etc.

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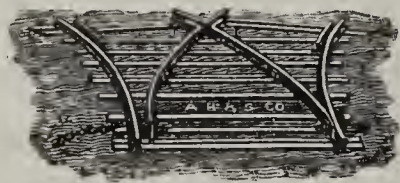
Wm. E. Dee Company,

Suite 1026 Stock Exchange Bldg.

CHICAGO, ILL.

Write us for particulars of our plan.

Classified Advertisements—Continued.



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Right and left-hand one, two and three-way switches of various gauges, radius and weight rails at special prices.

THE ATLAS CAR & MFG. CO.,
Cleveland, Ohio.

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Geijsbeek Engineering Co.

Blake McFall Bldg.

PORTLAND, OREGON

Write for prices and circulars.

Cutting wires, cutting tables, wheelbarrows, trucks, dryer cars, pyrometric cones, pyrometers, recorders, watchman clocks, cost system cards, clay diggers and any other supplies used on clayworking plants.

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Patent Attorneys

918 F St., Washington, D. C.

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The "Red Brick" brand. Brilliant in tint; easy to mix, go farther than any other and none like them for Brick, Mortar, Cement, etc. Red, Brown, Purple and Black.

RICKETSON'S PURE MINERAL COLORS
RICKETSON MINERAL PAINT WORKS,
MILWAUKEE, WIS.

WANTED.

Second hand outfit for handling loaded cars from shale pit to plant, consisting of winding drum, wire rope, wire cable, rails and cars. Give description, details and price. Address

BOX 4—MEXICO,
4 1 d Care Clay-Worker.

WANTED—First class brickmaker to start brick plant; we will furnish power, clay, yard and market for output. Address BOX 4—PINE,
4 1 c Care Clay-Worker.

See additional ads under Table of Contents.

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Good opportunity for live company in new growing town, center of large irrigation project. Good brick clay close to town. Quick action necessary. Address

Metropolis Improvement Co., Metropolis, Nevada.

FOR SALE

1½ Yard Steam Shovel, End Cut Brick Machine, Large Corliss Engine, Granulator, Hoisting Drum and Steadman Disintegrator. Address

4 2 d C. CHASE, Russell, Ill.

BRICK WORKS FOR SALE.

Brick works formerly owned by the Parkersburg Brick Company. Capacity, 25,000 bricks per day.

Ten round brick kilns. Type, down draft. Capacity, 570,000. Can be enlarged to suit needs of purchaser.

Modern machinery equipment, made by E. M. Freese & Co.

Heavy local demand for brick.

Natural gas available at eight cents per thousand cubic feet.

Very large supply of finest clay, also finest shale suitable for roof tile and paving brick—same quality shale used by United States Roofing Tile Company. The latter property joining the property here offered.

Works located near main line Baltimore & Ohio Railway, and about one mile from Ohio river.

A splendid opportunity for large company to engage in manufacture of paving or building brick, or roofing tile.

Property will be sold on liberal terms, and is exceptional opportunity for right party. Address, or call on

JAMES A. WADE, Agent, Parkersburg, W. Va.

A Burning Question!

HAVE YOU TROUBLE
With Hot and Cold Spots When
Burning Up Draft Kilns?

I have a very simple and inexpensive method of securing a uniform burn throughout the entire kiln. Equally good as a fuel saver.

It will pay you well to write for information.

ROBERT TWELLS,
WALNUT HILLS, ILL.



Newton Portable Brick Handling System

This system gives you the advantage of three men taking the place of nine, as here shown. Above is a photograph of elevator and staging in operation, saving you six men over old way of passing and tossing brick; same advantage taking brick out of kiln. Send for circular and special information.

A. C. NEWTON,
Pat. Aug. 9, 1909. CRESCENT, N. Y.



Machine=Molded Gears

One to 6-inch pitch and larger. Our machine-molded gears last longer than others, give higher efficiency under actual scientific tests, and in many cases cost no more than inferior gears. Send for Catalog No. 34.

H. W. Caldwell & Son Co.

17th St. and Western Ave.

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Fulton B dg., Hudson Terminal
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Fire Brick for
Building Kilns

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CHICAGO, ILL.

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Randolph 3601.

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SIZE SHAPE

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ONE YEAR, (IN ADVANCE)

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Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

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Consulting Engineer

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to Sell
or Buy...**

Second-hand Clayworking Machinery, Tile Mills, or anything pertaining thereto.

**If...
You Want
a Man**

for any position or a position in any connection with the Clayworking Trades use the

**For Sale
and Want
Columns
of...**

**The...
Clay=Worker.**

RATES

For all transient advertisements, such as "For Sale," "Wanted," etc., the rate is 25 cents a line per insertion. Average of seven words to line. Head line counts as two lines.

The Best, Quickest, Cheapest
Method of Securing Results.

Anchor Brand Colors

For Mortar Cement and Brick.

BROWN, BLACK, RED AND BUFF.

Strongest and Most Durable.

Manufactured by

C. K. WILLIAMS & CO.

EASTON, PA., U. S. A.

Correspondence solicited.

Chattanooga Paint Co.,

Chattanooga, Tenn.

Manufacturers of

Red Oxides for Brick-makers' Use.

**Eclipse
Mortar Colors,**

Red, Brown, Buff, Black.

Clinton Hematite Red

The highest grade of
Red Oxide of Iron for

BRICK COLORING

Also all shades of
MORTAR COLORS

Get the genuine, with the
"Little Yellow Side-Label"

Clinton Metallic Paint Co.,

CLINTON, N. Y.

GABRIEL & SCHALL

P. O. Box 1712. 205 Pearl Street.
NEW YORK.

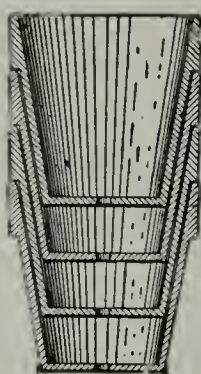
Sole Importers in the United States of the

Precipitated **G & S** Carbonate
of Barytes

The only preventative for scum and discoloration on Facing Brick and Terra Cotta, neutralizing the Sulphate of Lime in the Clay and Water.

Circulars and Particulars on Application.

Mention The Clay-Worker
When Writing to Advertisers.



Make Money

WITH THE ONLY SUCCESSFUL

Flower Pot Machine

(PATENTED.)

No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "

Write for Circular and prices.

The Rockwood Mfg. Co.,

1811 English Ave.

INDIANAPOLIS, IND.



Something New in Brick Kilns and Brick Dryers

Patented April 14, 1903, and September 8, 1903.

ANY KILN OF THE MORRISON OR WINGARD TYPE CAN EASILY BE
CHANGED INTO THE DENNIS DOUBLE DOWN DRAFT KILN.

County and State Rights For Sale.

The kiln walls are battered, furnaces are built "within the walls," avoiding expense of outside furnaces and the loss of heat by radiation, while the battered side walls and double arches form a perfect brace, each holding the other in position. In proportion to capacity, these kilns can be built for less money, burned with less fuel, and water-smoked and burned in less time than any other kiln upon the market, except continuous kilns, the heat throughout burning, is under perfect control, and these kilns will burn with perfectly satisfactory results, soft mud, stiff mud, dry pressed, or paving brick, burning practically all hard. I have kilns built under this patent of capacities ranging from 100,000 to 500,000 brick, and should be pleased to furnish names of users to prospective buyers.

Plans for round and square down-draft kilns. Also plans for drying off round kilns by taking the heat from a burning kiln to a green one without the use of a fan. Wood burning kilns changed into coal burners and to down-draft kilns or up-draft kilns arched over like down-draft kilns.

Write for printed booklet and testimonials.



Double Up and Down Draft Kiln

ADDRESS

F. W. Dennis

188 Bermuda St.,
NORFOLK, VA.

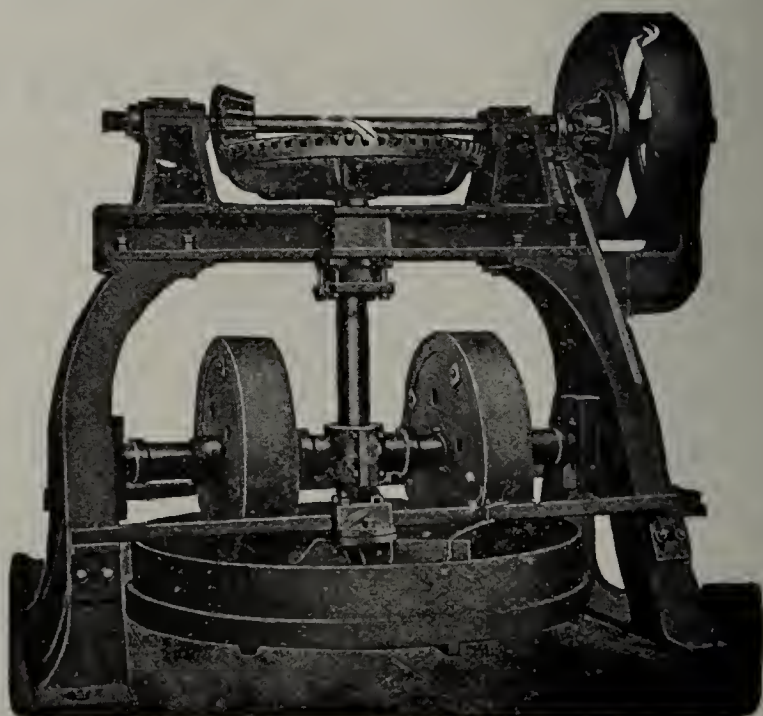
PHILLIPS & McLAREN CO.

PITTSBURG, PA.

Builders of
Pittsburg Standard
Dry and Wet
Grinding Pans
for Brick, Terra Cotta,
Sand, Cement, Ore,
Refractories, etc.
Also
Rock and Ore Crushers.

When writing for Prices state
kind of Clay or Material to be
ground and capacity desired.

Eastern Office,
Stephen Girard Bldg.,
Philadelphia, Pa.



MANGANESE.

BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

NATIONAL PAINT AND MANGANESE CO.,
LYNCHBURG, VA.

MINERS AND GRINDERS.

ANTON VOGT TO BRICK AND TILE MAKERS

I correct faults in burning and change old defective kilns. Twenty-seven years' experience in American practice.

I sell plans and plain details of construction, for my down-draft, 30 ft. Combination Brick, Drain Tile and Sewer-Pipe Kiln. I refer to satisfied Users.

For my special Cheap Brick kiln, I do not sell plans, but will lay it out, you build it and I will oversee the setting and burning, showing you

Satisfactory Results Before You Pay Me.

Both kilns have my Novel, Cheap and Indestructible Removable Grate, making a grateless coal-saving furnace. You can use it on any Down Draft Kiln.

Inquire about my labor-saving, patented Sewer Pipe Turner and Device, increasing capacity of press, making large pipe.

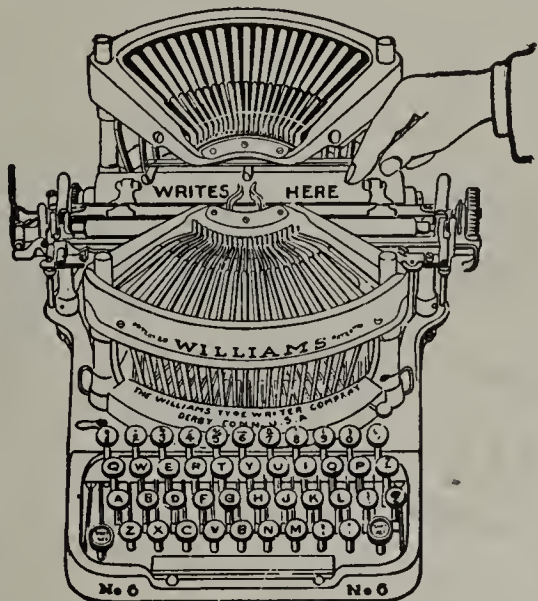
ANTON VOGT, Lewis, Iowa, U. S. A.

SEEING

Saves the beginner time when learning

Saves the learned time when beginning.

New
Number
Six
Visible
Writer



Saves time, energy, worry and money.

Gives speed, simplicity and beautiful work. Single shift. Strictly visible writing.

Old machines of any make taken in trade.

The Williams is sold under a positive guarantee and on easy terms.

If you want the best value in a typewriter ever offered, write us.

Williams Typewriter Agency,

Indiana Agency, 221 East Ohio Street, Indianapolis, Ind.

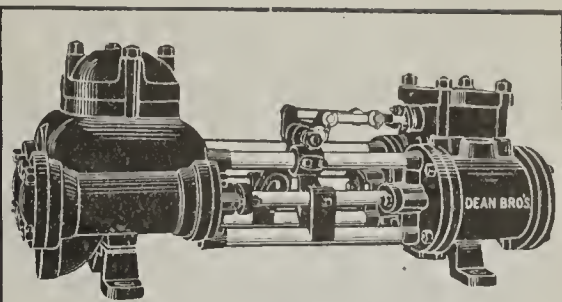
Home Office and Factory,
Derby, Conn.

Old Machines Taken in Trade.

\$2.00

THE CLAY-WORKER
ONE YEAR (IN ADVANCE)

\$2.00



DURABLE DUPLEX PUMP.

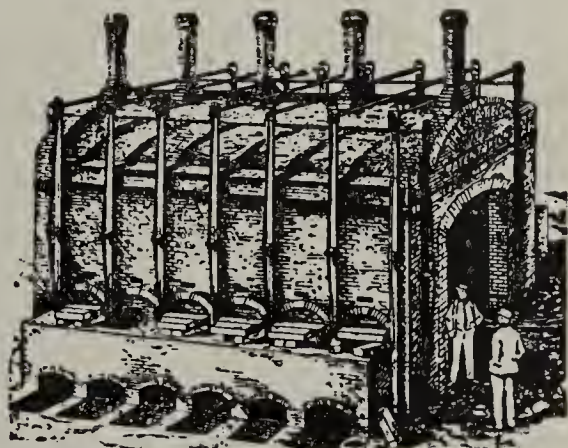
PUMPS FOR ALL SERVICES
AND ALL PRESSURES.

JET AND SURFACE **CONDENSERS**

Send for Catalogues.

DEAN BROS. STEAM PUMP WORKS.
INDIANAPOLIS.

NOT IN THE PUMP TRUST.



The Yates Patent Down-draft Kiln.
Also Continuous.

If you want to pay dividends, build modern kilns as good burning is the keynote to success. Sixteen of my kilns are in operation at the Shawmut Vitrified Paving Brick Works, Shawmut, Pa. Come and examine results for yourself. Also refer you to D. W. DeRosay, General Manager Corry Brick & Tile Co., Corry, Pa. Other references given if desired.

ALFRED YATES,
SHAWMUT, PA.



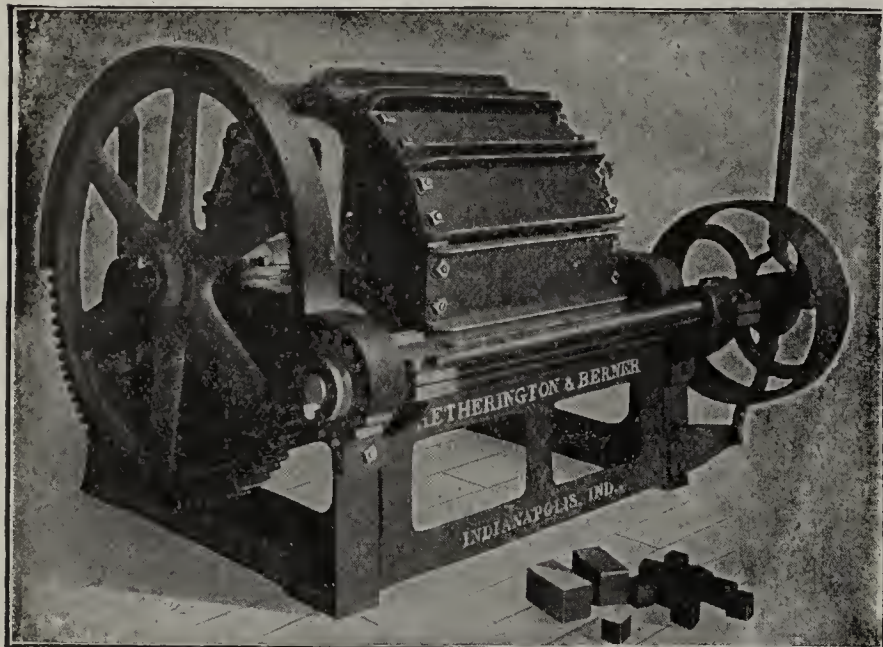
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Branch Office, 625 F St., Washington, D. C.

The STANDARD RATTLER FOR TESTING PAVING BRICK.

Every municipality and every manufacturer of paving brick should have a Standard Rattler and thus be able to make frequent tests of brick and block.



This Rattler is designed in accordance with the requirements of the National Brick Manufacturers' Association's specifications, and is skilfully constructed of the very best materials for the purpose, insuring the greatest efficiency and durability. It meets every requirement.

Easy to Operate, Easy to Fill, Easy to Empty, and is in fact *The Standard Rattler*. For prices, etc., write

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Indianapolis, Ind.

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These Books Will be Mailed, Postage Prepaid, to Any Address
in the United States or Canada,
on Receipt of Price.

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TILE UNDERDRAINAGE	J. J. W. Billingsley	.25

Sold By

T. A. RANDALL & CO.
INDIANAPOLIS, IND.

The —
ROESSLER-HASSLACHER
CHEMICAL COMPANY,
100 William Street,
NEW YORK.

As a Preventative of Scums Use
CARBONATE OF BARYTES
R. & H. PRECIPITATED.

Oxide Tin,
Oxide Cobalt,
Red Oxide Iron,
Green Oxide Chrome,
White Oxide Antimony,
Black Oxide Manganese and
all Chemicals used by the Clay Trades.

Mention THE CLAY-WORKER

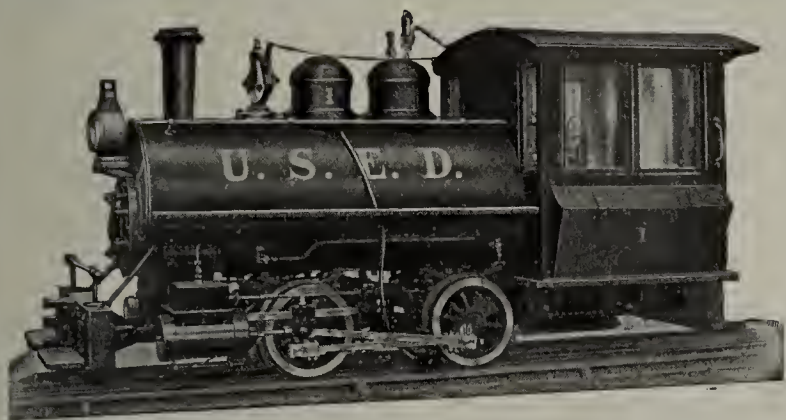
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CLAY HAULAGE

Reduce cost of transportation
by using a

DAVENPORT INDUSTRIAL LOCOMOTIVE



Small Size—Reasonable Cost—Especially built for use of clay products manufacturers, for hauling clay or shale from pits or mines to plant.

CHEAPER THAN HORSE TRANSPORTATION

and will reduce cost of delivering your material to your plant, thus increasing profits,

All About Modern Industrial Railways

Write us for particulars.

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AN OIL BURNER FOR YOU



No. 10

THE NEW SCHURS IMPROVED

DOUBLE ATOMIZER

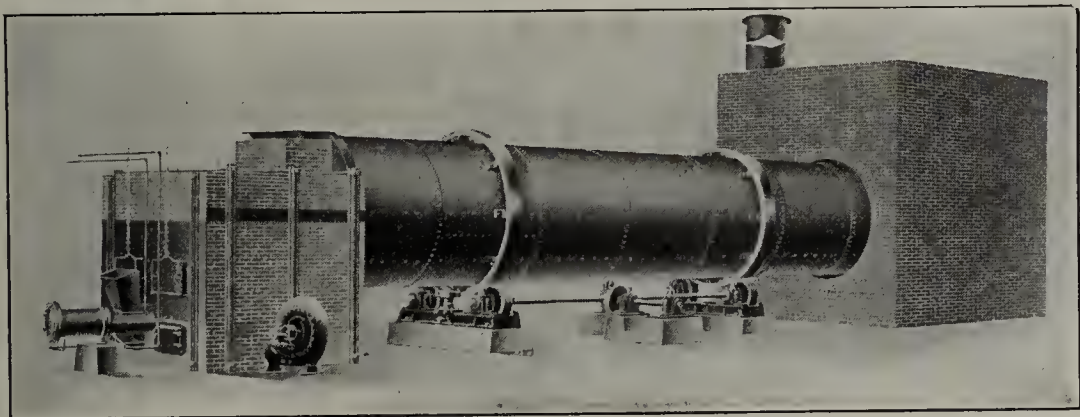
Latest and Most Perfect Water Smoker
and Brick Burner.

MOST { EFFICIENT
ECONOMICAL
DURABLE

Send for Catalogue

SCHURS OIL BURNER CO.

1007 N. Main St., Los Angeles, Cal.



CLAY DRYERS

Increase Capacity of Dry Pan.
Produce Uniform Brick.

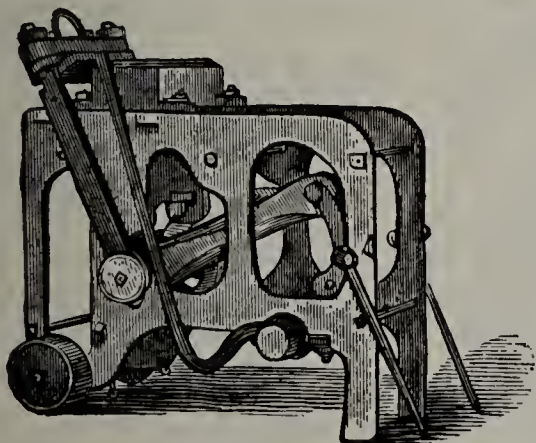
Send for Catalog C. B.

AMERICAN PROCESS CO., 68 William Street, New York

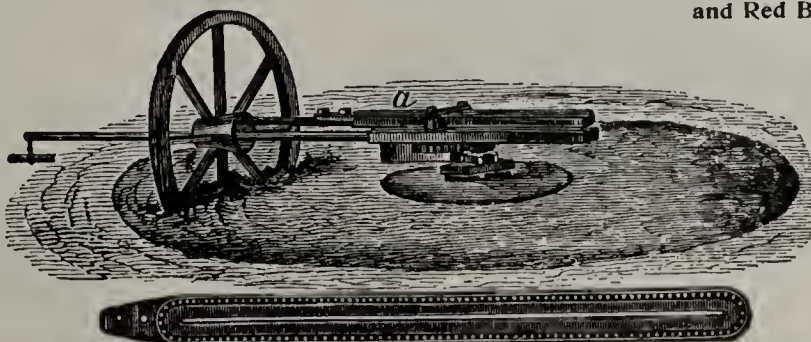
Philadelphia Brick Machine Works.

Fire and Red Brick Presses All Sizes. Machinists and Engineers.

Manufacturer of All Kinds of Machinery Used In the Manufacture of Fire
and Red Brick.



RED BRICK PRESS.

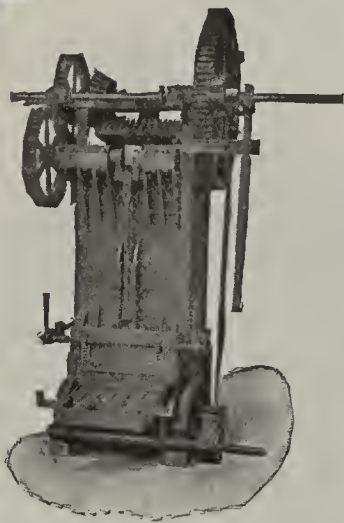


These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

Send for Circular and Price List.

GEORGE CARNELL, 1819, 1821 and 1823 Germantown Ave. and Fifth St., PHILADELPHIA, PA.

MODERN CLAY- WORKING ENGINEERS



And Builders
of Complete

BRICK MAK- ING PLANTS

For Either
Soft or Stiff-Mud
Processes.

Steam Power
50 Thousand
Animal Power
20 Thousand

We Build the
Most Complete
Line of Yard
Supplies and
CRUSHERS



THE HENRY MARTIN BRICK MACHINE MFG. CO.
LANCASTER, PA., U. S. A.

Get Our Big Catalog.

SALT GLAZED BRICK

The Best in America
Are Made by

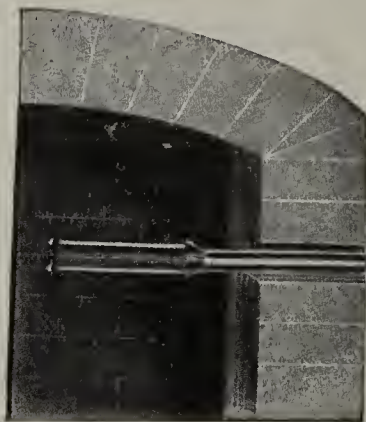
The Hocking Valley Fire Clay Co.

Nelsonville, Ohio.

Light, Medium, Dark Shades
With Heavy, Smooth Glaze

Some Good Territory Unassigned. Write Us.
Annual Capacity, 12,000,000.

PYROMETERS



For measuring the tempera-
ture of kilns, do away with
guess-work. For tempera-
tures to 3000° Fahr.

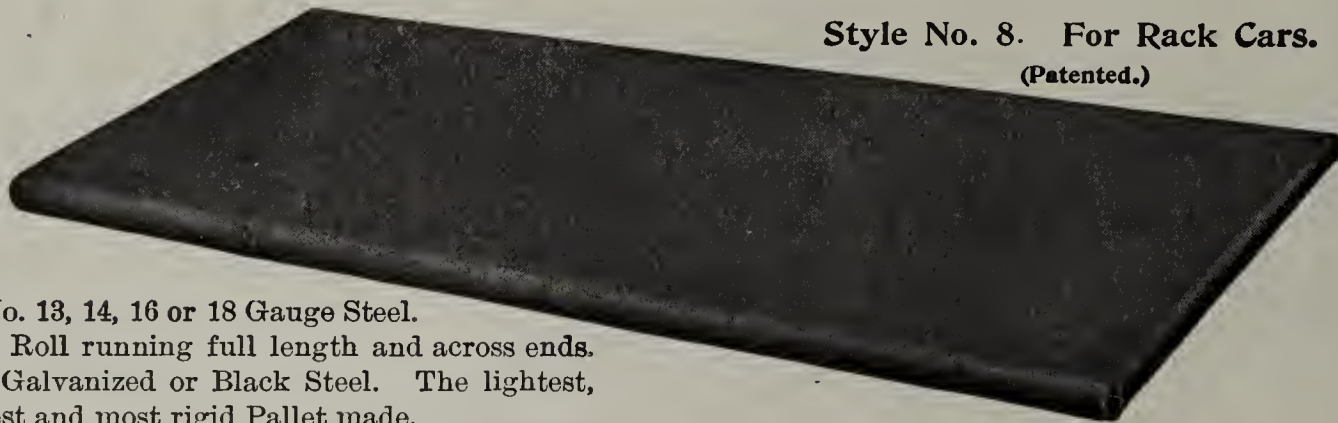
The Brown
Instrument
Company,

311 Walnut St.,
Philadelphia, Pa.

Pittsburg. Chicago.

"OHIO" ROLLED EDGE STEEL BRICK PALLET.

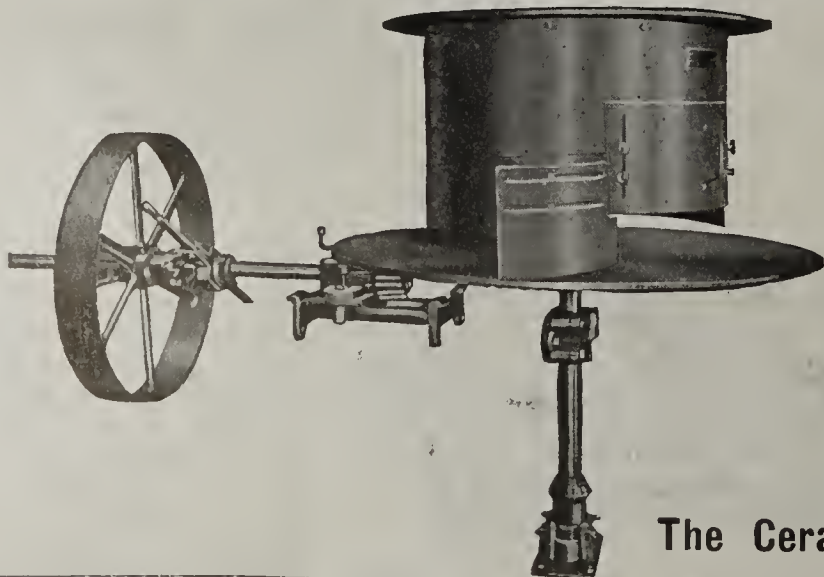
Style No. 8. For Rack Cars.
(Patented.)



Made from No. 13, 14, 16 or 18 Gauge Steel.

5/8-inch Roll running full length and across ends.
Either Galvanized or Black Steel. The lightest,
strongest and most rigid Pallet made.

THE OHIO GALVANIZING AND MANUFACTURING COMPANY, Niles, Ohio.



AUTOMATIC FEEDING

of

Pans, Pulverizers and Pug Mills

Means INCREASED CAPACITY

AUTOMATIC FEEDING

of

Clay, Sand-Lime and Other Mixtures

Means IMPROVED PRODUCT

The Ceramic Supply & Construction Co., Columbus, O.

The profits on your investment—your dividends—depend as much, if not more, on the result-producing merits of your kilns as upon your material, your machinery or freight rate.

We have been in the kiln building business for over twenty years; six years ago we perfected and marketed

The Improved Flue System Kiln

and have been busy ever since, winter and summer, building it for progressive BRICK, SEWER PIPE and DRAIN TILE firms.

It has burned every class of clay goods, and has SATISFIED (get that?) every patron.

We will construct new kilns, remodel unprofitable kilns to our plans; or we will sell working plans and specifications on very reasonable terms.

Inquiries solicited, promptly and cheerfully answered.

GEORGE E. SNOWDEN & COMPANY
New Cumberland, West Virginia

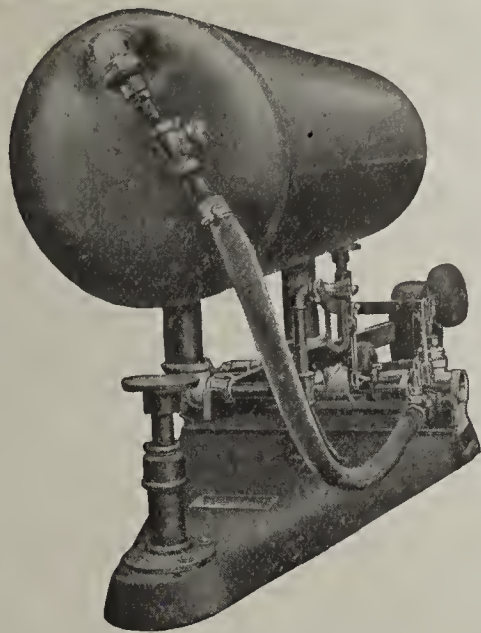
Do You Realize Advantages of Burning Oil?

They are many and varied. You should look into this question thoroughly as it will mean larger and better output at lower cost.

The Tate-Jones System of oil burning for ceramic industries is complete in every detail. It stops smoke, saves time and labor, gives a close regulation of temperature, therefore a very uniform product, and can be easily installed in any kiln.

Write for particulars to:

Tate-Jones & Co., Inc., Pittsburgh, Pa.



The Morehead Condenser Trap makes its own Vacuum

and PULLS the accumulated water and air out of your steam lines, insuring rapid circulation. Enables you to cut down your boiler

pressure on direct heating systems.

Particularly adapted for use in connection with reduced pressure and Exhaust Steam Heating Systems, Dry Kilns, Dryers, Fan Stacks, Etc.

Write for Particulars and Trial Trap.

Morehead Mfg. Co.

Detroit, Mich.

Dept. 10

STOCKS CARRIED IN

New York Philadelphia Chicago San Francisco Los Angeles
Wichita, Kan. Memphis, Tenn. New Orleans, La.
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A Complete Line of Clayworking Machinery

INCLUDING

STEAM SHOVELS AND DREDGES.

Ask for our latest Catalog, and write us or wire us for anything you need on any kind of Brick or Tile Plants.

Scott-Madden Iron Works Co., 404 S. Fourth, Keokuk, Ia.

IN DRYING CLAY
WARES WE HAVE
HAD THE LARGEST
AND MOST VARIED
EXPERIENCE OF
ANYONE IN
AMERICA.

OUR DRYERS
GET RESULTS.

**TRAUTWEIN DRYER
AND
ENGINEERING CO.**



WE MANUFACTURE
COMPLETE, EVERY-
THING NEEDED
FOR DRYER
INSTALLATIONS.

WE ARE ENGINEERS
FOR CLAYWORKING
PLANTS.

417 So. Dearborn St.
CHICAGO.

WE CAN SAVE YOU MONEY

FIRST, by actual test, at our expense, **WE PROVE** that we can **SAVE MONEY** for you. **THEN** we license you to use our patented System of **BURNING BY FORCED DRAFT**, charging as royalty a few cents per thousand on your output—a mere **FRACTION** of your **SAVING**. **FINALLY** you apply to us for an exclusive license for your territory (just as the New England Brick Company did) for obvious reasons.

POSITIVE Mechanical CONTROL OF DRAFT—Economical to install.

"First come—first served."

Full information upon request.

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50 Church St., New York City,

The Richardson=Lovejoy Engineering Company

Columbus, Ohio

CERAMIC ENGINEERS FACTORY ARCHITECTS.

Geological Examinations of Properties.

Clay Testing.

Investigations of Manufacturing Propositions.

Plants designed.

Construction superintended.

Operations directed.

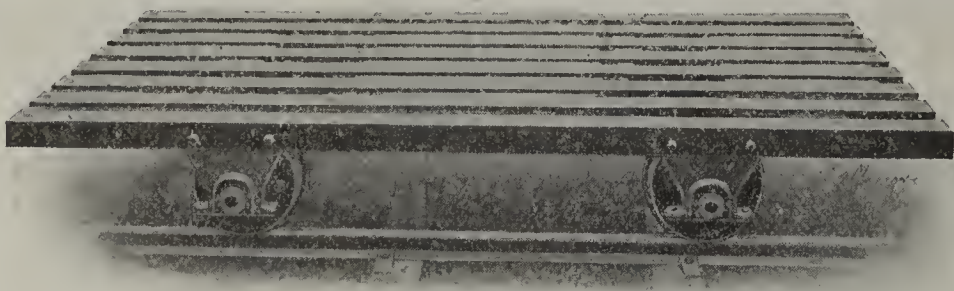
Plans for Dryers, Furnaces, Kilns.

Especial attention given to problems in Fuel Economy.

Old plants remodeled and put on an Economic Basis.

New Lines of Products developed.

Pamphlet "CERAMIC ENGINEERING" Free.



Style 306 No. 1, Single Deck.



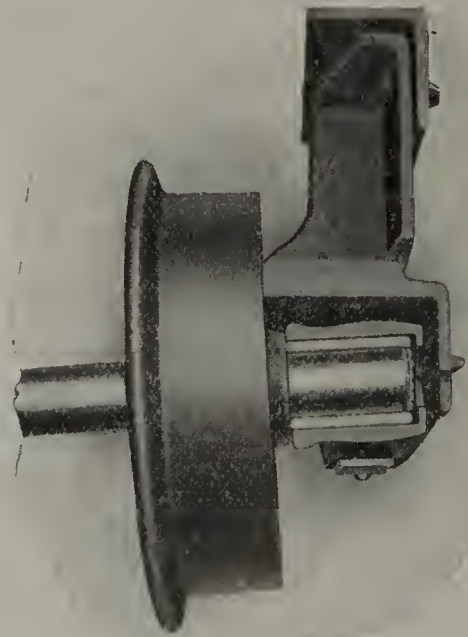
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The Chase Foundry & Mfg. Co.
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CHASE DRYER CARS

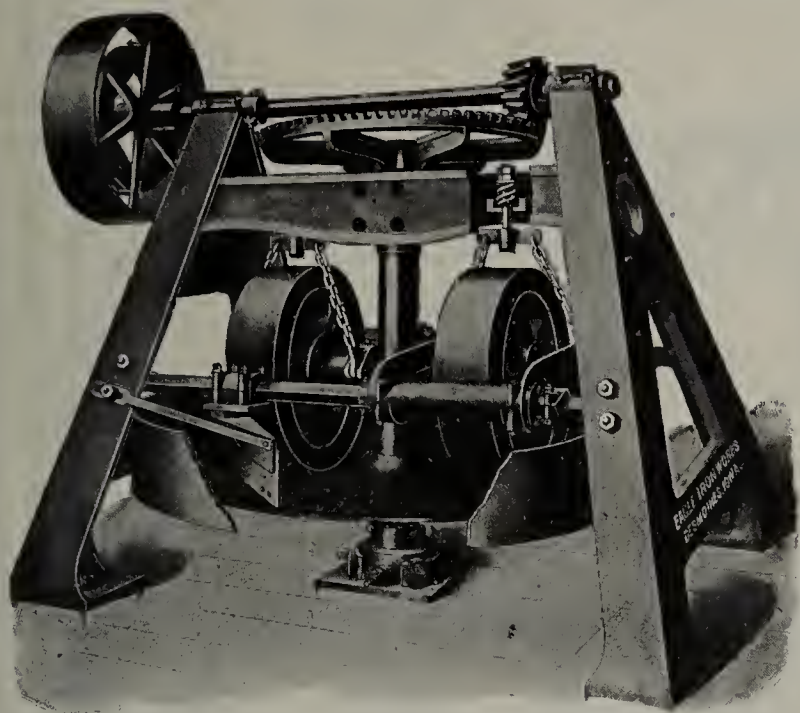
With Patented
FLEXIBLE and REVERSIBLE
BOXING AND ROLLER BEARINGS.



Sectional view of Flexible Boxing showing deflection in the axle, the same as occurs when the car is passing over uneven track or is unevenly loaded.

Independent and Suspended Mullers

the distinguishing
feature of our **DRY PANS**



Other valuable features which our
catalogue fully describes.

EAGLE IRON WORKS,
Des Moines, Iowa.

1896

1912

14 Years of Constant Satisfactory Service In Many Clay Plants

Is the Record of the PERFECT CLAY SCREEN

Why continue with your old clay screen from which today the product is entirely too coarse, tomorrow too fine, next day scarcely anything, and always requiring constant attention.

FIGURE up the cost and let us quote you on a PERFECT CLAY SCREEN that will give you ABSOLUTE CONTROL OF YOUR CLAY. The same fineness every day in the year and you get every pound of clay that is fine enough for your product.

Just think what it costs to have a man cleaning and breaking up your screen, and then not get capacity or proper fineness. THE PERFECT CLAY SCREEN is automatic, self cleaning, and the plates last many times as long as do plates on an ordinary screen. Increased and improved output at less cost, is our GUARANTEE. Let us try, if we don't do it IT WON'T COST YOU ONE CENT.

DUNLAP MFG. CO.

Bloomington, = Illinois

To Help You Know

ANDY

Stitched Cotton Duck Belting

One edge of every roll is PAINTED GREEN

Inferior imitations made to look like the GANDY in appearance make us caution you to look for three identifying marks.

1st. THE GREEN EDGE

2nd. THE TRADE MARK SHOWN ON THIS ROLL

3rd. THE BRAND—THE GANDY BELT

When you think of belting think of "THE GANDY BELT." It costs only $\frac{1}{3}$ that of leather and $\frac{2}{3}$ that of rubber belting, and does the work equally as well.

Thirty-four years of success in the brick industry proves to you that the GANDY is the most durable and economical belt for this exacting service.

Let us show you the saving GANDY BELTS will make in your plants.

Write us now for actual sample, letters from users in the brick industry, and complete information, prices, etc.

Clip, sign and mail coupon to us right away for all this.

The Gandy Belting Co.,

749 W. Pratt Street, Baltimore, Md.
New York Office—88-90 Reade Street

RETURN THIS COUPON

Gandy
Belting Co.,
749 W. Pratt St.,
Baltimore, Md.

Gentlemen:—
Send me free sample GANDY BELTING and booklet. C.
W 4-12
Name.....
Firm Name.....
Firm Address.....
Where to be used.....

THE GAS-FIRED
FIRE-BRICK
HOFFMANN KILN

Burns 1,000 Fire-Bricks
With 5 Cwt. of Slack

and also largest Blocks.



50%

LABOUR
SAVING
GUARANTEED

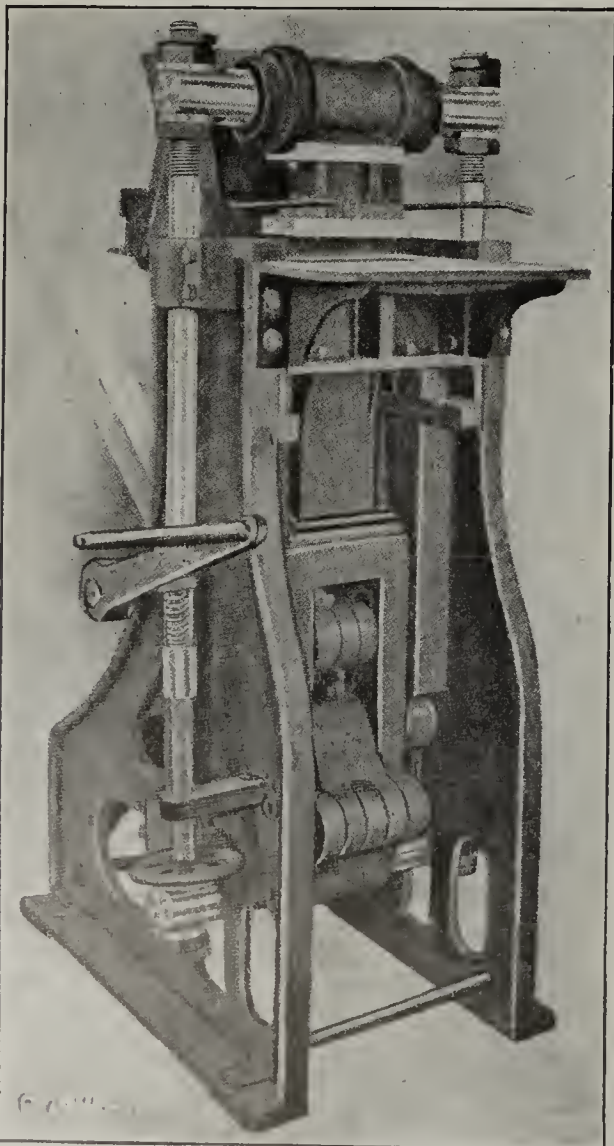
HAS IT EVER OCCURRED TO YOU
THAT ALL WORKS POSSESSING GENUINE
HOFFMANN KILNS PAY HANDSOME DIVIDENDS?

The same applies to Hoffmann Continuous Tile, Pottery, Lime
and Cement Kilns.

HOFFMANN

CONSTRUCTION CO.,

FINSBURY PAVEMENT HOUSE,
LONDON, E. C., ENGLAND



PATENT HAND PRESS

Our Patent Hand Power Dry Press is used very extensively for manufacturing ornamental bricks as it can easily be fitted with molds to make the different designs. This Press stands in a class by itself for this kind of work. Bricks made on this press are equal in hardness and density to those made on a steam power press.

We manufacture a complete line of dry press machinery and brickyard supplies.

The Fernholtz Brick Machinery Co.

Boyle and Vandeventer Avenues,

ST. LOUIS, MISSOURI

WALTER E. HILTON'S IMPROVED MOLD SANDER

(PATENT PENDING.)



No Chains, Belts or Gears.

No Shifting Lever.

No Extra Moulds.

Mould always ready to be taken out at the proper time.

Impossible to break a Mould.

Light running, almost balanced in all positions.

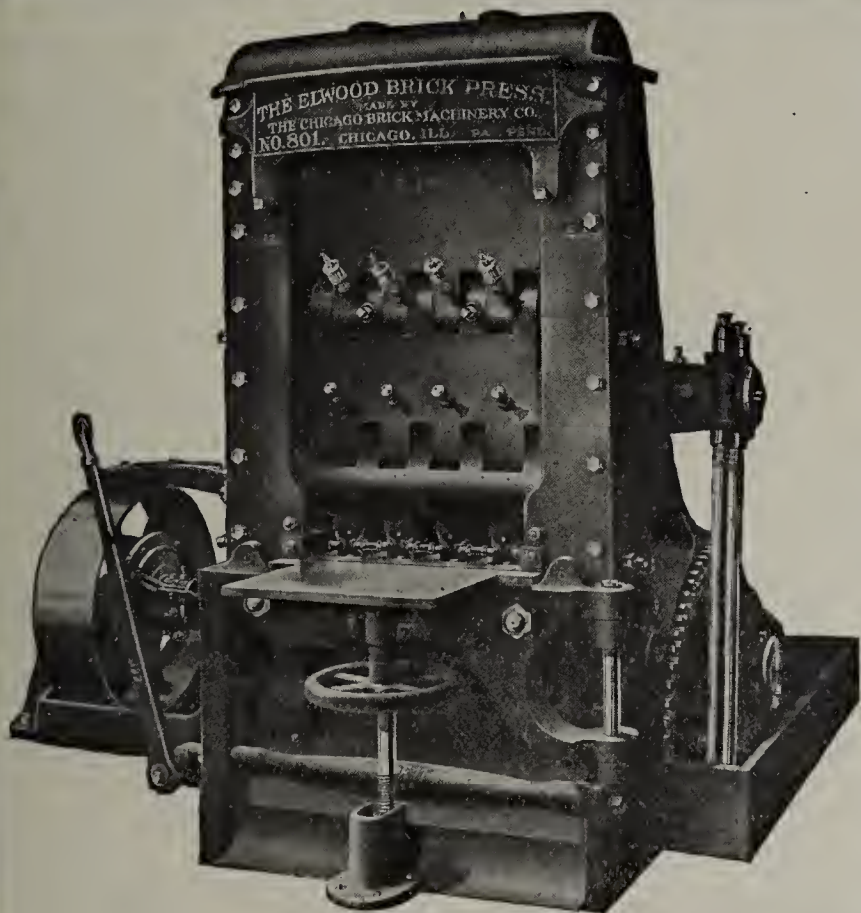
For circulars and prices explaining it more thoroughly, write

Hilton Sanding Machine Co.

DUNKIRK, N. Y.

ELWOOD PRESS

**BUILT FOR HEAVY DUTY.
ALWAYS MAKES GOOD.**



**WE ALSO HANDLE EVERYTHING
USED ON A BRICKYARD.**

CHICAGO BRICK MACHINERY CO.

20 W. Jackson Blvd., Chicago

Sold Also by
MANUFACTURERS EQUIPMENT CO.
Dayton, Ohio.

BOOKS FOR CLAYWORKERS.

These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

The Brickmakers' Manual, by R. B. Morrison and J. A. Reep. Price \$3.00.

An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryers, kilns, etc.

The Clayworkers' Handbook, by the Author of "The Chemistry of Clayworking." Price \$2.00.

A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport, Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting or Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

Modern Brickmaking, by Alfred B. Searle. Price \$5.00.

It contains well-written chapters on the nature and selection of clays and other materials used, general brickmaking, the different processes, machinery, kilns, setting and burning, various products and uses, and sources of difficulty and loss.

Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

Clays: Their Occurrence, Properties and Uses, by Heinrich Ries. Price \$5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

Bricklaying, by Owen B. Maginnis. Price \$2.00.

This book contains extensive explanations of the most improved modern methods of bricklaying, and is the current practice and experience of the best authorities, making an invaluable work of reference for architects, engineers, contractors, builders and mechanics.

The Effect of Heat Upon Clays, by Prof. A. V. Bleining. Price \$2.00.

A book of valuable information on burning and drying, told in a plain, practical way, and invaluable to the burner or superintendent.

Bricklaying System, by Frank B. Gilbreth. Price \$3.00.

A book whose 330 pages are filled with rules and hints for the foreman and bricklayers, designed to increase the output of the workmen and enable them to do difficult work in the best manner.

Vitrified Paving Brick, by H. A. Wheeler, E. M. Second Edition. Price \$2.00.

A review of present practice of the manufacture, testing and uses of vitrified paving brick.

Tables of Analyses of Clays, by Alfred Crossley. Third Edition. Price \$2.00.

Including analyses of chemically pure clays, well-known common and pressed brick clays, paving brick clays, fire clays, shales, etc., both in this country and abroad. A valuable book for those desiring to compare their clays with well-known and standard clays.

Kiln Records, by W. D. Richardson. Price \$1.00.

To establish a successful system of burning, observations and records should be made regularly, carefully and conscientiously, and this can be done to best advantage by the use of Mr. Richardson's Kiln Records.

Engineering for Land Drainage, by C. G. Elliott. Price \$2.00.

Giving instructions for laying out and constructing drains for the improvement of agricultural lands intended for the use of those who are charged with the responsibility of making plans for and executing drainage improvement.

Practical Farm Drainage, by C. G. Elliott. Price \$1.50.

A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

Tile Underdrainage, by J. J. W. Billingsley. Price 25 Cents.

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distributing among tile users. In lots of 100, \$2.50; in lots of 1,000, \$20.00.

T. A. RANDALL & CO.,
Indianapolis, Ind., U. S. A.

THE JUSTICE RADIATED HEAT DRYER



It will stop your losses in drying and turn that feature of your business into a source of revenue and profit.

It is designed to dry all sorts of clay products, and will do it economically and satisfactorily. Bulletin No. 1 gives a clear exposition of its many merits. Shall we send you a copy?

The Manufacturers Equipment Company

Sales Agent for: The J. D. Fate Company's Complete Line of Clay Working Equipment
The Elwood Dry Press The Joplin Rock Crusher

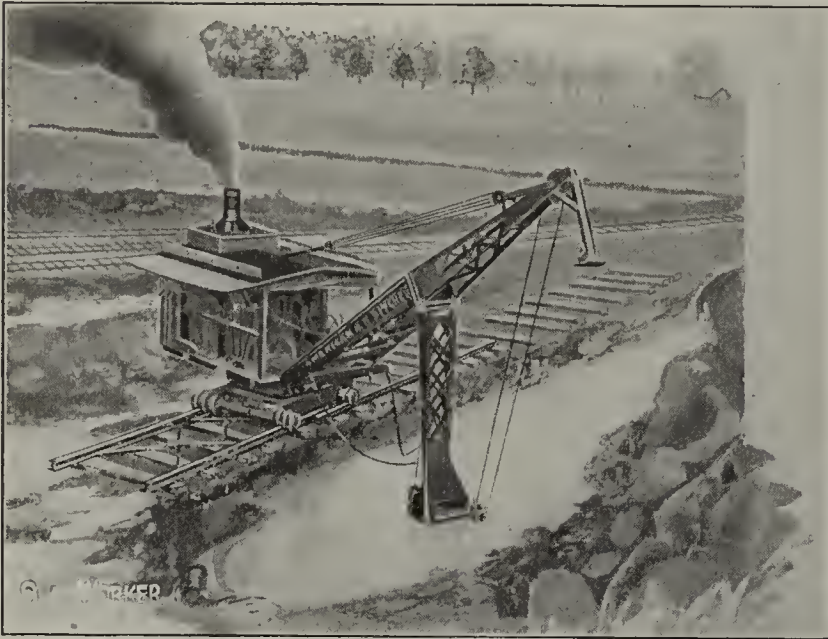
Dayton, Ohio, U. S. A.

12 DISTINCT ADVANTAGES

POSSESSED ONLY BY THE

"AMERICAN" STEAM SHOVEL

Any One of Which Justifies the Cost of the Machine



Examine All Other Steam Shovels CAREFULLY. Then Compare the Information You Have Gathered With the Following:

1. While the "AMERICAN" is a full circle machine, IT EMPLOYS NO OUTRIGGERS OR SIDE BRACES OF ANY KIND.

2. IT IS ABSOLUTELY ONE-MAN OPERATED. The operator stands well to the front of the machine, having an unobstructed view of the dipper and work at all times.

3. All motions of the machine are accomplished by a double cylinder, NON-REVERSING ENGINE, in connection with the "AMERICAN" friction, over 10,000 of which are in daily use.

4. Two patented, special, portable, telescopic track sections are furnished regularly with the machine. These sections are easily handled by the machine, and enable it to travel quickly to any part of the pit, over short or long distances, without laying regular track. It works with equal facility, without any alteration, on standard gauge surface track.

5. Where soft condition of the ground requires, ties can be spiked to the track section, which gives a very solid foundation to work on while digging. This also permits the machine to go safely and rapidly over soft or uneven surfaces; ABSOLUTELY NO PLANKING REQUIRED.

6. It digs deep below the rail, dumps high above the rail, and has a working radius up to thirty feet. With the substantial portable track sections, and easily adjustable digging arrangement, it readily makes its

own face from perfectly level ground, to the required depth.

7. The digging depth and working radius are quickly changed without any alteration of machinery, at will of operator. It digs equally well in shallow stripping or in deep work. SUPPOSE YOUR PIT IS FLOODED and you can not shift the track. The extreme digging depth of the "AMERICAN" permits you to easily reach your material, where other methods or machines would not do so.

8. THE PLUNGER AT BOOM POINT IS FOUND ONLY ON THE "AMERICAN." When handling clay or other sticky substance that fouls the bucket, the plunger quickly pushes such material through and saves much valuable time.

9. It digs with equal effectiveness at any angle to the track. It will not back away from the work in the hardest digging.

10. It does switching when Locomotive is elsewhere. It can be used as a Locomotive Crane, for handling Clam Shell or Orange Peel buckets, etc.

11. It will run up onto a flat car on its own power and can be conveyed at train speed, when desired to move from one operation to another.

12. If desired it can be worked from the top of a flat car, standing on the car on the portable track sections, and in which situation it will load cars standing upon the first or second passing tracks.

THE "AMERICAN" STEAM SHOVEL IS BRISTLING WITH MANY OTHER SPECIAL FEATURES EQUALLY AS VALUABLE AS THOSE ABOVE MENTIONED, and we will gladly tell you all there is to tell about it.

ASK US FOR CIRCULAR 15.

AMERICAN HOIST & DERRICK CO.
St. Paul, Minn.

Handle Your Clay With One Man and a **THEW SHOVEL**

For many years we have been furnishing full circle swing steam shovels to the brick manufacturers of the country. We are the pioneers in this field and have created the demand for this type of shovel. We have studied the peculiar requirements of the clay-working industries and have designed shovels to meet these requirements. We offer today a complete line of shovels for this purpose, machines recognized everywhere as the standard of excellence.

THEW Shovels are not like others. They possess features of design not found in other shovels, features that are valuable as to convenience and economy of operation. Several hundred are now operating in brickyards and every one is giving satisfaction.

WE REFER YOU TO ANY OWNER OF A THEW SHOVEL ANYWHERE



Type No. 0 Thew Shovel—Mounted Upon Traction or Car Wheels.

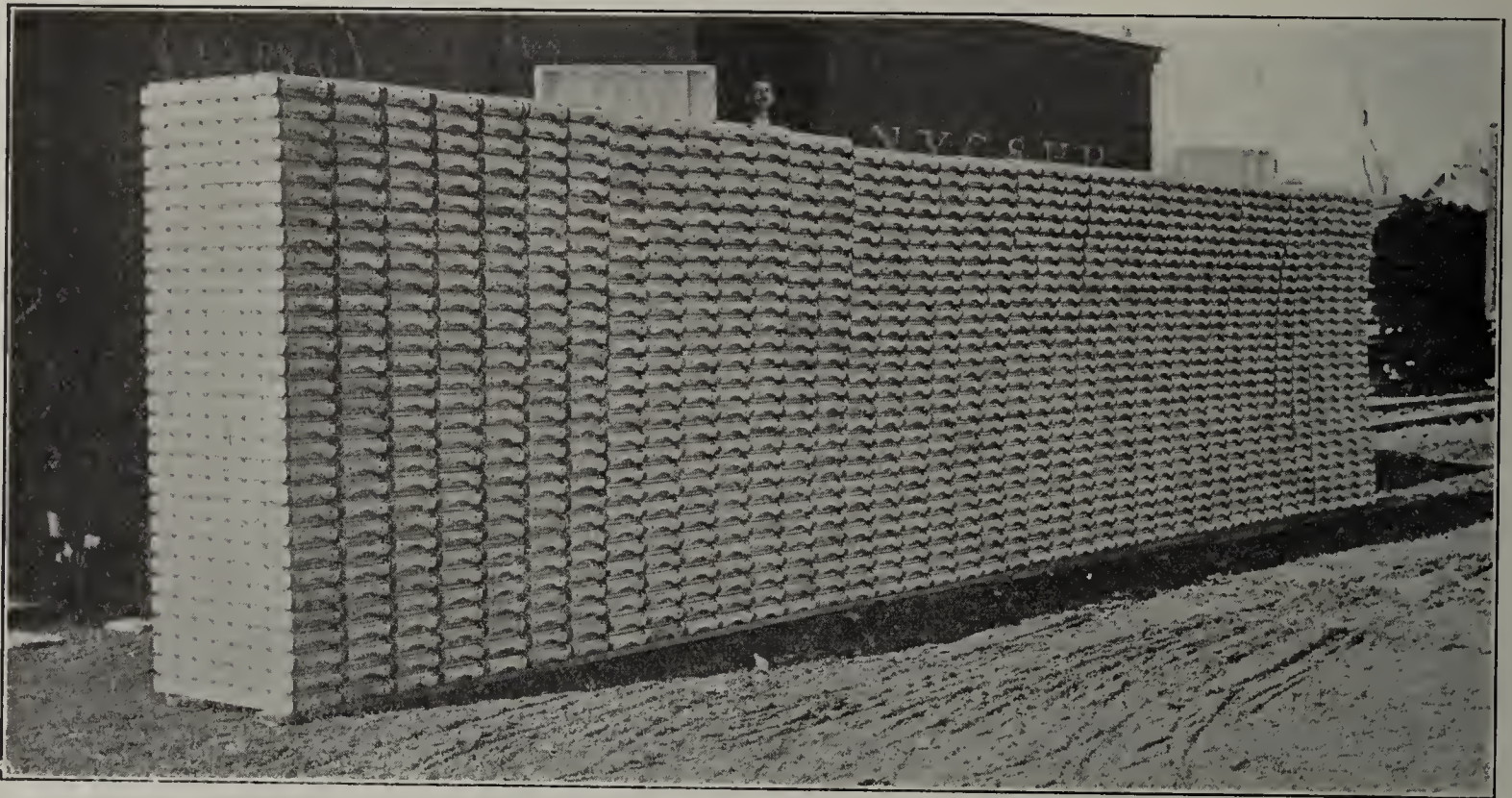
STANDARD SIZES

Type 0,	15 Tons,	$\frac{5}{8}$ yard dipper;	capacity 100 M brick for ordinary clays.
Type A-1,	20 Tons,	$\frac{7}{8}$ yard dipper;	capacity 150 M brick for ordinary clays.
Type 1,	30 Tons,	$1\frac{1}{8}$ yard dipper;	capacity 200 M brick for ordinary clays.
Type 2,	35 Tons,	$\frac{3}{4}$ yard dipper;	capacity 125 M brick for ordinary shales.
Type 4,	50 Tons,	$1\frac{1}{4}$ yard dipper;	capacity 200 M brick for difficult shales.

The above rated outputs are for one man operation and may be doubled by using a fireman and extra laborer on ground.

THE THEW AUTOMATIC SHOVEL CO., Lorain, Ohio

BRICK MOULDS WITH A REPUTATION



This is absolutely the best brick mould made in the world. A pretty bold statement, but we can prove it and do every time we are asked.—G. B. MENTZ CO., Wallkill, N. Y.

WHAT ONE WHO KNOWS HAS TO SAY.

GREEN BAY BRICK COMPANY

Manufacturers of

Sand Mould Brick

Green Bay, Wis., March 22, 1912

G. B. Mentz Co., Wallkill, N. Y.:

Gentlemen—Your favour of the 20th is at hand. You may make us 24 of your best moulds of sizes as follows: 5 brick $8\frac{3}{4}$ in. x $4\frac{1}{4}$ in. x $2\frac{7}{16}$ in.; $\frac{5}{8}$ in. partitions. We want them of the best, at the price you name, \$2.25 each. We can buy moulds for \$1.50, but we buy yours because they are the best. We would like to have the moulds here by May 1st.

Yours truly,
J. W. HINKLEY, Sec'y.

THE G. B. MENTZ CO.
Wallkill, N. Y.

CROSSLEY

The Name That Stands for Quality.

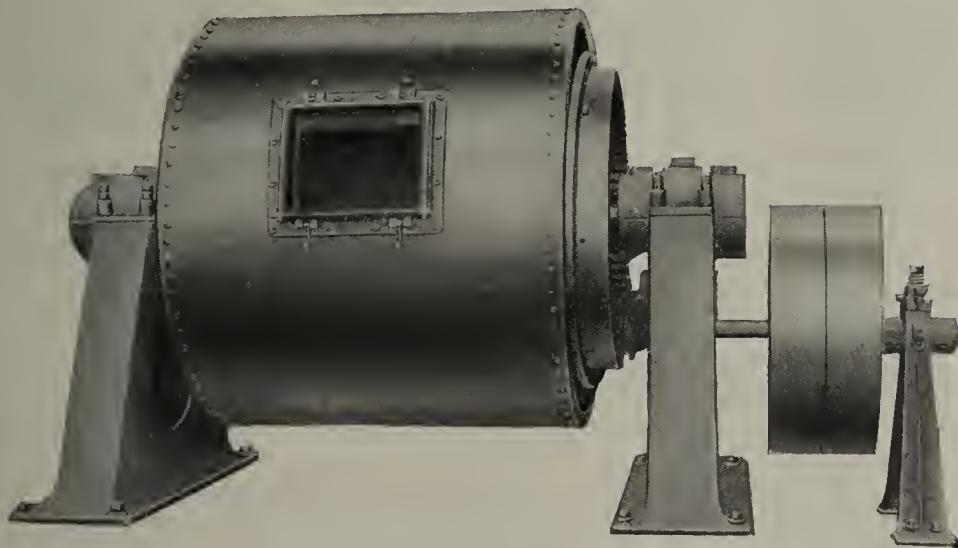
(Every Machine We Sell is Our Agent Because it Sells Another.)

We manufacture a complete line Electrical, Porcelain, Tile, Clayworking, Clay Washing and Refining Machinery.

COMPLETE INSTALLATIONS A SPECIALTY.

We lay out your buildings, placing the necessary machinery in same in the most approved manner, furnishing boilers, engines, motors, etc., and turn same over to you ready for use.

Our 35 years of experience in this line has made us experts and our engineering department is always at your service and if you have any knotty problems, submit them to us.



Ball Mill or Grinding Cylinders

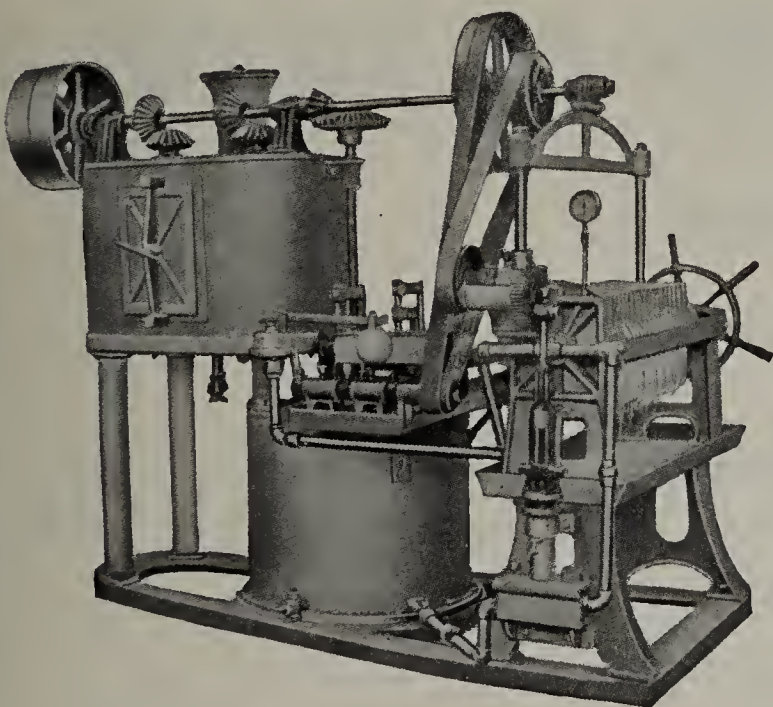
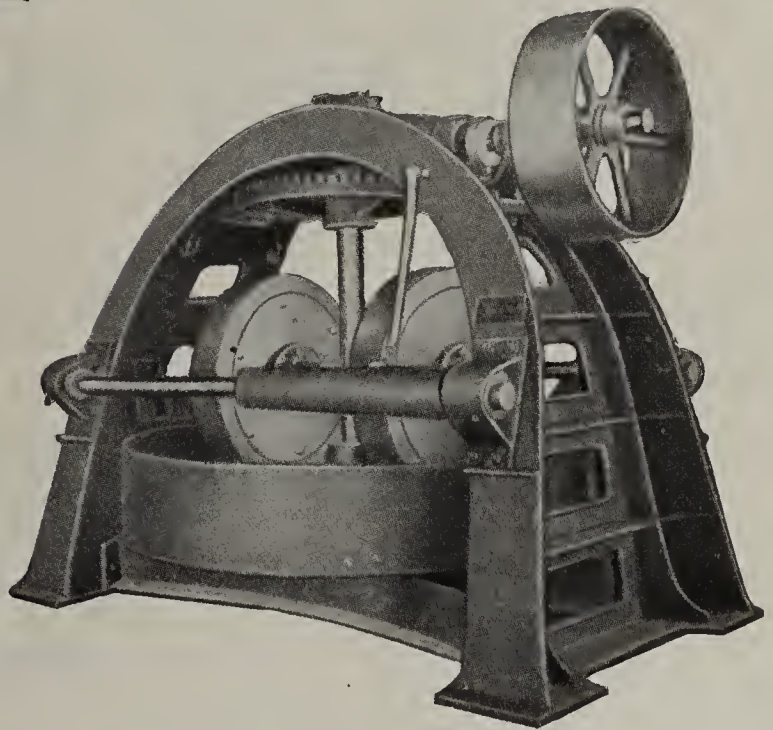
These mills are made in 4 sizes; 2 ft. 6 in., 3 ft. 6 in., 4 ft. 6 in. and 6 ft. 8 in. We call your attention to the large bearings and substantial housings with the internal gear drive which not only insures life to the machine but makes it very compact and durable.

The 6 ft. 8 in. mill is fitted with hardened and ground roller bearings which reduces the friction to a minimum, thus being a great saver in fuel and power.

These mills are lined with hickory porcelain or silex lining whichever is desired.

Crossley's Wet or Dry Pan

This machine is built in two sizes 4 ft. and 6 ft., and can be made with either a screen or solid plate. Note the rigidity of construction which is superior to any machine of its kind on the market.



This is our No. 1 Experimental or Laboratory machine, which is complete in every respect and is self contained. It can be bolted down to floor without any setting or foundations, requiring very little space. We have about ten of these machines in the largest Ceramic Colleges throughout the United States and we think this alone will testify to the character and workmanship of this machine.

THE CROSSLEY MACHINE CO.,

General Machinists and Founders

TRENTON, N. J., U. S. A.

SEND FOR OUR LATEST CATALOG.

The Latest

"Up to the Minute"

Labor and Money-Saver

CALLAWAY CABLE CONVEYORS

===== AND =====

PORTABLE CROSS CONVEYORS

Save all Trucking on Rack and Pallet and Open Yards.

SAVE FOUR TO EIGHT MEN PER MACHINE.

FOR FULL PARTICULARS WRITE US.

ED. H. CALLAWAY ENGINEERING CO.

50 Church Street, New York City

Engineers, Clay Specialists and Brickologists.
Kilns, Dryers and Complete Clayworking Plants.

Proclamation:

Governed by an insatiable desire to produce only machinery that will carry the unqualified approval of the clayworker, we have associated with us engineers, mechanical, chemical and ceramic, who are graduates of the great Universities of the World and it is a product of their untiring labors, practical experience and knowledge that we present for your consideration in the following pages.

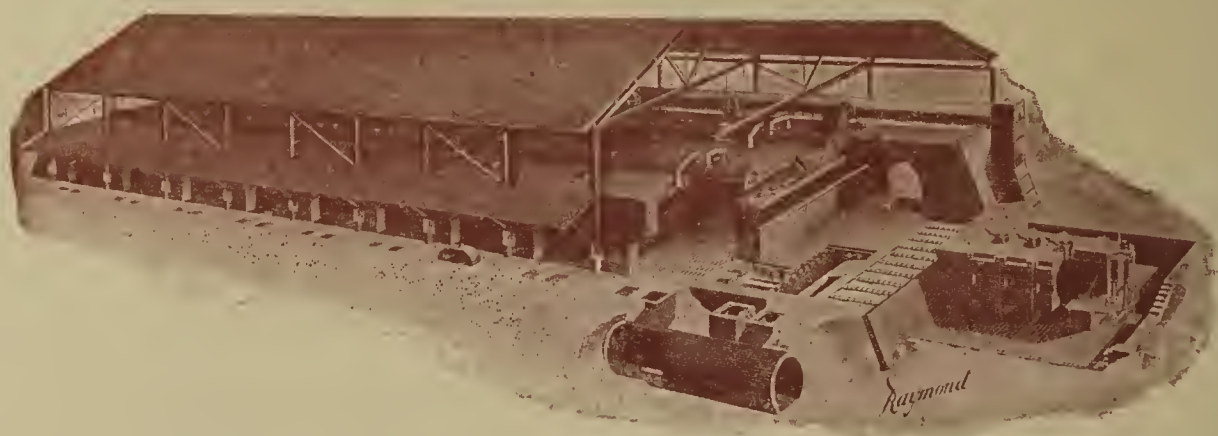
The C. W. Raymond Co.

*The Strongest Power in the World of
Clayworking Machinery*

Dayton, Ohio, U. S. A.

**The Introduction to the 1912 Raymond
Catalog—Will you let us prove it?**

The Producer Gas Fired Continuous Kiln



OUR NUMEROUS installations of the CONTINUOUS KILN are giving splendid results. On the strength of the proven results, we are now constructing these kilns in all parts of the United States. A saving of 60% of the cost of burning, combined with absolute uniformity of burn and minimum kiln losses makes this Kiln an absolute necessity to the up-to-date clayworker.

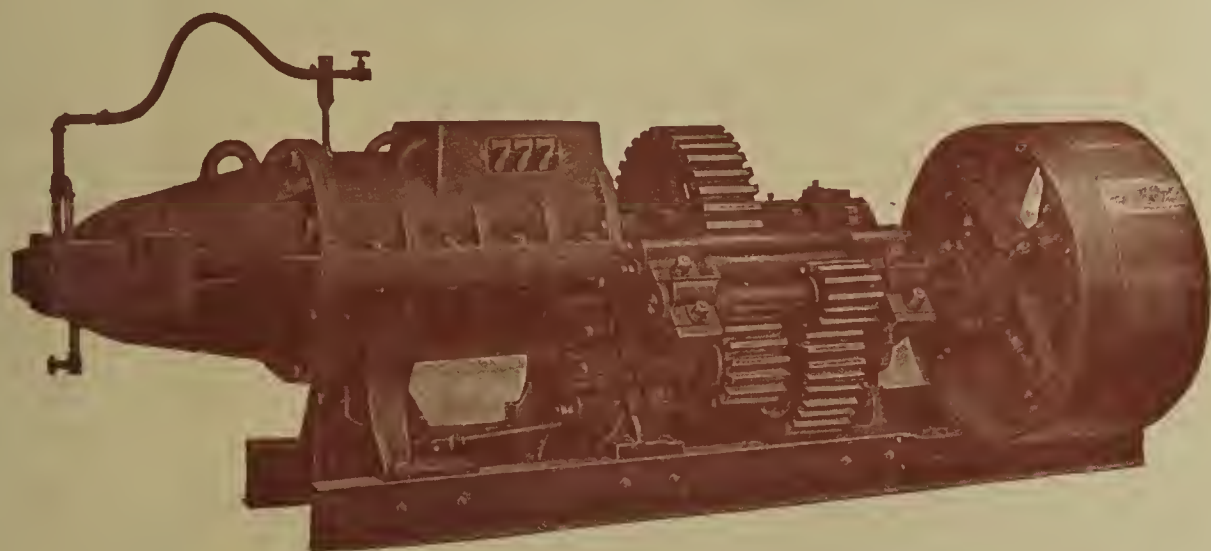
It is built in two types—COMPARTMENT or TUNNEL, and is successfully burning all classes of clay and all the principal products.

Literature fully covering the Continuous Kiln will be mailed on receipt of your request.

THE C. W. RAYMOND CO.

The Strongest Power in the World of Clayworking Machinery

DAYTON, OHIO, U. S. A.



The Brick Plant of The United States Military Prison

at

Fort Leavenworth, Kansas

is equipped with

- 2—Raymond 9 ft. Standard Dry Pans
- 2—Raymond Cup Elevators
- 1—Raymond Piano Wire Screen
- 1—Raymond 10 ft. Standard Pug Mill
- 1—Raymond "777" Brick Machine
- 1—Raymond No. 2 Automatic Cutter
- 1—Raymond Victor Repress
- 1—Raymond 10 Tunnel Radiated Heat Dryer

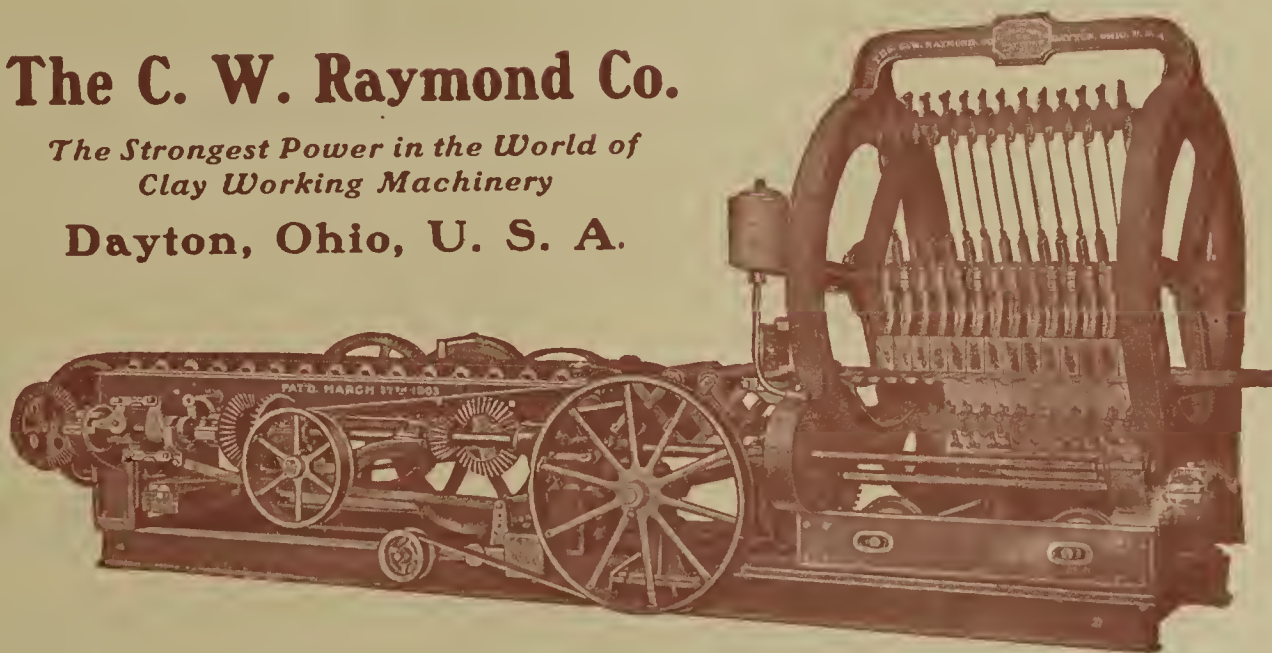
—And They Said,

"—particularly delighted with the quality of the brick manufactured at the Military Prison, and could only attribute its SUPERIORITY over the Lansing brick, which is of the same material TO THE IMPROVED MACHINERY USED."

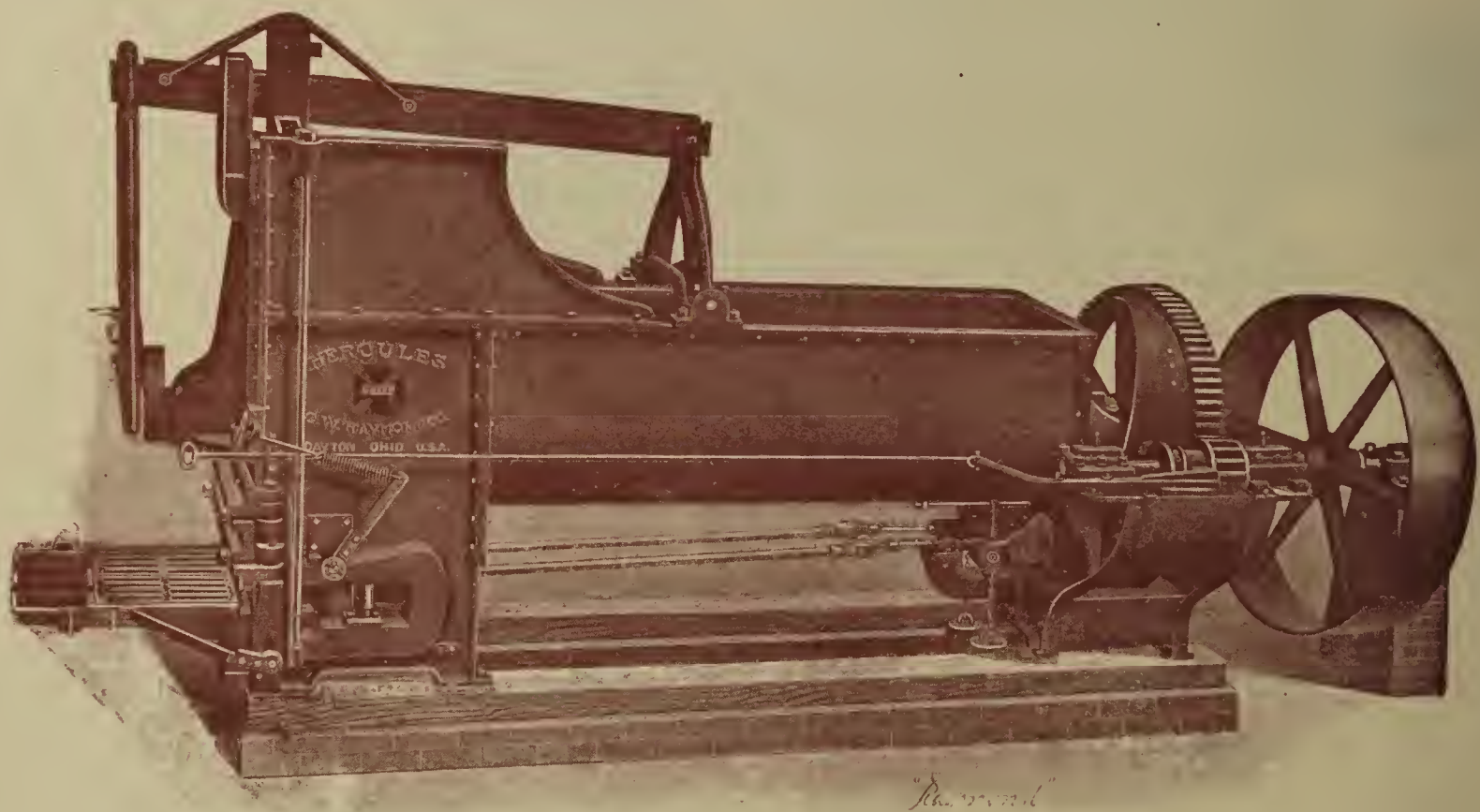
The C. W. Raymond Co.

*The Strongest Power in the World of
Clay Working Machinery*

Dayton, Ohio, U. S. A.



THE RAYMOND HERCULES BRICK MACHINE



"Hercules"

Among the numerous improvements made in our machines for the year of 1912 the Soft Mud machinery has come in for its full share and the Hercules Soft Mud machine is now constructed with a vastly improved pushout device, making a positive return and of such shape and size to insure sufficient bearing at this important point that it will not stick nor clog in any manner.

The safety feature of the pushout device has not been lost sight of, but has been improved over the old method by paying more attention to the workmanship and every part of the machine now is put together with the same care and precision as are the most careful adjustments on our Automatic Cutting Tables. The result of this is clear, making as it does a higher grade machine, smoother working, better product and longer life.

Photographs and full description of this improved machine are yours for the asking.

THE C. W. RAYMOND CO.

The Strongest Power in the World of Clayworking Machinery

DAYTON, OHIO, U. S. A.

ANNOUNCEMENT

To Paving Brick Manufacturers==

Note the increase in numbers and the character of the manufacturers with whom we have contracted for the production of

WIRE-CUT-LUG BLOCKS

in preference to the so-called repressed or stamped brick.

During the year 1910	{ Corry Brick & Tile Co., United Brick Company,	Corry, Pa. Conneaut, Ohio.
1911	{ Sterling Brick Co., Kushequa Brick Co., Reynoldsville Brick & Tile Co., Danville Brick Co., Patterson Clay Products Co.,	Olean, N. Y. Kushequa, Pa. Reynoldsville, Pa. Danville, Ill. Clearfield, Pa.
During 1st month (January) 1912	{ Wabash Clay Co., Clinton Paving Brick Co., Alton Brick Co., Deckman-Duty Brick Co.,	Veedersburg, Ind. Clinton, Ind. Alton, Ill. Cleveland, Ohio.

The last named Company has three large plants located at Cleveland, Carrollton and Malvern, Ohio.

Over SIX miles of Wire-Cut-Lug Brick pavement were laid within the State of New York in the year 1910 and over TWENTY miles in 1911. More than ONE HUNDRED MILES of this pavement have already been contracted for 1912.

Over 400 cities have advised us that their specifications now admit Wire-Cut-Lug Blocks on an equal basis with the stamped brick.

Brick has long been recognized as the MOST PERMANENT PAVEMENT and now Wire-Cut-Lug Brick means THE PERMANENT BRICK PAVEMENT.

We are making provisions for a Permanent Publicity and Educational Campaign during the Entire Life of our Patents. This Practically Insures Business for the Manufacturers of Wire-Cut-Lug Blocks.

We will License Reputable Manufacturers whom we are satisfied are able to produce No. 1 Paving Blocks.

The Dunn Wire-Cut-Lug Brick Co., Conneaut, Ohio

Patented in the United States, Canada, England and Mexico

You Can Save Money

Time and Trouble

By making your choice of magazines for coming year and ordering them all at once through THE CLAY-WORKER.

Knowledge is Power

The best way for clayworkers to get trade knowledge is through the columns of the best clay journal, THE CLAY-WORKER. The up-to-date, successful manufacturer usually keeps posted on current events through the current magazines. The home should be provided, and usually is, with journals devoted to domestic interests and to the welfare and pleasure of the women and children. All of these, whether literary or technical, we offer at prices that will net a saving of 25% to 50% on your magazine purchases for the ensuing year.

(These prices are good only in the United States. Special prices will be quoted to points beyond the United States covering additional postage required.)

The Clay-Worker Clubbing Offers:

CLAY=WORKER.....	\$2.00	Our Price
Mantel, Tile & Grate M.	1.00	
American Magazine...	1.50	\$3.00
Value.....	\$4.50	
CLAY=WORKER.....	\$2.00	
Good Housekeeping...	1.50	
McClure's.....	1.50	\$3.50
Value.....	\$5.00	
CLAY=WORKER.....	\$2.00	
Country Life in America	4.00	
Cosmopolitan.....	1.50	\$5.25
Value.....	\$7.50	
CLAY=WORKER.....	\$2.00	
Municipal Journal....	3.00	
Saturday Evening Post	1.50	\$4.50
Value.....	\$6.50	
CLAY=WORKER.....	\$2.00	
Hampton-Columbian		
Magazine.....	1.50	\$4.10
Current Literature....	3.00	
Value.....	\$6.50	

		Our Price
CLAY=WORKER.....	\$2.00	
Irrigation Age.....	1.00	
Cosmopolitan.....	1.50	\$2.95
Value.....	\$4.50	
CLAY=WORKER.....	\$2.00	
Pearson's.....	1.50	
Brickbuilder.....	5.00	\$6.50
Value.....	\$8.50	
CLAY=WORKER.....	\$2.00	
Cosmopolitan.....	1.50	
Physical Culture.....	1.50	
World's Work.....	3.00	\$5.30
Value.....	\$8.00	
CLAY=WORKER.....	\$2.00	
Motor.....	3.00	
Suburban Life.....	3.00	
Pearson's.....	1.50	\$7.20
Value.....	\$9.50	
CLAY=WORKER.....	\$2.00	
Concrete.....	1.00	
Everybody's.....	1.50	
Ladies' World.....	.50	\$3.35
Value.....	\$5.00	
CLAY=WORKER.....	\$2.00	
Munsey.....	1.00	
Collier's.....	5.50	\$6.85
Value.....	\$8.50	
CLAY=WORKER.....	\$2.00	
Metropolitan.....	1.50	
Good Housekeeping...	1.50	\$3.50
Value.....	\$5.00	
CLAY=WORKER.....	\$2.00	
Brickbuilder.....	5.00	
Cosmopolitan.....	1.50	\$6.50
Value.....	\$8.50	

	Our Price
CLAY=WORKER.....\$2.00	==
Concrete..... 1.00	
Woman's Home Comp. 1.50	\$3.00

Value.....\$4.50

CLAY=WORKER.....\$2.00	
Woman's Home Comp. 1.50	
Delineator..... 1.50	\$3.50

Value.....\$5.00

CLAY=WORKER.....\$2.00	
Concrete Age..... 1.00	
Worlds Work..... 3.00	
Saturday Evening Post 1.50	\$5.10

Value.....\$7.00

CLAY=WORKER.....\$2.00	
Youth's Companion... 2.00	
McClure's..... 1.50	\$4.00

Value.....\$5.50

CLAY=WORKER.....\$2.00	
Woman's Home Comp. 1.50	
Youth's Companion... 2.00	\$4.25

Value.....\$5.50

CLAY=WORKER.....\$2.00	
Scientific American.... 3.00	
Current Literature.... 3.00	
Woman's Home Comp. 1.50	\$6.75

Value.....\$9.50

CLAY=WORKER.....\$2.00	
Outing..... 3.00	
Technical World..... 1.50	
Success..... 1.00	\$5.50

Value.....\$7.50

CLAY=WORKER.....\$2.00	
Saturday Evening Post 1.50	
Leslie's Weekly..... 5.00	\$6.40

Value.....\$8.50

CLAY=WORKER.....\$2.00	
World's Work..... 3.00	
Woman's Home Comp. 1.50	\$4.20

Value.....\$6.00

CLAY=WORKER.....\$2.00	
Century..... 4.00	
Current Literature.... 3.00	\$6.50

Value.....\$9.00

	Our Price
CLAY=WORKER.....\$2.00	==
Country Life..... 4.00	
Delineator..... 1.50	
McClure's..... 1.50	\$6.50

Value.....\$9.00

CLAY=WORKER.....\$2.00	
Good Roads..... 1.00	
Popular Magazine..... 3.00	\$4.50

Value.....\$6.00

CLAY=WORKER.....\$2.00	
Scribner's..... 3.00	
Current Literature..... 3.00	\$5.75

Value.....\$8.00

CLAY=WORKER.....\$2.00	
Lippincott's..... 3.00	
Delineator..... 1.50	\$4.25

Value.....\$6.50

CLAY=WORKER.....\$2.00	
World Today..... 1.50	
Hampton-Columbian Magazine..... 1.50	\$3.50

Value.....\$5.00

CLAY=WORKER.....\$2.00	
Cosmopolitan..... 1.50	
Century..... 4.00	\$6.00

Value.....\$7.50

If none of the foregoing combinations is just what you want, write us for special prices on any magazines or papers desired and we will quote you equally low prices.

Send all orders to The Clay-Worker.

T. A. Randall & Co., Pub. Clay=Worker, Indianapolis:

You will please send The Clay-Worker and the other magazines named below to me for the ensuing year beginning with the next current issue of each for which

I enclose \$.....

Name.....

Postoffice.....

Street and No.....State.....

Names of magazines desired.....

.....

.....

A MODERN brickmaking plant is now considered a sure indication of the firm which operates it; a sign that in that place modern methods are to be found throughout.

It represents progress; it signifies to the public that the owners are constantly on the lookout for improvements; that they are keen to secure the latest and the best equipment necessary to give the best results and the largest profit.

Is it not sufficient that Potts Machinery is in operation in every state; that they are doing all and more than claimed for them?

Service, as understood by all users of Potts Machinery, means economical operation at any time, all the time, anywhere, under all con-

ditions, and that Potts Machines have been successful in every respect can not be questioned; the past record of these machines is the proof—open to all.

The record of Potts Machines is one of which its manufacturers can justly be proud, for it is excelled by none and equaled by few.

Complete plants is our specialty. We manufacture all machinery in our plant under the supervision of high priced, skilled mechanics.

**Horizontal Brick Machines, Disintegrators,
Granulators, Feeders, Mould Sanders,
Yard Supplies of all kinds.**

C. & A. Potts & Co.
Indianapolis, Ind.

Wellington Well-Made Molds

are sold from 80 degrees East Longitude, = India, = to 125 degrees West Longitude, = British Columbia.

On hundreds of brickyards in all that great region you will find fellow beings using them day after day, to their eminent satisfaction.



Because they are built

- By Careful, scientific carpenters and iron workers who are making Brick Molds their life work, who do nothing else from January to December.
- On Special and modern machinery to do every part of the work, resulting in a rigidly screwed and evenly riveted mold, clear and smooth, clean-cut panels and letters, and the best of handles.
- From Our pile upon pile of the best selected Cherry and Hard Maple that money can buy,—air dried from twelve to eighteen months before using. Many manufacturers cannot carry the stock of lumber necessary to warrant a thorough air drying; we find it has paid us well in the extra satisfaction of our Molds made from the thoroughly seasoned lumber.
- With Special countersunk head screws, threaded to the head, which cannot work out, as well as rivets at each end of partition iron, that absolutely hold the iron flat until the mold is worn out; with perfect dove-tailed joints. These details assure a flat surface on the top of the Molds,—no trouble with the strike knife.
- With Blocks between the bottoms, the only successful device to absolutely prevent splitting of the bottoms. The brick manufacturer will appreciate this advantage.

Now, this is our everyday Mold, what we send out on every single order. The steel building iron; heavier or regular, as ordered, varies the price, but all the above details are in our regular grade molds as well as the heavier ones. **Notice if they are in yours.**

In remitting for an order of molds one customer says:

“Enclosed please find check for set of **the best Molds we ever used**, either for hand or machine work. They seem to be built to stay.

(Signed) BARKLEY BROS., Greenville, Ky.”

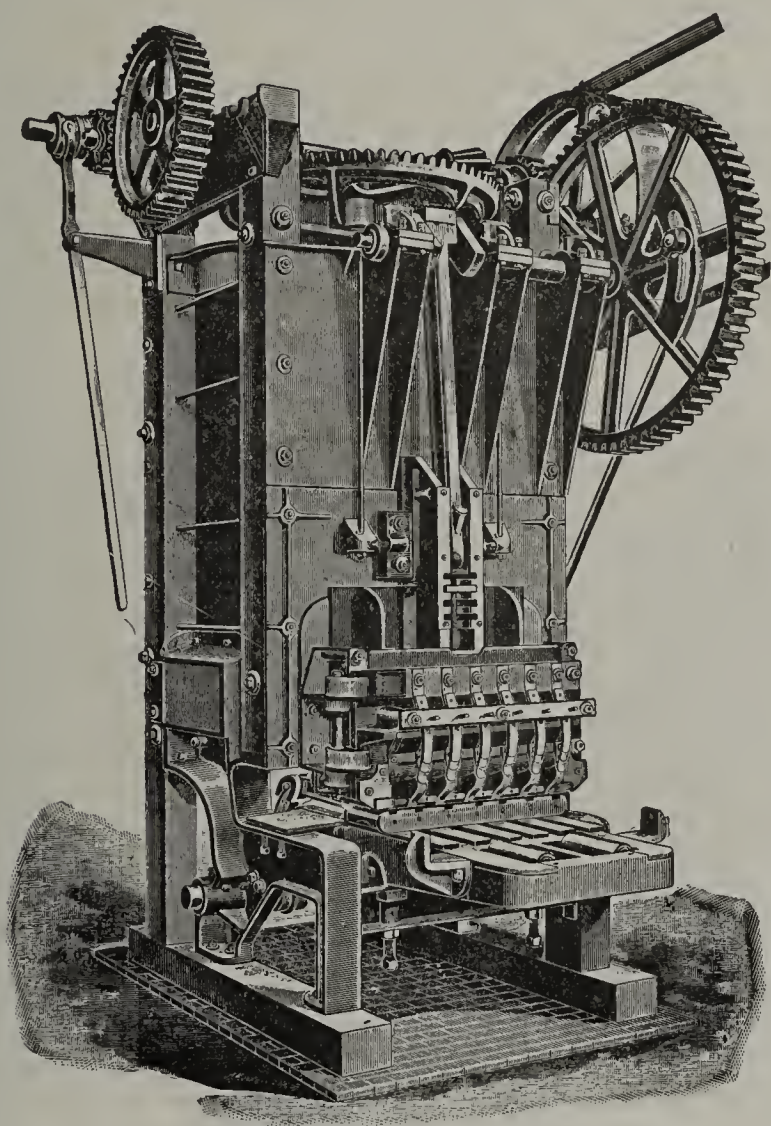
Can you afford not to try to disprove their statement on your yard?

Let us make you prices on your 1912 Molds, or a part of them at least, to be used with and compared with our competitors’.

The Wellington Machine Company

Wellington, Ohio

“New Haven” Brick Machines.



Soft
Clay
Brick
Machines
Are
the
Only
Kind
We
Build
and
We
Build
Them
Well.
Stout
Shafts,
Long
Bearings,
Large
Oil
Holes,
Strong
Gears,
Steel
Liners
and
Other
Details
in
Proportion.

The Eastern Machinery Co.,
New Haven, Conn.

FREE

This superb self-pronouncing Dictionary, in substantial cloth binding with The Clay-Worker for 1912, for \$2.00. Nothing nearly so valuable has ever been offered before. The flexible morocco binding, an elegant volume, will be sent for \$2.75, charges prepaid, together with The Clay-Worker for twelve months. **ORDER NOW.**



FRENCH MOROCCO BINDING
Absolutely Flexible

reinforced in all necessary parts to add to strength and durability. Title stamped in gold on side and back, marbled edges, Patent Thumb Alphabetical Index.

=THE NEW UNIVERSAL= —SELF-PRONOUNCING— DICTIONARY

Based upon the Solid Foundation laid by

NOAH WEBSTER

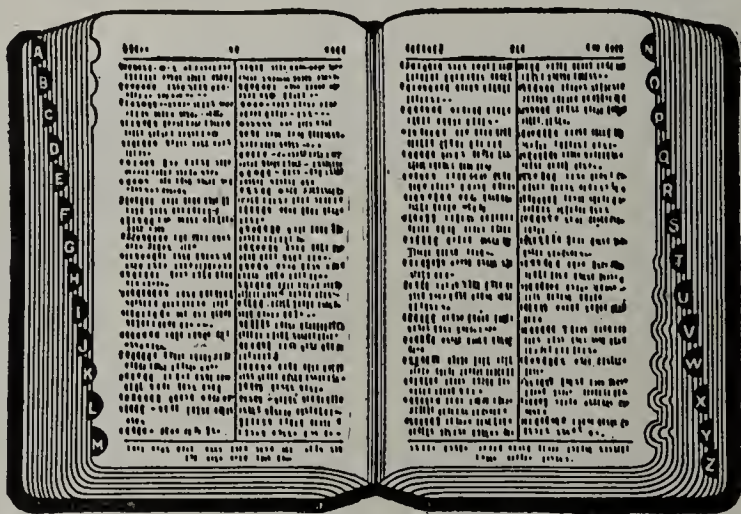
and other Lexicographers, thoroughly modernized by

CHARLES MORRIS

In the Office It tells you how to divide each word into syllables; how to pronounce it, whether it begins with a capital letter or a small letter; gives abbreviations; legal and commercial terms, and names of persons and places. It will be found indispensable to employer, stenographer or clerk.

In the Home and School Its simple arrangement and clear definitions admirably fit it for this purpose. The bold type and the vast amount of general information it contains, commends it to Teacher, Parent and Child.

Printed
from New
Type-Set
Plates



This cut shows Patent Thumb Index and how Dictionary appears when open. It lies perfectly flat. Size when open 8 x 11 1/2 ins. Size when closed 5 1/2 x 8 1/2 ins. Contains over 1000 pages.

In Convenience of Size
Fullness of Contents
Logical Arrangement

it is especially adapted to
every-day use for

Business Man, Teacher,
Student and The Home

Among the noteworthy improvements are the following:
It Contains All the Words in the English language in ordinary use, including the many new words that have recently come into use. The definitions are accurate and reliable and embrace all distinctions and shades of meaning.

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The Pronunciation of Each Word is shown by a clear and properly accented system of phonetic spelling.

The Synonyms and Antonyms are given with the words themselves following the definitions instead of the usual but less convenient method of placing them in a separate list in the appendix.

Each Word and Its Derivatives are separately indexed instead of the suffix words and prefix words being crowded in with the definitions, an expedient used to save space, but with a loss of clearness and utility.

Many Other Necessary Features Useful in Home, School and Office, including Rules for Pronunciation; Dictionary of Prefixes and Suffixes of Names of Men and Women; of Mythological and Classical Names; of Forms of Address; of Popular Titles of Cities and States; of Important Persons, Places, Monuments; of Foreign Words and Phrases, Colloquialisms, Quotations and Significant Words and Phrases frequently met with in Literature; and a Dictionary of Words adopted by the Simplified Spelling Board; Maps of the World and of the United States in Colors; Flags of All Nations in Colors.

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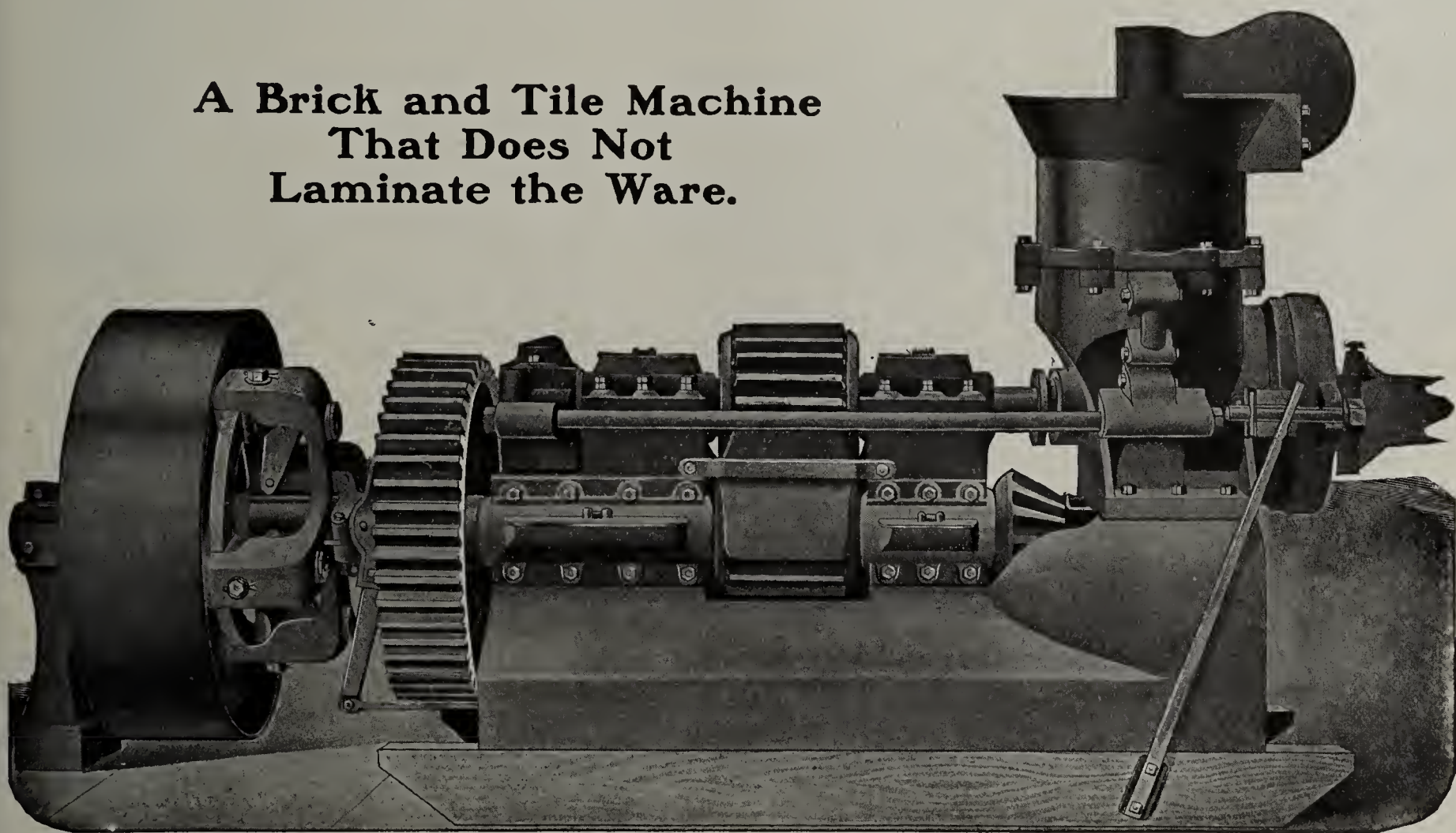
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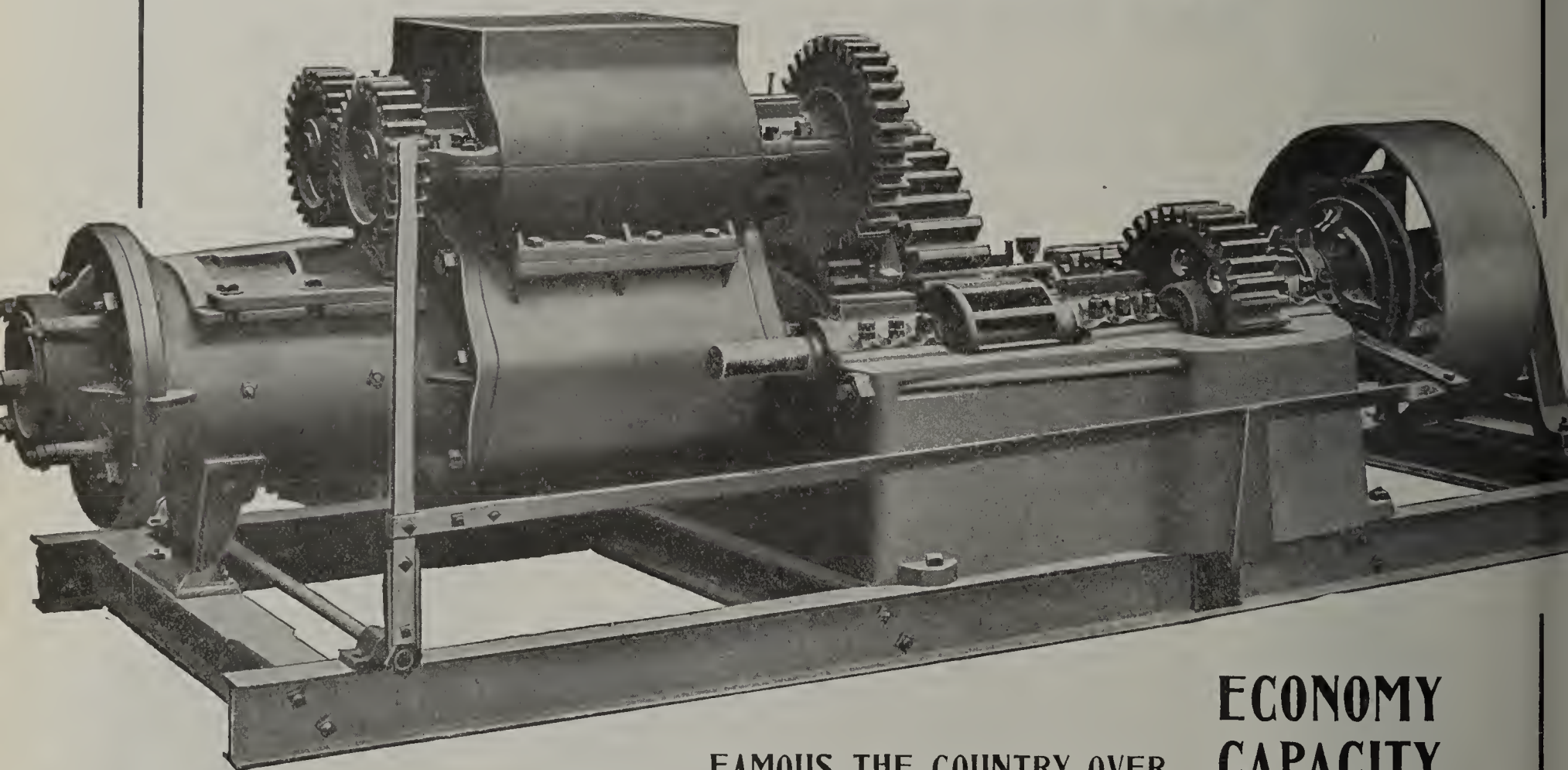
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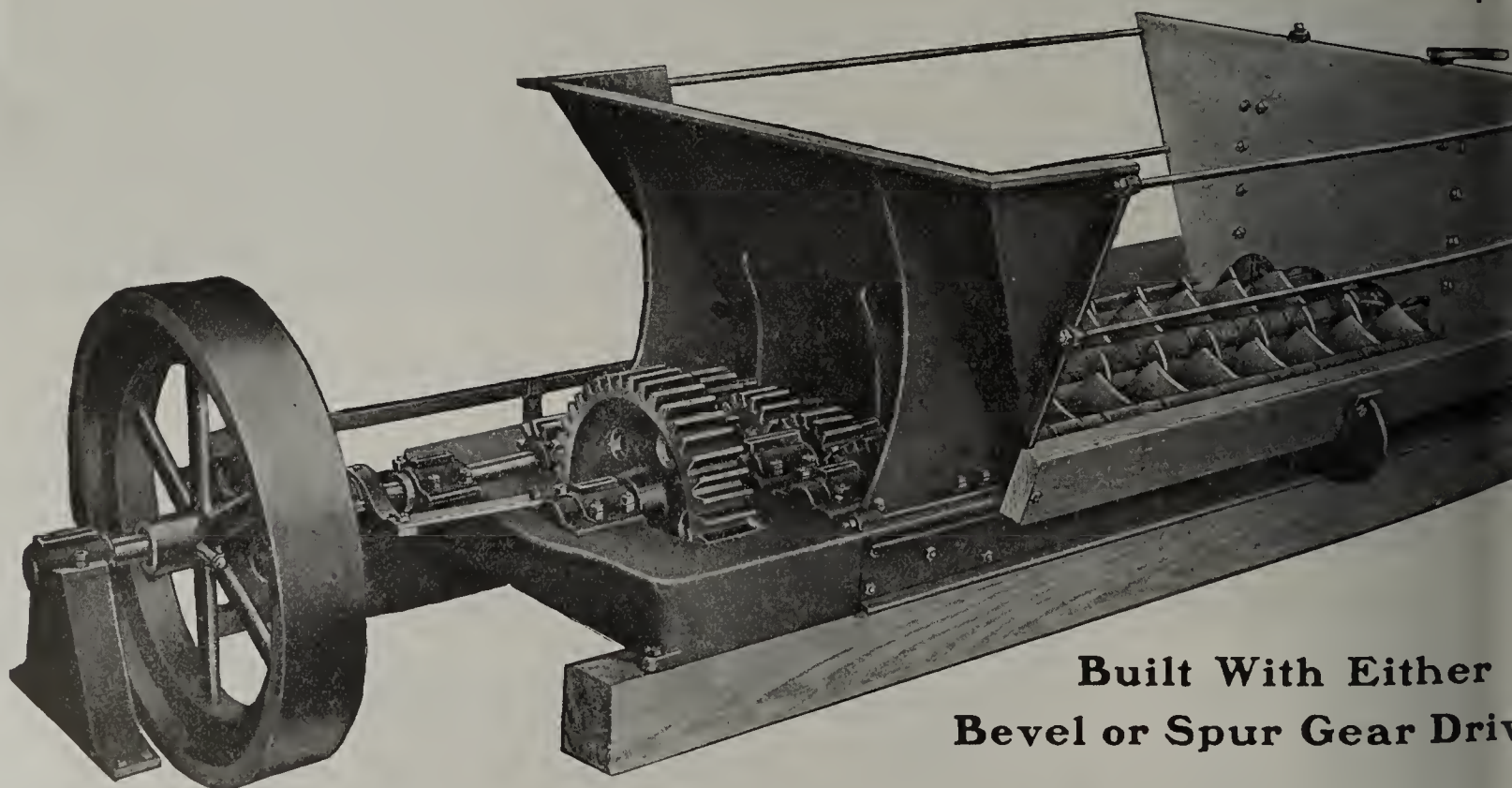
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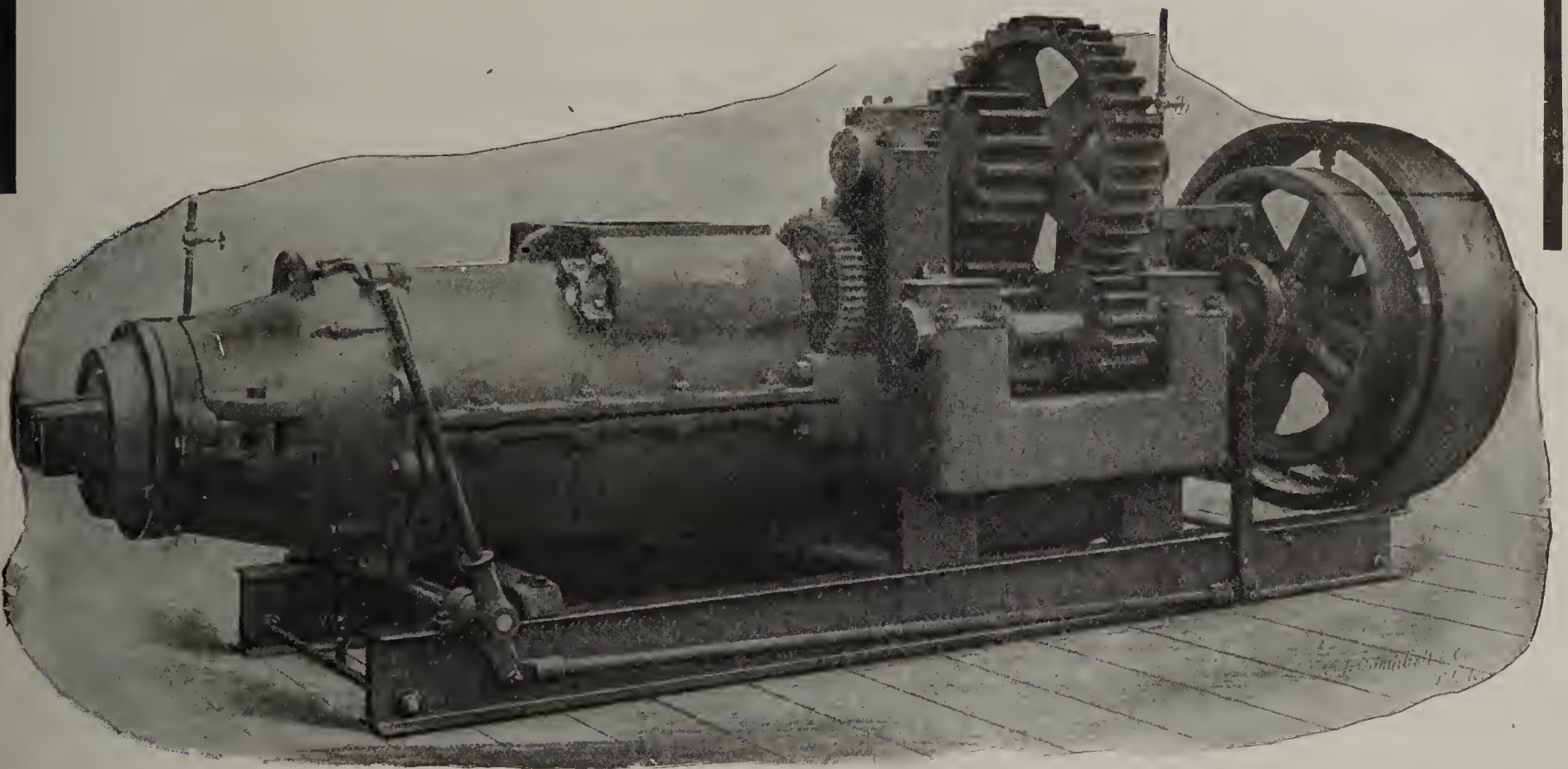
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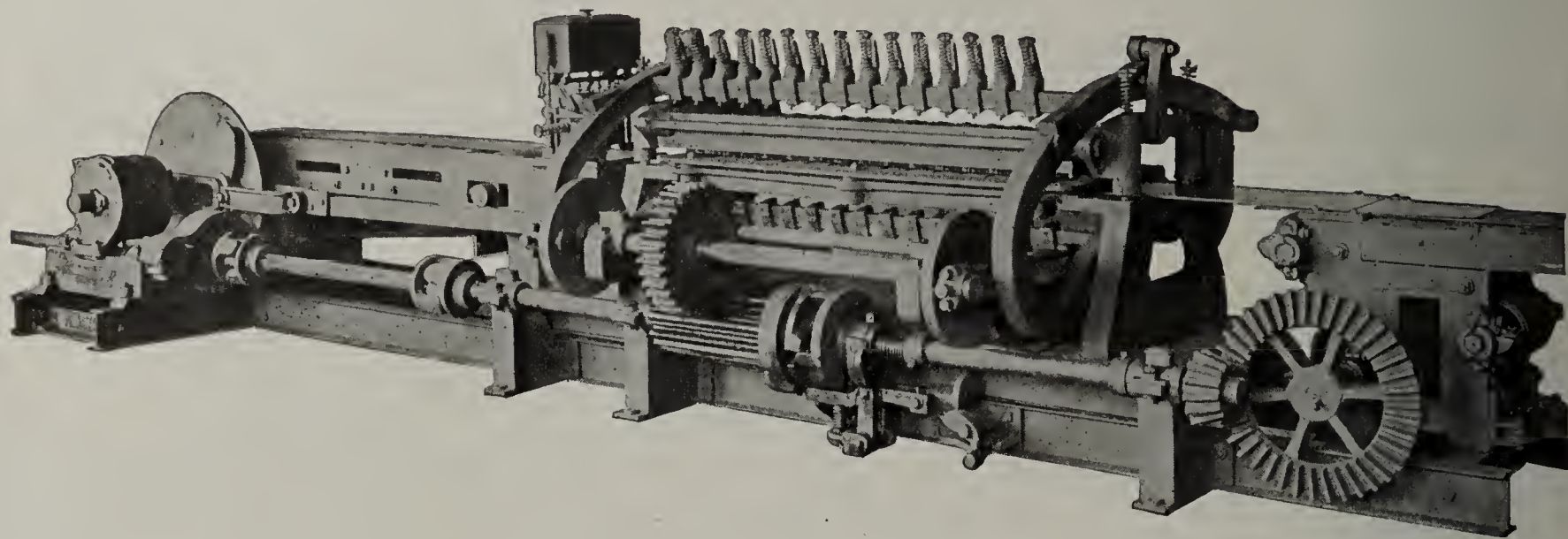


Some Features of Construction.

The knives are forged from hard, high-carbon steel; each one independently adjustable for pitch. The expressing screws or augers and the casings which surround them are made of white iron. The bearings are self-oiling. The backthrust bearings are self-oiling, self-aligning and adjustable to take up the wear of the expressing screw. The hoppers are kept clear by a feed roll which does not clog. The gear frames are cast in one piece. The gears are semi-steel. The mounting is self-contained.

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This cutter, which is of the reciprocating type, is built in two Models "T 50" and "T 60" for capacities up to 12,500 brick per hour or more. The design is extremely simple and substantial. It embodies many of the well tried features of our Rotating Automatic Cutters.

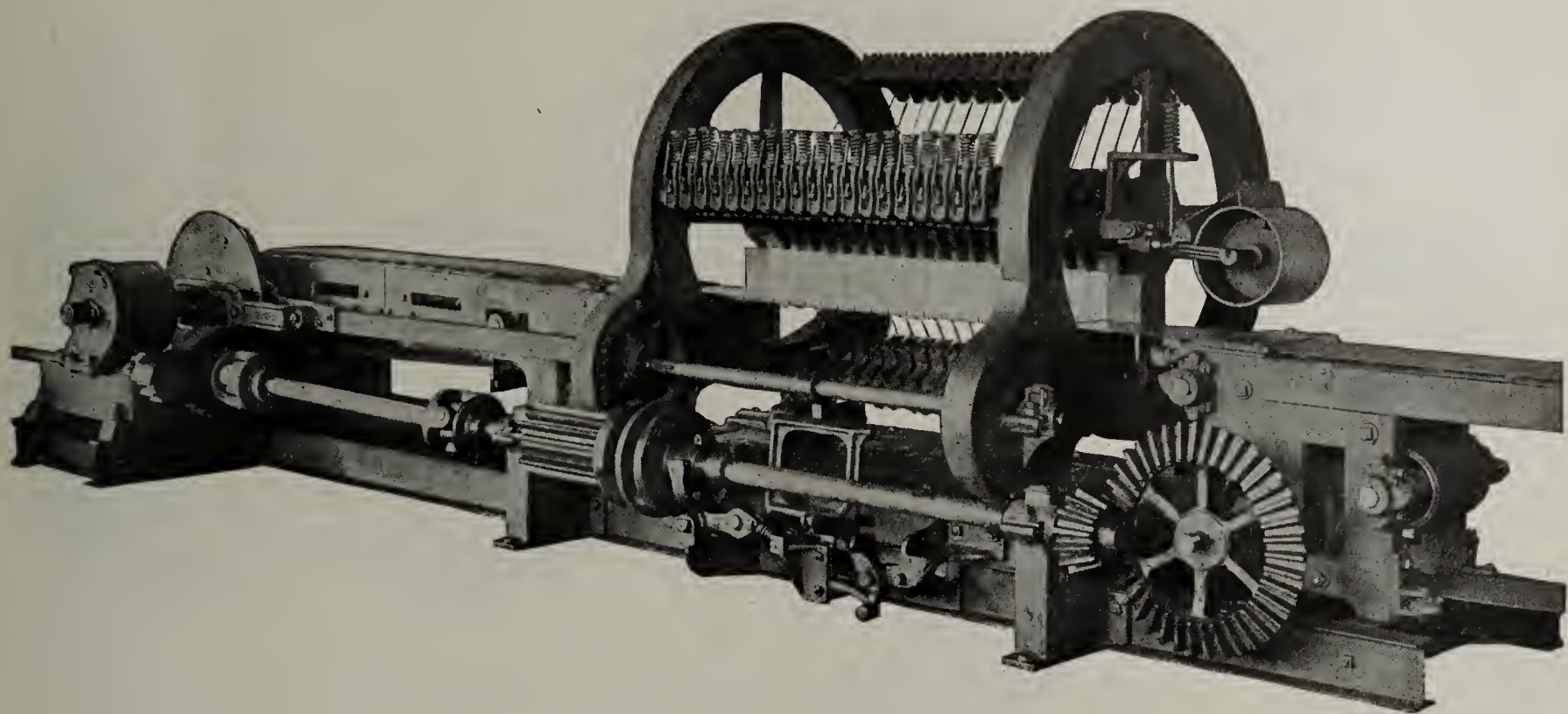
The cutting frame carries only one set of cutting wires and has a swinging movement, avoiding the wear and play common to sliding parts. It is actuated by cranks, driven by a single gear and pinion, giving a smooth, quiet starting and stopping of the cutting stroke. The frame remains stationary between cuts, affording ample time to renew broken wires.

The platens are very easily removed and replaced when the thickness of cut is to be changed. Four bolts hold the platen in place. When these are removed it can be lifted straight up, between the end castings. Only a few minutes required to make the change.

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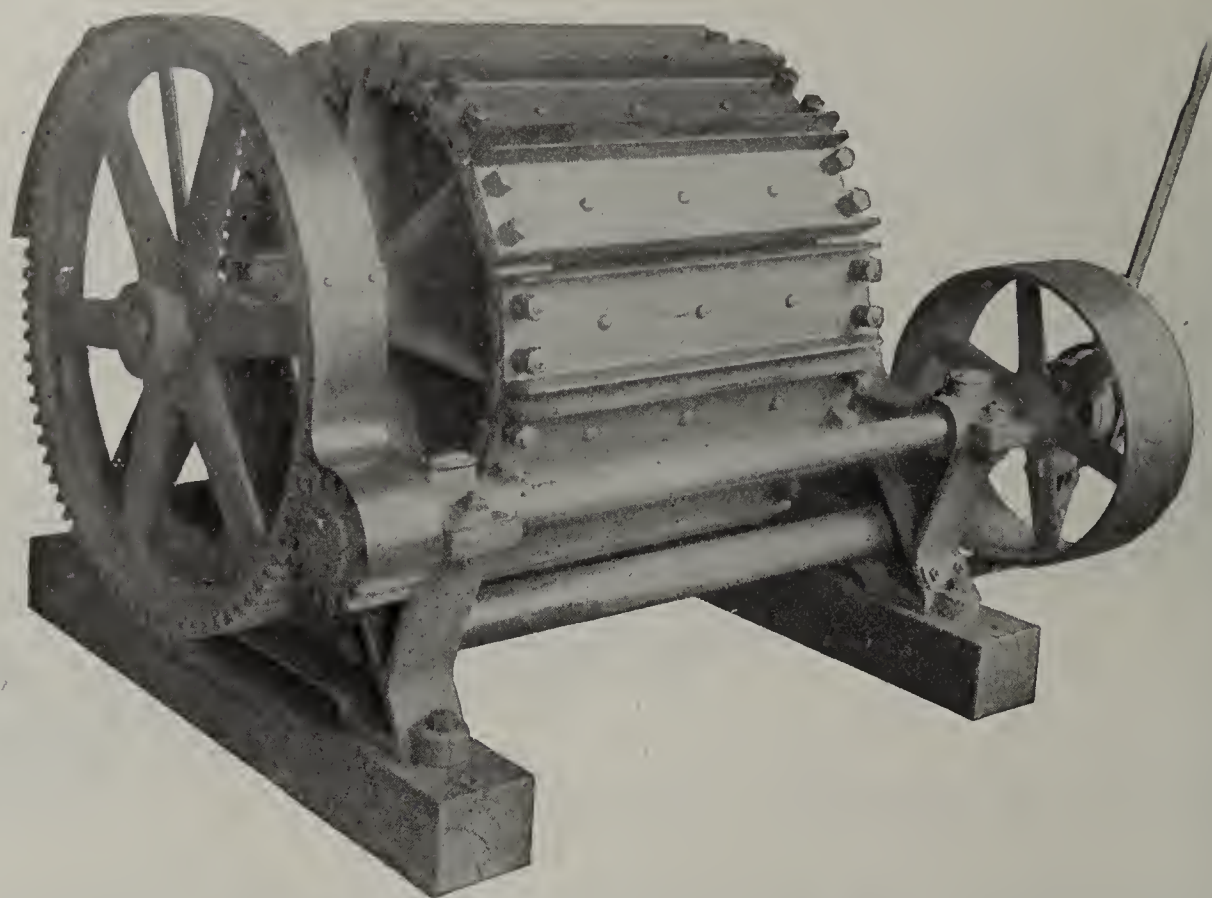
The above illustration shows the Model C 20 Cutter, which is an improved model of our well-known Size 16. It is intended for capacities up to 7,500 standard size brick per hour—18 brick are cut at each cut. At this speed the cutting reel makes only a little over two revolutions per minute, remaining stationary between cutting strokes. It is not necessary to stop the brick machine to renew broken wires, as this gives ample time.

The cutting apparatus, including drive for separating belt, is entirely self-contained, being mounted upon one set of I-beam sills, assuring permanent alignment of all parts. The measuring and separating tables are built with iron or steel sides.

Cutting reel and carriage are carried on rollers requiring little or no oiling. Carriage is positively moved with the clay by an accurate cam. Clutch mechanism is the simplest possible. Wearing surfaces have renewable steel plates.

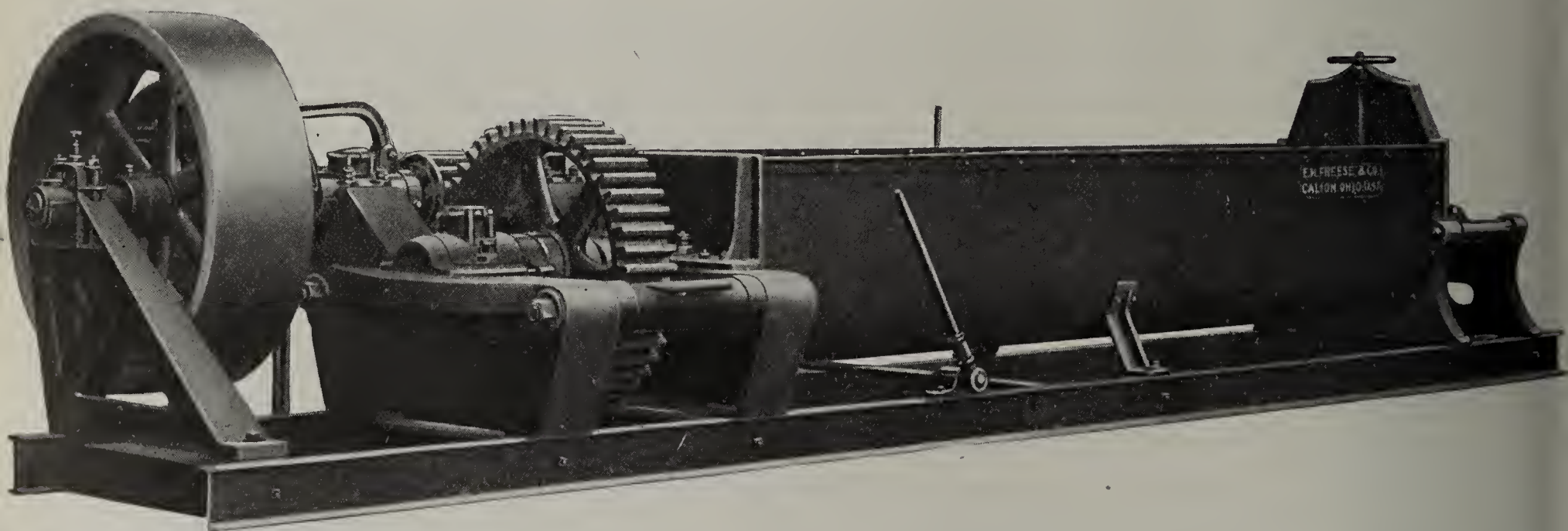
Particular attention is called to the platen construction. The platen is cast in one piece of tubular cross section and is very rigid. Surfaces covered with renewable steel plates, insuring fine slots. The angle of the cutting wires has been changed to give perfect edges on the brick. Built to give long service without skilled attention. Complete description will be furnished on request.

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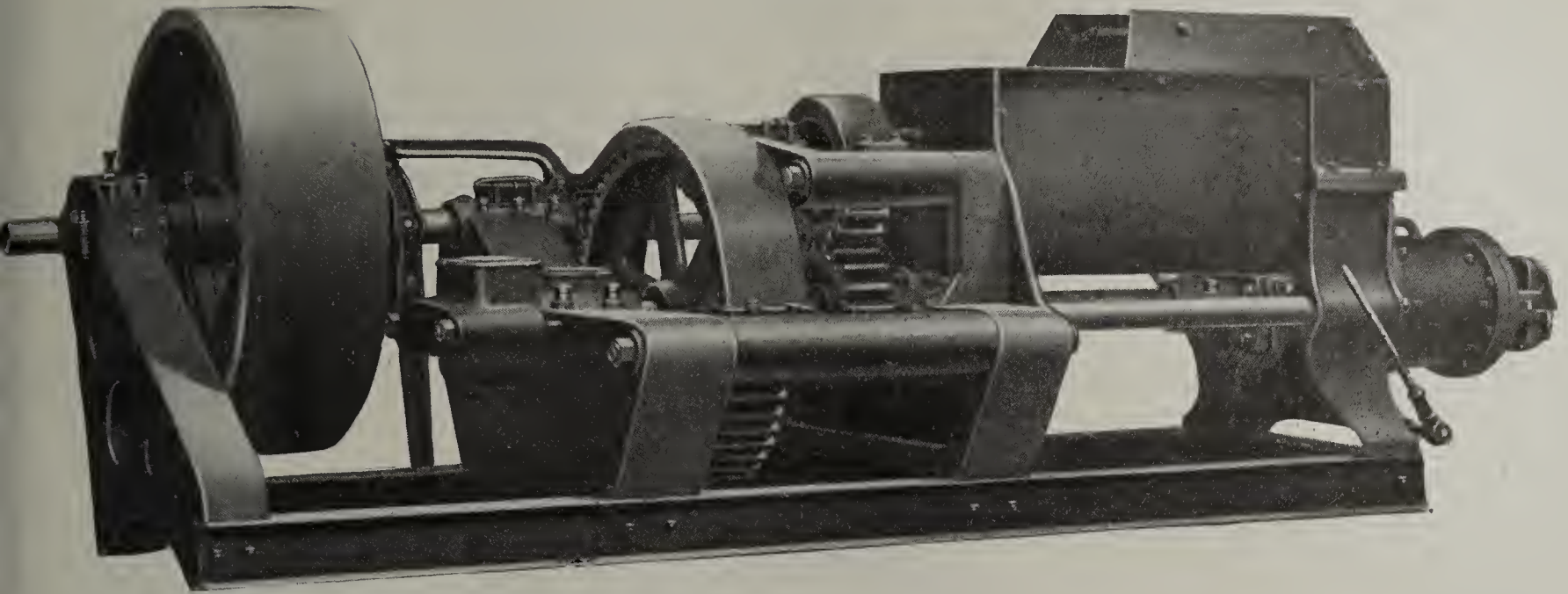
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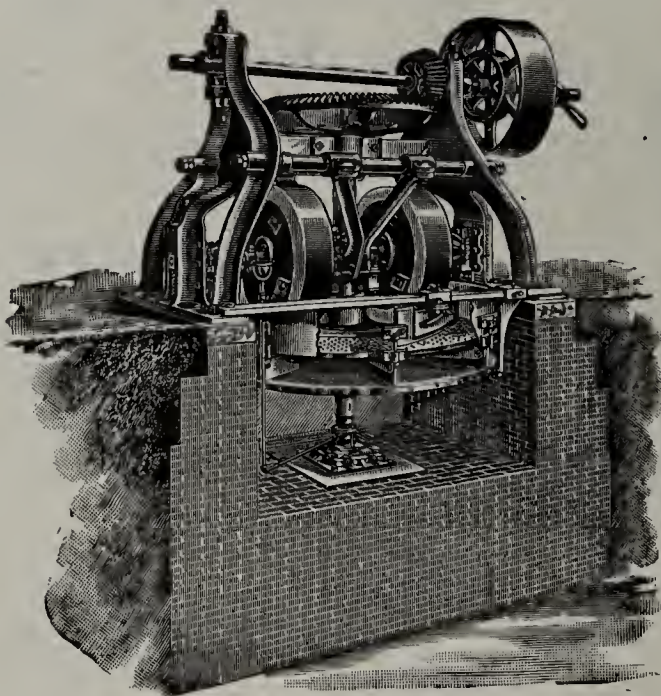
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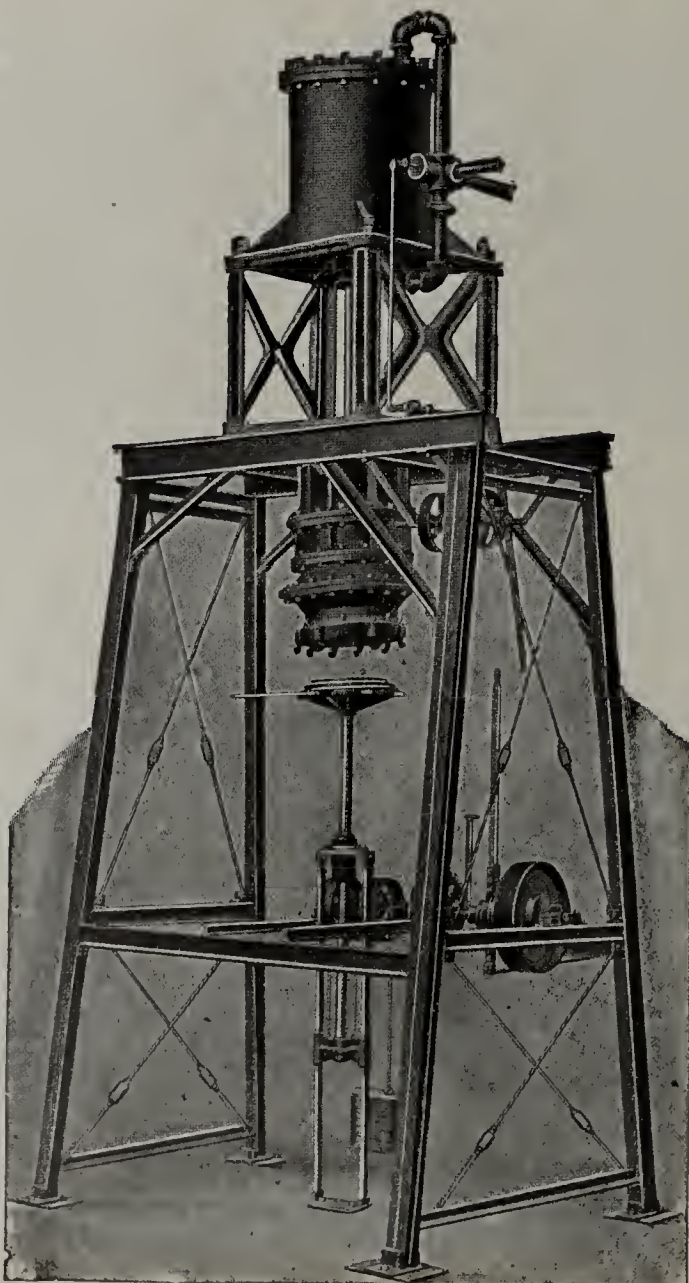
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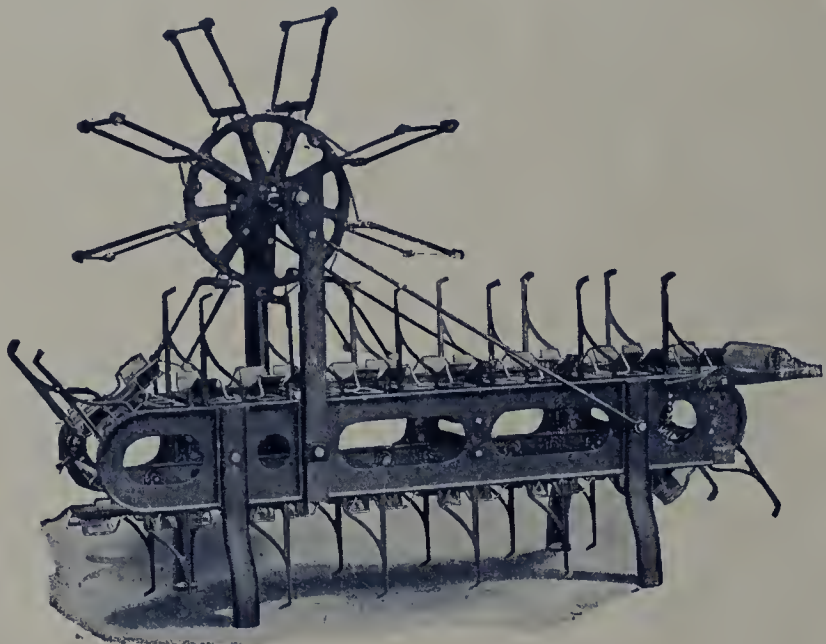
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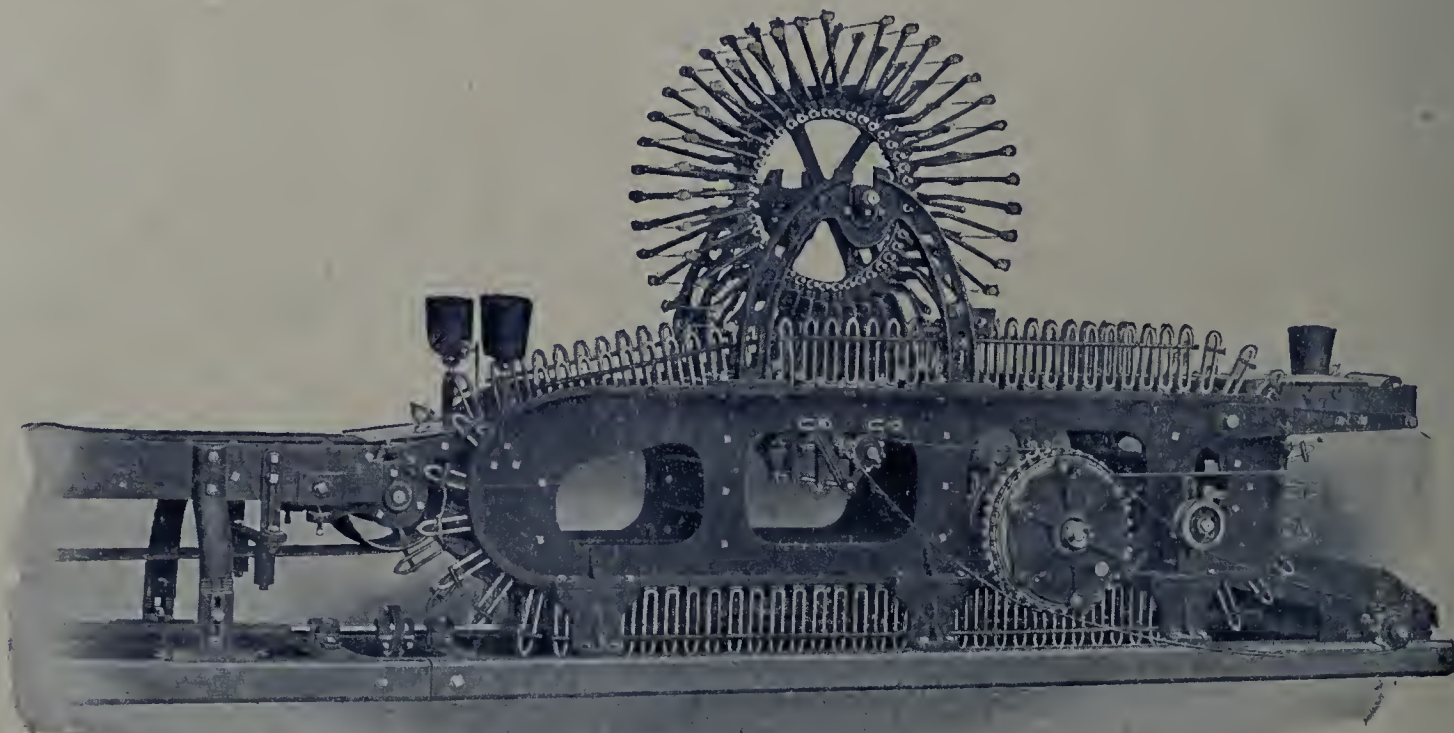


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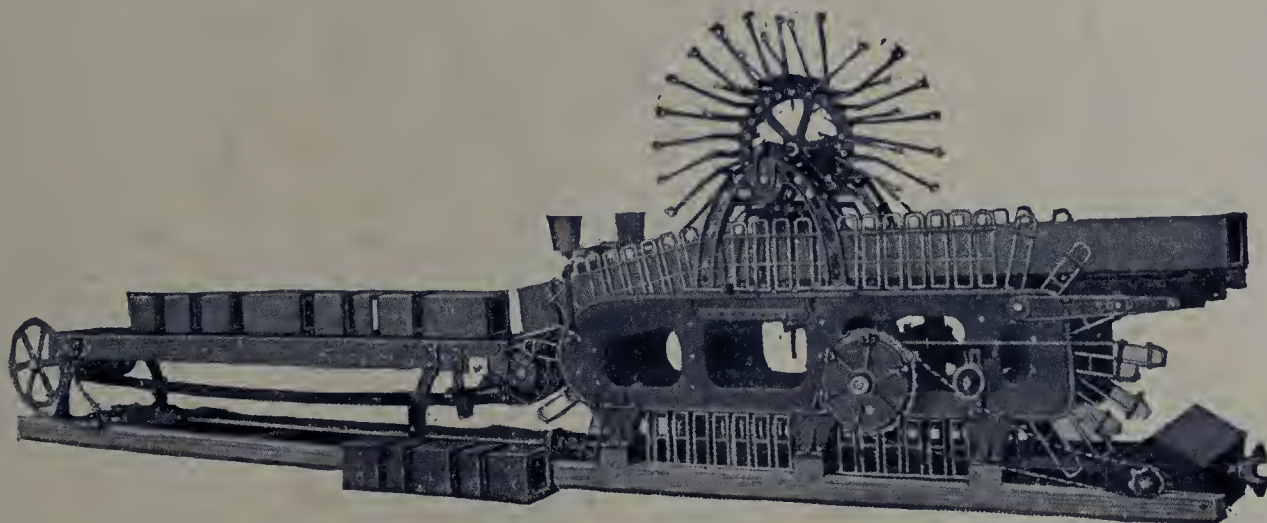
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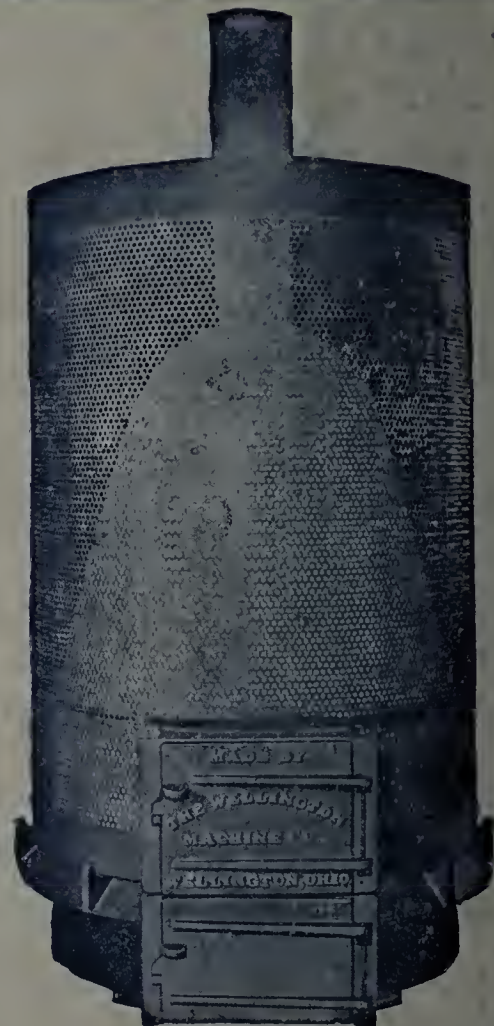


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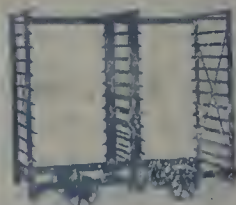
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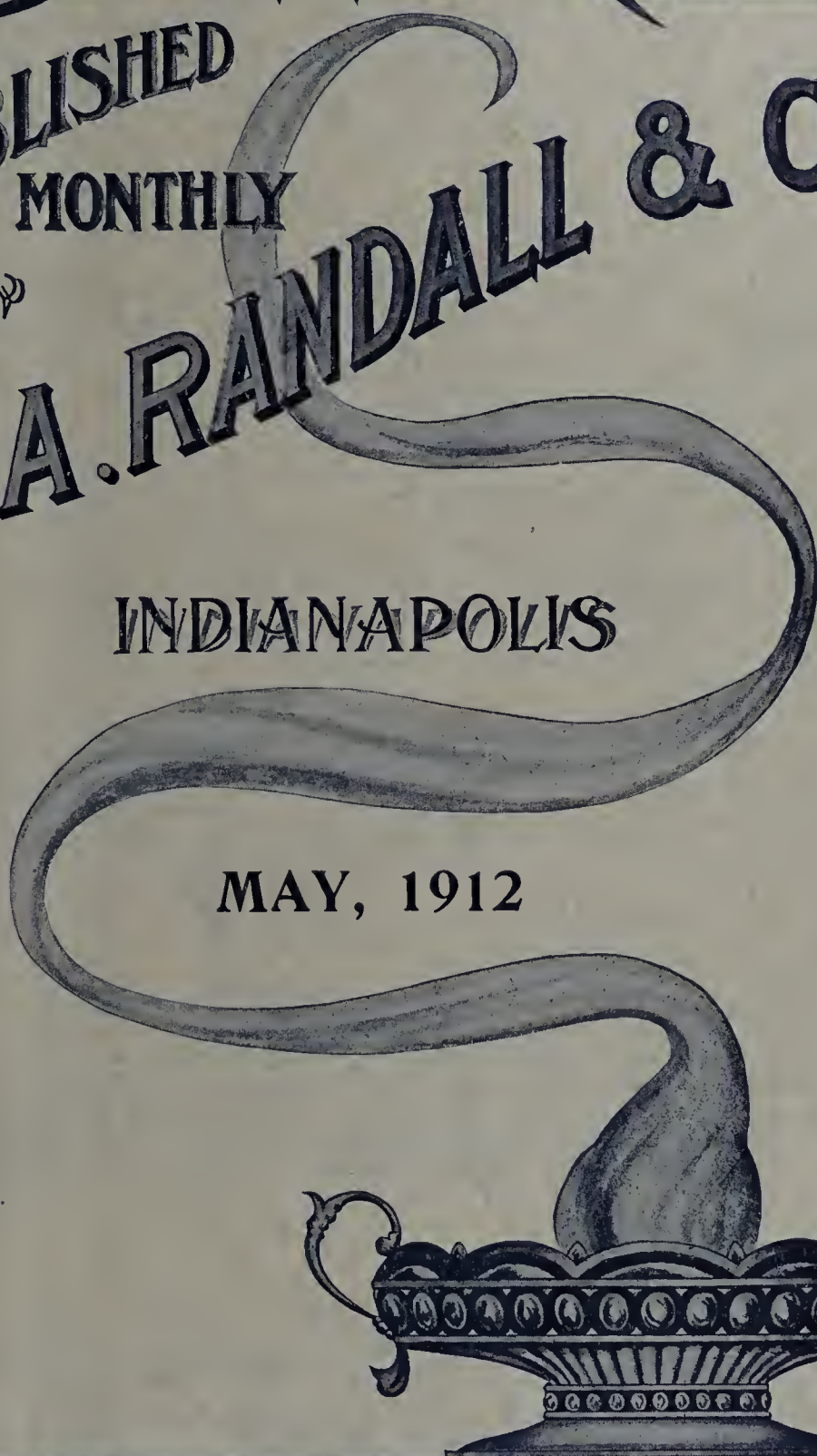
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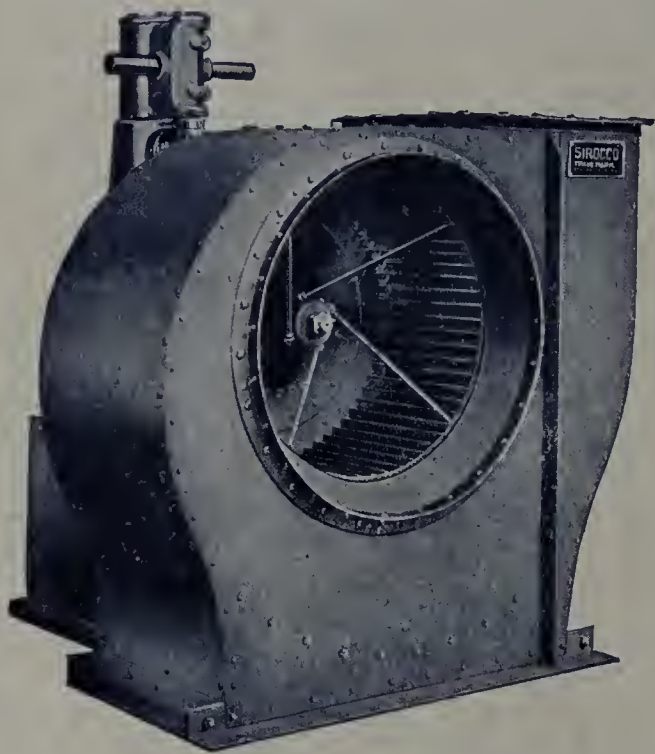
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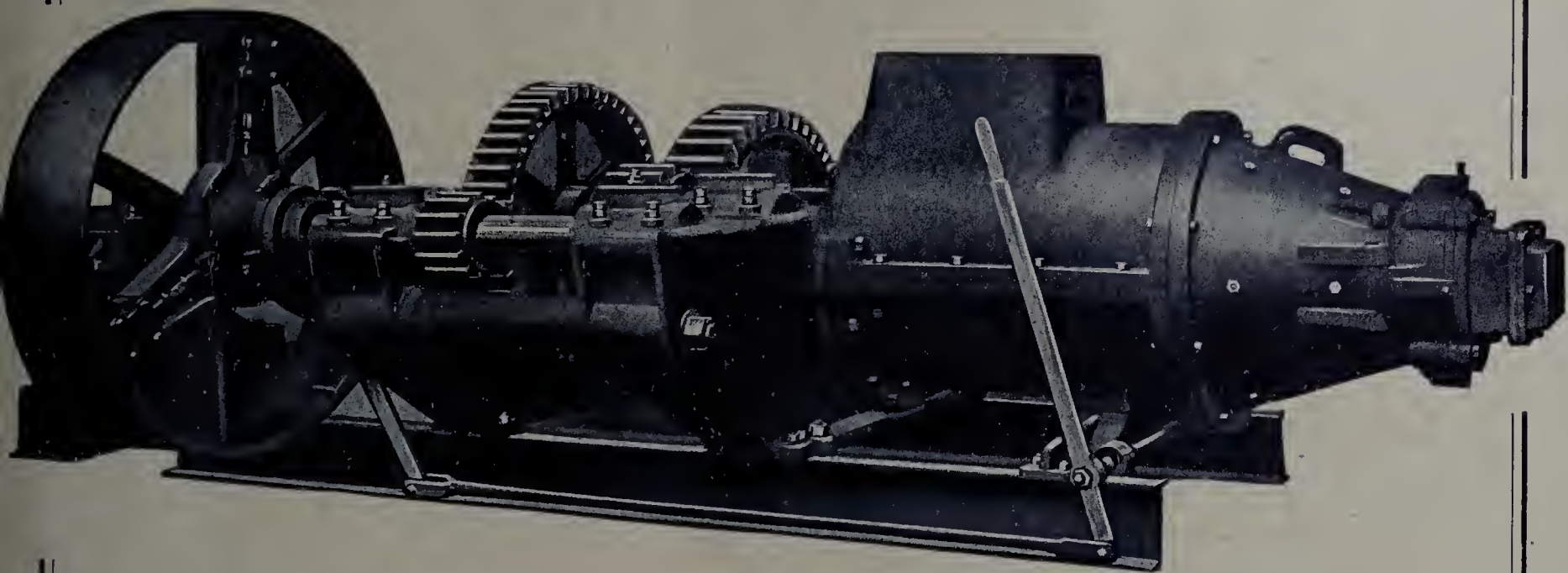
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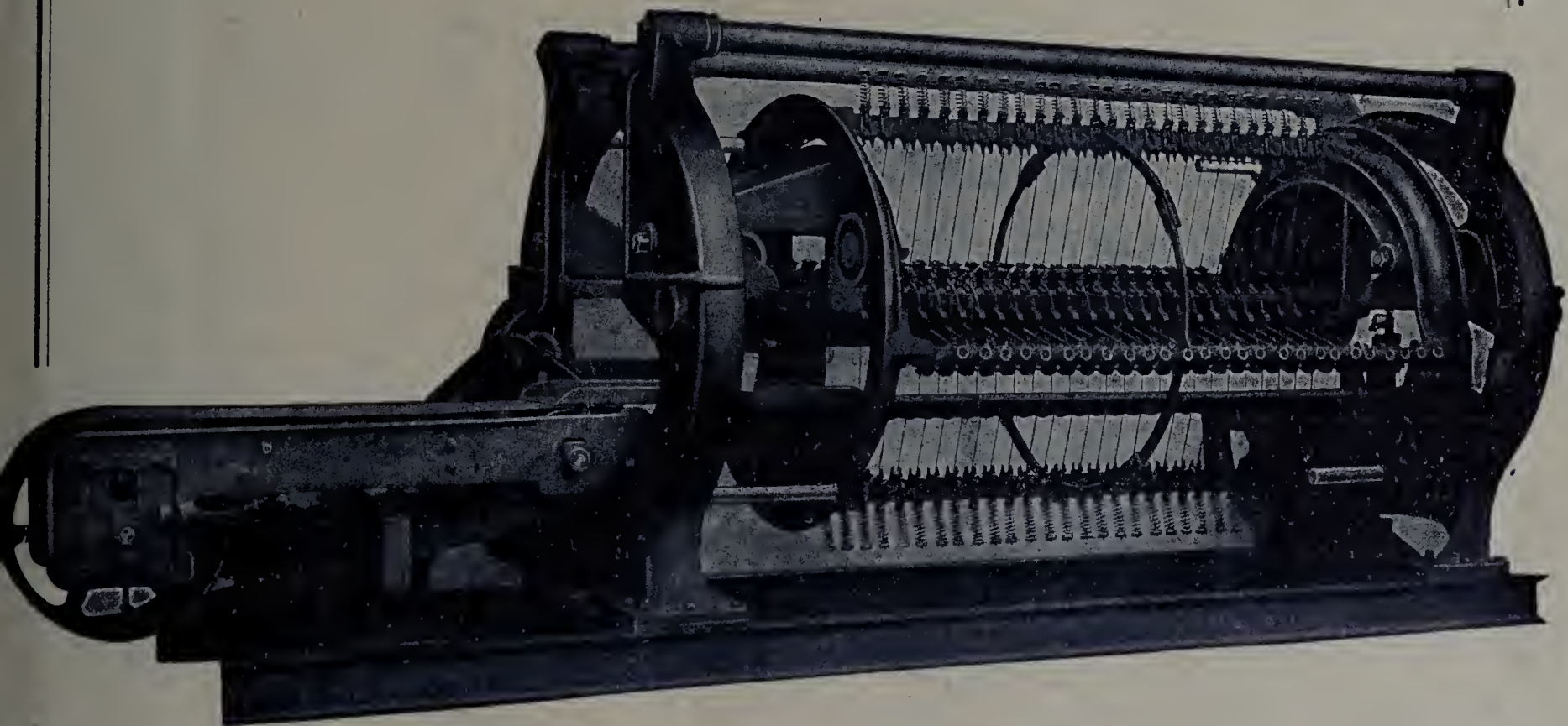
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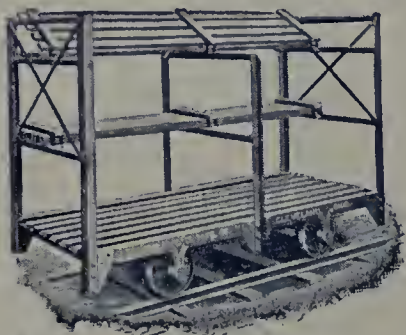
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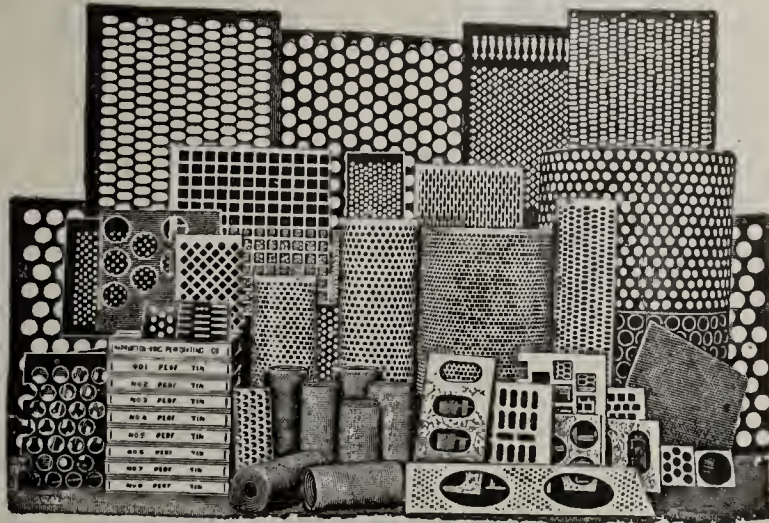
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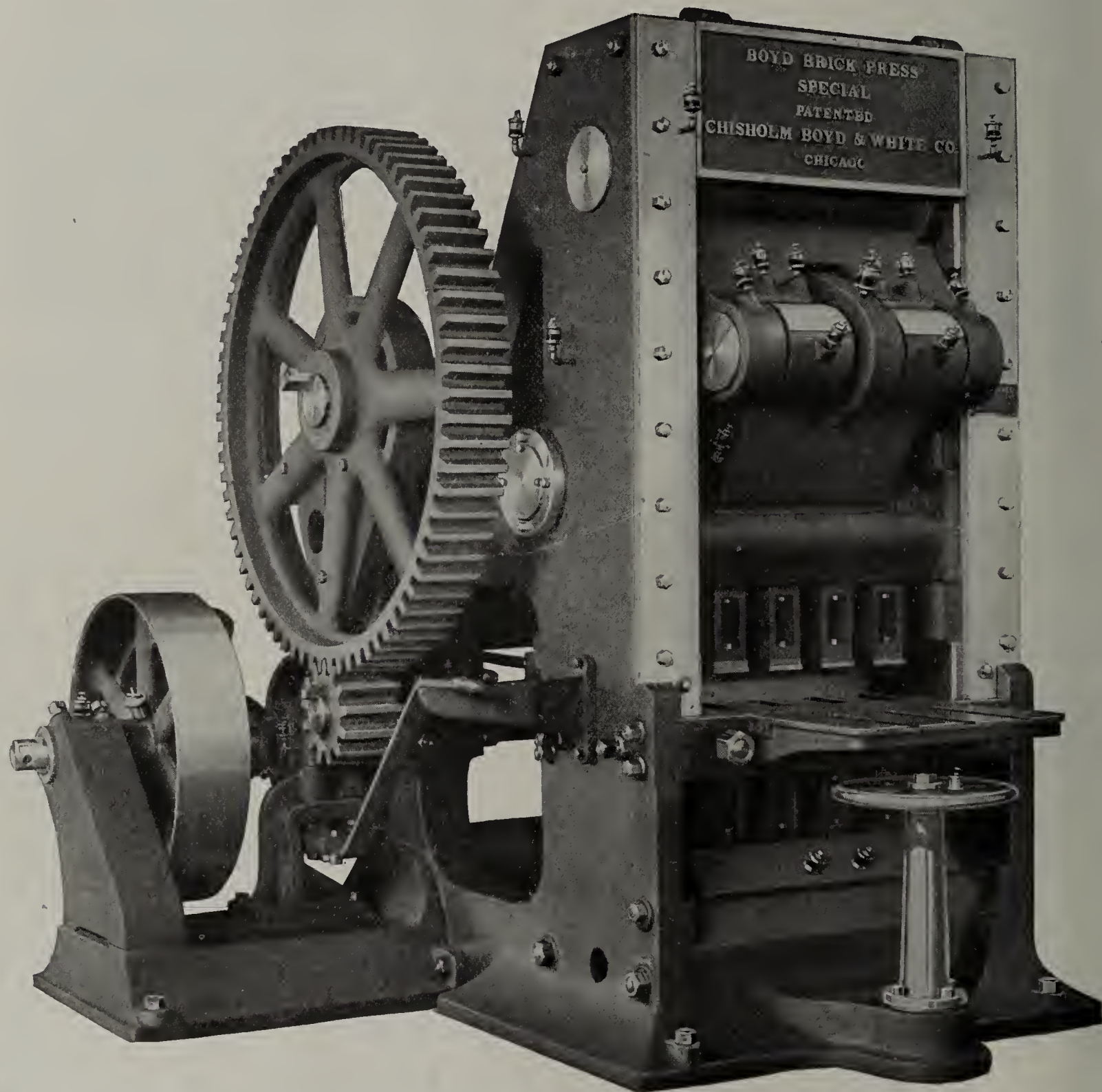
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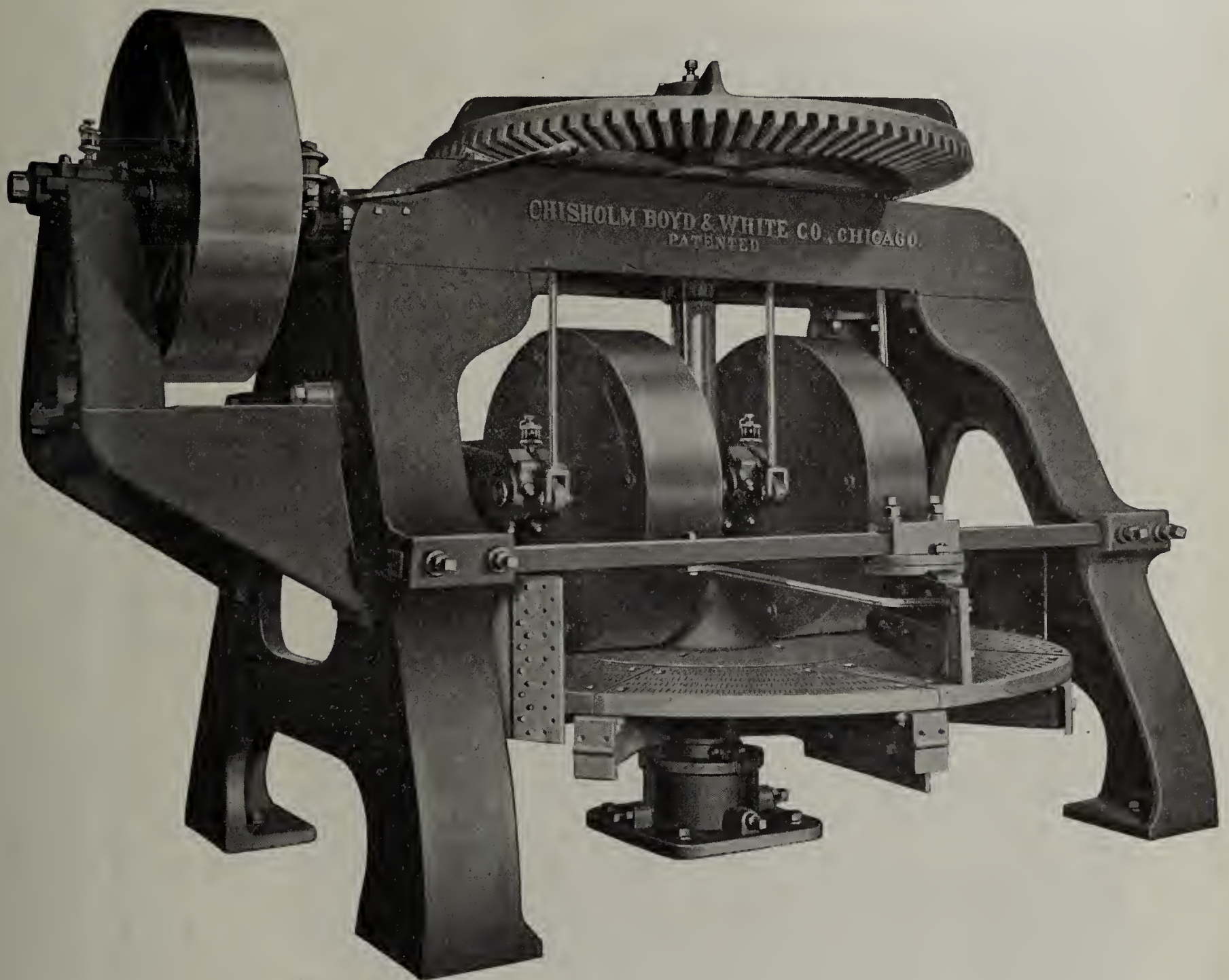
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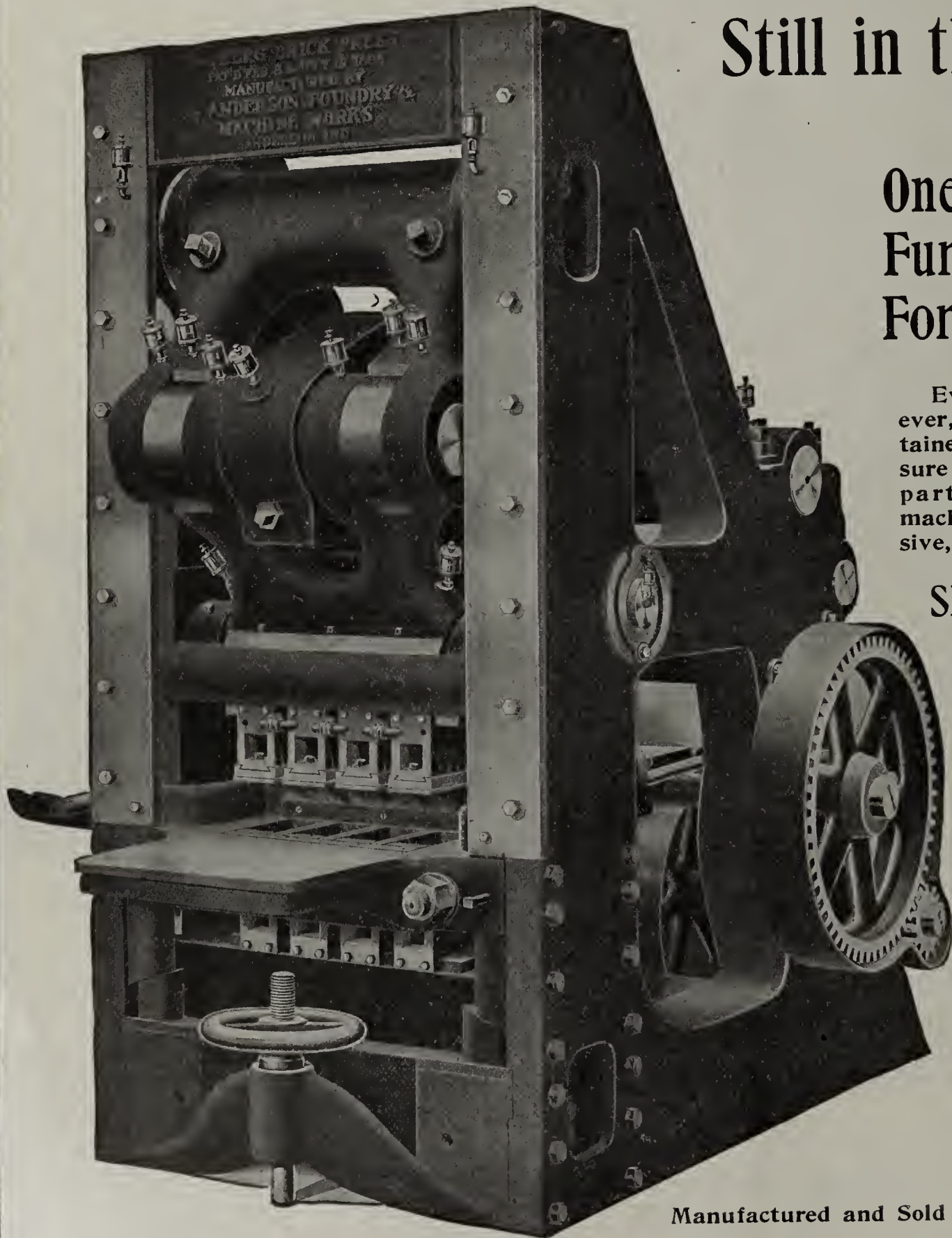
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Analysts and Chemists.

Ceramic Supply & Con. Co.
N. J. State University.
Ohio State University.
Richardson-Lovejoy Engr. Co.

Automatic Clay Bin Emptier.

Raymond Co., The C. W.

Automatic Cutting Tables.

(See Cutting Tables.)

Barrows and Trucks.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
H. Brewer & Co.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Illinois Supply and Con. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Barytes, Carbonate of

Gabriel & Schall.
Roessler-Hasslacher Chem. Co.

Bearings, Roller.

(See Supplies.)

Belting.

Gandy Belting Co.
Sawyer Belting Co.

Belt Conveyors.

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Gandy Belting Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.

Blowers.

American Blower Co.
American Clay Machinery Co.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

Boilers.

American Clay Machinery Co.
Arbuckle & Co.
Frost Mfg. Co.
Morehead Mfg. Co.

Brick (Building).

Bloomfield Clay Co.
Bollvar Face Brick Co.
Fiske & Co., Inc.
Kushequa Brick Co.
Marion Brick Works.
Purinton Paving Brick Co.

Brick (Fire).

Chicago Retort & Fire Brick Co.
Evans & Howard Fire Brick Co.

Brick (Paving).

Barr Clay Co., The
Bessemer Limestone Co.
Clinton Paving Brick Co.
Danville Brick Co., The
Hocking Valley Fire Clay Co.
Marion Brick Works.
Metropolitan Paving Brick Co.
Natl. Pav. Brick Mfgs. Assn.
Purinton Paving Brick Co.
Terre Haute Vit. Brick Co.
Thurber Vitified Brick Co.
Shawmut Vit. Pav. Brick Wks.
Wabash Clay Co.

Brick Conveyors.

American Clay Machinery Co.
Mathews Gravity Carrier Co.

Brick and Tile Machinery.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Chisholm, Boyd & White Co.
Dunn Wire Cut Lug Brick Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Fernholtz Brick Machy. Co.
Freese & Co., E. M.
Hensley, J. W.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Ohio Ceramic Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice & Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Brick Machines (Soft Mud).

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Wellington Machine Co.

Brick Machines (Stiff Mud).

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice & Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Brick Machines (Dry Press).

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Chisholm, Boyd & White Co.
Chicago Brick Machinery Co.
Fernholtz Brick Machinery Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Mueller Bros.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.

Brick Recutter.

Raymond Co., The C. W.

Brick Setting Machinery.

American Clay Machinery Co.

Brickyard Engineering.

Callaway Eng. Co., Ed. H.

Buffing Machine.

American Clay Machinery Co.

Burning and Drying Systems.

Boss, John C.
Buhner, Jacob.
Dennis, F. W.
Haigh, H.
Hoehne, Richard B.
Hoffmann Construction Co.
Illinois Supply & Con. Co.
Koch, J. J.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Rodgers Engineering Co., L. E.
Snowden & Co., Geo. E.
Standard Dry Kiln Co.
Tate, Jones & Co.
Trautwein Drying & Engr. Co.
Vogt, Anton.
Yates, Alfred.

Cars.

(See Dryer and Dump Cars.)

Castings.

Arbuckle & Co.
Caldwell & Sons Co., H. W.
Chambers Bros. Co.
Dee Mfg. Co., Wm. E.
Taplin, Rice-Clerkin Co.

Ceramic Engineers.

F. Julius Fohs.
Hoehne, Richard B.
Koch, J. J.
Richardson-Lovejoy Engr. Co.,

Clay Crushers and Pulverizers.

American Pulverizer Co.
American Road Machine Co.
Arbuckle & Co.
Brewer Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Phillips & McLaren Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Clay Dryers.

American Process Co.

Clay Feeders and Mixers.

American Clay Machinery Co.
Arbuckle & Co.
H. Brewer & Co.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
E. M. Freese & Co.
Illinois Supply & Con. Co.
Raymond Co., The C. W.
Taplin, Rice-Clerkin Co.
Scott-Madden Iron Works.
Stevenson Co., The

Clay Gatherers.

(See Scrapers.)

Clay Steamers.

American Clay Machinery Co.
Raymond Co., The C. W.

Clay Technologists.

Koch, J. J.
Richardson-Lovejoy Engr. Co.

Clutches.

(See Supplies.)

Coloring Materials.

Chattanooga Paint Co.
Clinton Metallic Paint Co.
National Paint & Manganese Co.
Ricketson Mineral Paint Co.
Roessler-Hasslacher Chem. Co.
Williams & Co., C. K.

Cones.

Orton, Edward, Jr.

Conveying Machinery.

American Clay Machinery Co.
Arbuckle & Co.

Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Mathews Gravity Carrier Co.
Mueller Bros.
Newton, A. C.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.

Contracting Engineers.

Dennis, F. W.
Haigh, H.
Heald, G. W.
King, E. A.
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Wurz & Hillenbrand.
Vogt, Anton.

Couplings.

(See Supplies.)

Cutting Tables (Brick & Tile).

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Dunn Wire Cut Lug Brick Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.

Cutting Wires.

Arbuckle & Co.
Brewer & Co., H.
Ceramic Supply & Con. Co.
E. M. Freese & Co.
Manufacturers Equipment Co.
Raymond Co., The C. W.

Dampers.

(See Supplies.)

Dies.

(See Supplies.)

Disintegrators.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Drain Tile.

Evans & Howard Fire Brick Co.

Drain Tile Machinery.

(See Brick & Tile Machinery.)

Drums, Hoisting and Winding.

(See Supplies.)

Dryers.

American Blower Co.
American Clay Machinery Co.
American Process Co.
Chambers Bros. Co.

(Continued on next page.)

Buyers Ready Reference List—Continued.

Manufacturers Equipment Co.
 Martin Brick Mach. Mfg. Co., H.
 Ohio Ceramic Engineering Co.
 Potts & Co., C. & A.
 Raymond Co., The C. W.
 Richardson-Lovejoy Engr. Co.
 Rodgers Engr. Co., The L. E.
 Standard Dry Kiln Co., The
 Steele & Sons, J. C.
 Trautwein Dryer & Engr. Co.

Dryer Cars.

American Clay Machinery Co.
 Atlas Car & Mfg. Co.
 Arbuckle & Co.
 Bonnot Co., The
 Chambers Bros. Co.
 Chase Fdy. & Mfg. Co.
 E. M. Freese & Co.
 Fate Co., The J. D.
 Ohio Ceramic Engineering Co.
 Raymond Co., The C. W.
 Rodgers Engr. Co., The L. E.
 Scott-Madden Iron Works Co.
 Standard Dry Kiln Co., The
 Steele & Sons, J. C.
 Taplin, Rice-Clerkin Co.
 Trautwein Dryer & Engr. Co.
 Wellington Machine Co.

Dry and Wet Pans.

American Clay Machinery Co.
 Anderson Fdy. & Mach. Works.
 Arbuckle & Co.
 Bonnot Co., The
 Brewer & Co., H.
 Chambers Bros. Co.
 Chicago Brick Machinery Co.
 Chisholm, Boyd & White Co.
 Crossley Machine Co.
 Eagle Iron Works.
 Fate Co., The J. D.
 Freese & Co., E. M.
 Frost Mfg. Co.
 Illinois Supply & Con. Co.
 Phillips & McLaren Co.
 Raymond Co., The C. W.
 Scott-Madden Iron Works Co.
 Stevenson Co., The
 Taplin, Rice-Clerkin Co.

Dump and Clay Cars.

American Clay Machinery Co.
 Atlas Car & Mfg. Co.
 Arbuckle & Co.
 Bonnot Co., The
 Brewer & Co., H.
 Chambers Bros. Co.
 Chase Fdy. & Mfg. Co.
 Eastern Brick Machinery Co.
 E. M. Freese & Co.
 Hensley, J. W.
 Ohio Ceramic Engineering Co.
 Potts & Co., C. & A.
 Raymond Co., The C. W.
 Steele & Co., The J. C.
 Scott-Madden Iron Works Co.
 Taplin, Rice-Clerkin Co.
 Wellington Machine Co.

Electric Shovels.

Thew Automatic Shovel Co.

Electrical Furnaces.

Brown Instrument Co., The
 Richardson-Lovejoy Engr. Co.

Electric Instruments.

The Brown Instrument Co.

Electrical Locomotives.

Atlas Car & Mfg. Co.

Electrical Supplies.

American Clay Machinery Co.
 Raymond Co., The C. W.

Elevating Equipment.

(See Conveyors.)

Engines.

American Clay Machinery Co.
 Chambers Bros. Co.
 Frost Mfg. Co.

Engineers.

Callaway Eng. Co., Ed. H.
 Rodgers Engr. Co., The L. E.
 Trautwein Dryer & Engr. Co.

Fans.

American Blower Co.
 American Clay Machinery Co.
 Rodgers Engr. Co., The L. E.
 Trautwein Dryer & Engr. Co.

Feed Water Heaters.

American Blower Co.
 American Clay Machinery Co.
 Frost Mfg. Co.
 Morehead Mfg. Co.
 Standard Dry Kiln Co.

Filler (Paving).

Barrett Mfg. Co.

Filter Presses.

American Clay Machinery Co.
 Raymond Co., The C. W.
 Stevenson Co., The
 Taplin, Rice-Clerkin Co.

Fire Brick and Fire Clay.

Bloomfield Clay Co.
 Chicago Ret. & Fire Clay Co.
 Evens & Howard Fire Brick Co.

Fire Clay.

Evens & Howard Fire Brick Co.

Fire Proofing.

Evens & Howard Fire Brick Co.

Floor Tile.

Chicago Ret. & Fire Brick Co.
 Evans & Howard Fire Brick Co.

Flower Pot Machinery.

Rockwood Mfg. Co., The
 Taplin, Rice-Clerkin Co.

Friction Clutch Pulleys.

(See Supplies.)

Furnaces.

Brown Instrument Co., The
 Illinois Supply & Con. Co.
 Raymond & Co., C. W.
 Richardson-Lovejoy Engr. Co.
 Tate, Jones & Co.

Gas Fire Continuous Kilns.

Raymond Co., The C. W.

Gears.

(See Supplies.)

Granulators.

American Clay Machinery Co.
 Anderson Fdy. & Mach. Works.
 Arbuckle & Co.
 Bonnot Co., The
 Brewer & Co., H.
 Chambers Bros. Co.
 Chicago Brick Machinery Co.
 Fate Co., The J. D.
 Freese & Co., E. M.
 Martin Brick Mach. Mfg. Co., H.
 Potts & Co., C. & A.
 Raymond Co., The C. W.
 Scott-Madden Iron Works Co.
 Steele & Co., J. C.
 Stevenson Co., The
 Taplin, Rice-Clerkin Co.
 Wallace Mfg. Co.
 Wellington Machine Co.

Gravity Carriers.

Mathews Gravity Carrier Co.
 Taplin, Rice-Clerkin Co.

Gravity Haulage.

American Clay Machinery Co.

Hand-Power Presses.

American Clay Machinery Co.
 Carnell, Geo.
 Illinois Supply & Con. Co.
 Mueller Bros.
 Ohio Ceramic Engineering Co.
 Raymond Co., The C. W.
 Scott-Madden Iron Works Co.
 Stevenson & Co.

Hand Winch.

(See Supplies.)

Hangers.

(See Supplies.)

Holsts.

(See Supplies.)

Holisting Engines.

American Hoist & Derrick Co.

Hollow Block Machinery.

American Clay Machinery Co.
 Arbuckle & Co.
 Bonnot Co., The
 H. Brewer & Co.
 Freese & Co., E. M.

Raymond Co., The C. W.
 Scott-Madden Iron Works Co.
 Stevenson Co., The
 Taplin, Rice-Clerkin Co.
 Wallace Mfg. Co.

Hollow Partition Tile.

Evens & Howard Fire Brick Co.

Jacks.

(See Supplies.)

Kilns.

American Clay Machinery Co.
 Boss, J. C.
 Buhner, Jacob.
 Chisholm, Boyd & White Co.
 Dennis, F. W.
 Hoffmann Construction Co.
 Illinois Supply & Con. Co.
 Manufacturers Equipment Co.
 Raymond Co., The C. W.
 Richardson-Lovejoy Engr. Co.
 Snowden & Co., G. E.
 Shumaker, J. H.
 Vogt, Anton.
 Yates, Alfred.

Kiln Bands.

Tecktonius Mfg. Co., E. C.

Kiln Doors, Castings and Frames.

(See Supplies.)

Kiln Floor Tile.

Chicago Ret. & Fire Brick Co.
 Evens & Howard Fire Brick Co.

Kiln Irons.

Tecktonius Mfg. Co., E. C.

Kiln Furnaces.

Illinois Supply & Con. Co.

Kiln Lugs.

Tecktonius Mfg. Co., E. C.

Knives.

(See Supplies.)

Locomotives.

Davenport Locomotive Works.

Locomotive Cranes.

American Hoist & Derrick Co.

Manganese.

(See Coloring Materials.)

Mechanical Draft.

American Blower Co.
 Boss, J. C.
 Rodgers Engr. Co., The L. E.

Mineral Paint.

(See Coloring Materials.)

Molds (Brick).

Carnell, Geo.
 Eastern Brick Machinery Co.
 Hensley, J. W.
 Martin Brick Mach. Mfg. Co., H.
 Mentz, George B.
 Potts & Co., C. & A.
 Raymond Co., The C. W.
 Wellington Machine Co.

Mold Sanders.

Carnell, Geo.
 Eastern Brick Machinery Co.
 Hensley, J. W.
 Hilton Sanding Machine Co.
 Martin Brick Mach. Mfg. Co., H.
 Potts & Co., C. & A.
 Raymond Co., The C. W.
 Wallace Mfg. Co.
 Wellington Machine Co.

Mortar Colors.

(See Coloring Materials.)

Oil Burners.

Ill. Supply & Constr. Co.
 Tate Jones Co.

Paints.

(See Coloring Materials.)

Pallets.

Ohio Ceramic Engineering Co.
 Ohio Galvanizing & Mfg. Co.

Pans (dry and wet).

(See Dry and Wet Pans.)

Patents.

Scientific American.
 Watson and Boyden.

Paving Brick or Block.

(See Brick.)

Perforated Sheet Metal.

Caldwell & Sons Co., H. W.
 Harrington & King Perf. Co.

Pitch (Paving).

Barrett Mfg. Co.

Plows.

(See Scrapers.)

Portable Track.

Atlas Car & Mfg. Co.
 Ohio Ceramic Engineering Co.
 Raymond Co., The C. W.

Pottery Machinery.

American Clay Machinery Co.
 Crossley Machine Co.
 Raymond Co., The C. W.
 Rockwood Mfg. Co.
 Stevenson Co., The
 Taplin Rice Clerkin Co.

Power Plant Equipment.

Rodgers Engr. Co., The L. E.
 Trautwein Dryer & Engr. Co.

Presses.

(See Brick Machines, also Sewer Pipe Machinery, also Roofing Tile Machinery.)

Pug Mills.

American Clay Machinery Co.
 Anderson Fdry and Mach. Wks.
 Arbuckle & Co.
 Bonnot Co., The
 Brewer & Co., H.
 Chambers Bros. Co.
 Fate Co., The J. D.
 Freese and Co., E. M.
 Hensley, J. W.
 Mueller Bros.
 Raymond Co., The C. W.
 Steele & Sons, J. C.
 Scott-Madden Iron Works Co.
 Stevenson Co., The
 Taplin, Rice-Clerkin Co.
 Wallace Mfg. Co.
 Wellington Machine Co.

Pulleys.

(See Supplies.)

Pulverizers.

Illinois Supply & Con. Co.
 Scott-Madden Iron Works Co.
 Taplin, Rice-Clerkin Co.

Pumps.

Dean Bros. Steam Pump Wks.
 Pulsometer Steam Pump Co.

Pyrometers.

Brown Instrument Co.
 Ceramic Supply & Constr. Co.
 Rodgers Engr. Co., The L. E.

Rails and Railway Equipment.

Atlas Car and Mfg. Co.
 Arbuckle & Co.
 Davenport Locomotive Works.
 Milwaukee Locomotive Mfg. Co.
 Ohio Ceramic Engineering Co.
 Scott Madden Iron Works Co.

Battlers (Paving Brick).

Ceramic Supply & Con. Co.
 E. M. Freese & Co.
 Hetherington and Berner.
 Phillips & McLaren Co.

Recording Gauges.

Brown Instrument Co.
 Ceramic Supply & Constr. Co.

Represses.

American Clay Machinery Co.
 Bonnot Co., The
 Chambers Bros. Co.
 Fate Co., The J. D.

(Continued on page 744.)



BAD WEATHER IS COMING

Be prepared to take care of your rush business, rain or shine. The Mathews Gravity Brick Carrier, as shown above, will work in any kind of weather, permitting men to be under cover at both ends.

Hundreds of American brickyards are using the Mathews Gravity Brick Carrier. Any one of them will tell you that they have cut their loading expense 50% over the old wheelbarrow method. The Carrier is made entirely of steel, scientifically constructed, absolutely dependable at all times and under all circumstances. Write us for literature and special information.

BRANCH FACTORIES:

British Mathews, Ltd., London, Eng.
Canadian Mathews Gravity Carrier Co., Toronto, Ont.

BRANCH OFFICES:

New York: 30 Church Street, Room 726.
Boston: 164 Federal Street, Room 50.
Philade'phia: 1002 Drexel Bldg.
Rochester: 1459 South Ave.
Chicago: 9 South La Salle St.
St. Louis: P. O. Box No 568.
San Francisco: Hicks, Nell & Marks, 604 Mission St.



Main Office and Factory
ELLWOOD CITY,
PENN., U. S. A.

Buyers Ready Reference List—Continued.

Freese & Co., E. M.
Illinois Supply & Con. Co.
Mueller Bros.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Taplin, Rice, Clerkin Co.
Stevenson Co., The

Revolution Indicators.

Brown Instrument Co.
Ceramic Supply & Constr. Co.

Revolving Steam Shovels.

American Hoist & Derrick Co.
Marion Steam Shovel Co.

Rock Crushers.

American Pulverizer Co.
Phillips & McLaren Co.

Roofing Tile Machinery.

American Clay Machinery Co.
Ill. Supply & Construction Co.
Mueller Bros.
Raymond Co., The C. W.
Taplin, Rice-Clerkin Co.

Rope.

(See Supplies.)

Rotary Dryers.

American Clay Machinery Co.

Sand Dryers.

American Clay Machinery Co.
Anderson Fdry. & Mach. Wks.
Fate Co., The J. D.
Hensley, J. W.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wellington Machine Co.

Sand Lime Brick Machinery.

American Clay Machinery Co.
Anderson Fdry. & Mach. Wks.
Chicago Brick Machinery Co.
Chisholm Boyd and White Co.
Fernholtz Brick Machinery Co.
Ill. Supply & Construction Co.

Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.

School of Ceramics.

Illinois University.
New Jersey State School.
New York State School.

Scrapers, Plows and Clay Gatherers.

Arbuckle & Co.
Eagle Iron Works.
Ill. Supply & Construction Co.
Scott Madden Iron Works.

Screens.

American Clay Machinery Co.
Arbuckle & Co.
H. Brewer & Co.
Bonnot Co., The
Ceramic Supply & Constr. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
E. M. Freese & Co.
Harrington & King Perf. Metal Co.

Ill. Supply & Construction Co.
Mueller Bros.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.
The Stevenson Co.

Sewer Pipe.

Evens & Howard Fire Brick Co.

Sewer Pipe Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Taplin Rice Clerkin Co.
Scott Madden Iron Works Co.
Stevenson, Co., The.

Steam Gauges.

(See Supplies.)

Steam Shovels.

American Hoist & Derrick Co.
Marion Steam Shovel Co.
Scott-Madden Iron Works.
Thew Auto. Steam Shovel Co.

Steam Specialties.

Dean Bros. Steam Pump Wks.
Frost Mfg. Co.
Morehead Mfg. Co.
Pulsometer Steam Pump Co.
Standard Dry Kiln Co.

Steam Traps.

American Blower Co.
Frost Mfg. Co.
Morehead Mfg. Co.
Standard Dry Kiln Co.

Steel Pallets.

Ohio Galvanizing Co.
Ohio Ceramic Engineering Co.

Supplies.

American Clay Machinery Co.
Anderson Fdry. & Mach. Wks.
Arbuckle & Co.
Atlas Car & Mfg. Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. & W.
Carnell, Geo.
Ceramic Supply & Constr. Co.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd and White.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Ill. Supply & Construction Co.
Ohio Ceramic Engineering Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
A. C. Newton.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin Rice Clerkin Co.
Wallace Mfg. Co.
Wellington Machinery Co.

Switches.

Atlas Car & Mfg. Co.
Ohio Ceramic Engineering Co.

Tempering Wheels.

Carnell, Geo.
Raymond Co., The C. W.

Thermometers.

Brown Instrument Co.
Ceramic Supply & Engr. Co.
Rodgers Engr. Co., The L. E.

Tile Machines.

American Clay Machinery Co.
Anderson Fry. & Mach. Works
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Ill. Supply & Construction Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Time Recorders.

Brown Instrument Co.

Tracks and Switches.

(See Rails.)

Transfer Cars and Turn Tables
(See Supplies.)

Unloading Device for Pans.

American Clay Machinery Co.
Raymond Co., The C. W.

Voltmeters.

The Brown Instrument Co.

Wheels and Axles.

(See Supplies.)

Wheelbarrows.

(See Barrows.)

Wet Pans.

(See Pans.)

Wire.

(See Cutting Wire.)

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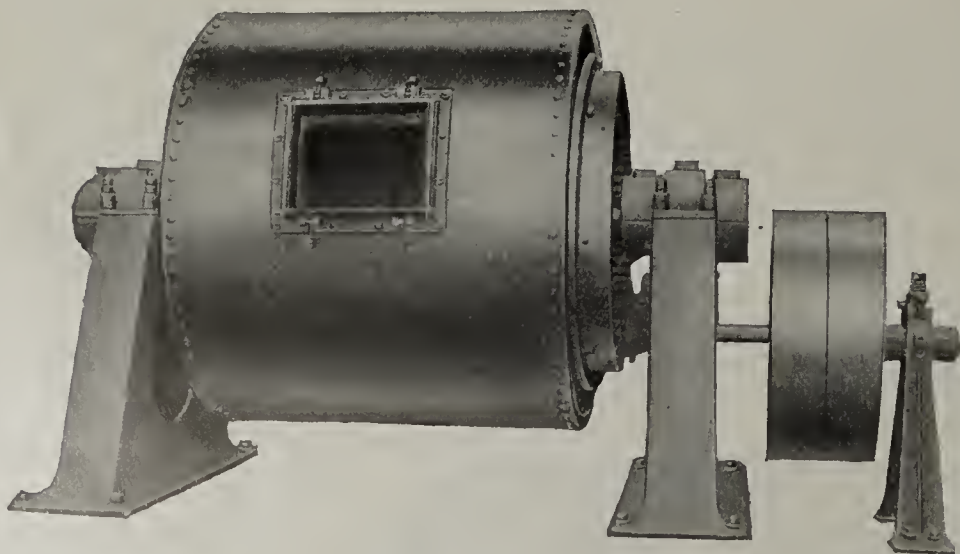
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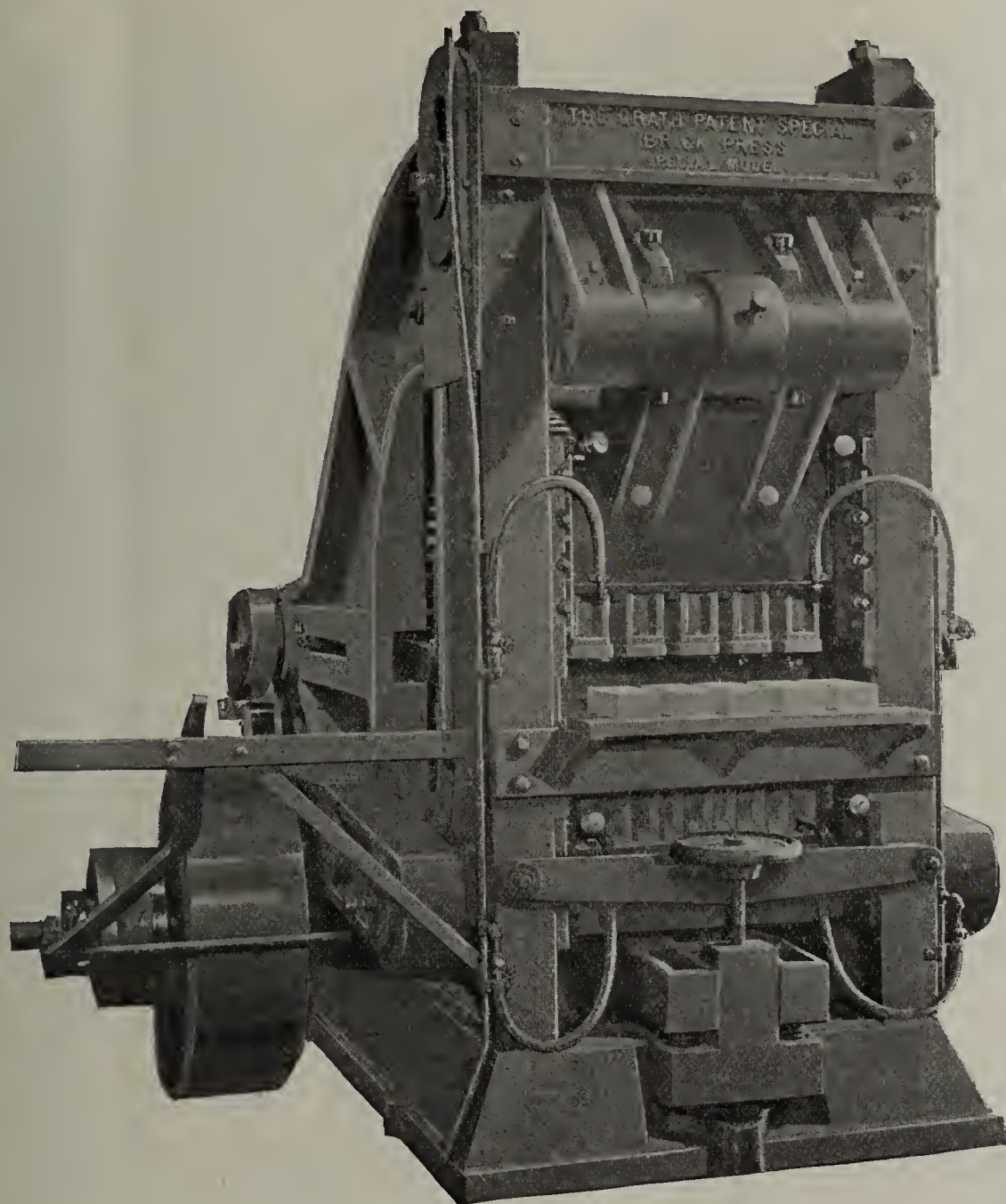
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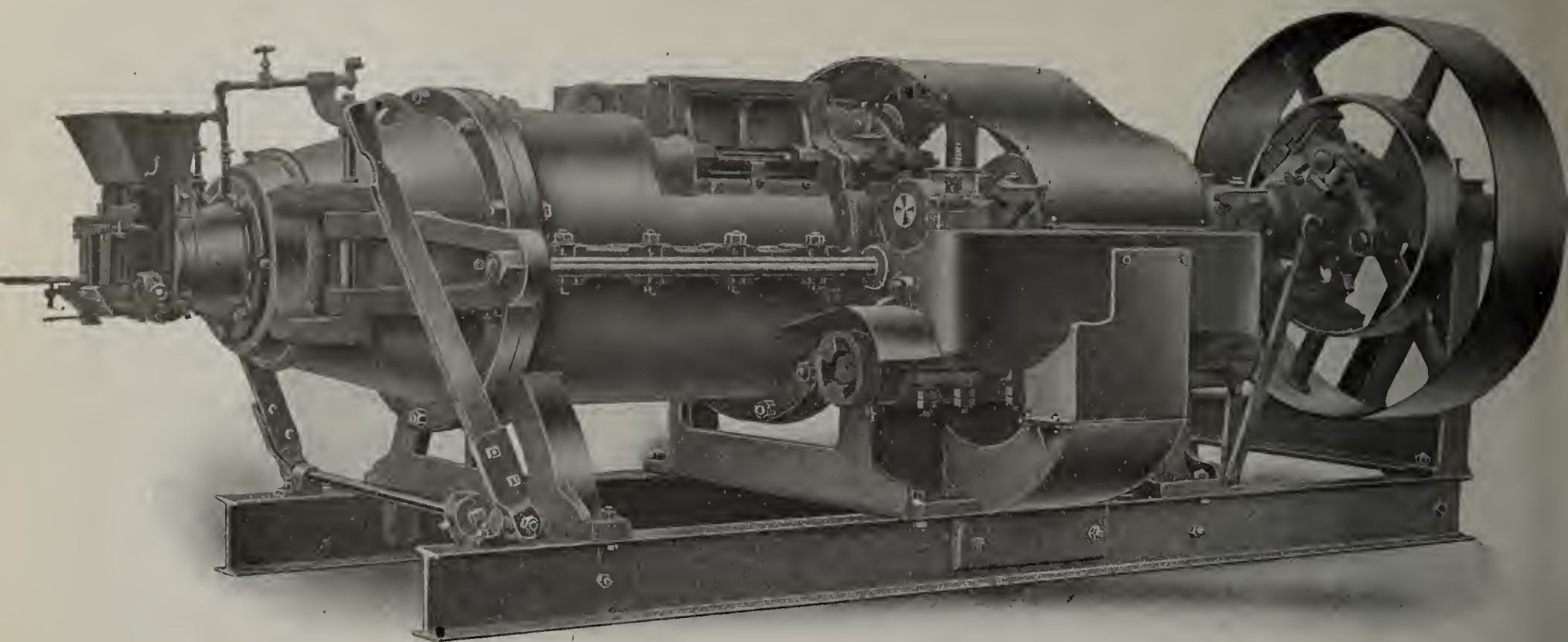
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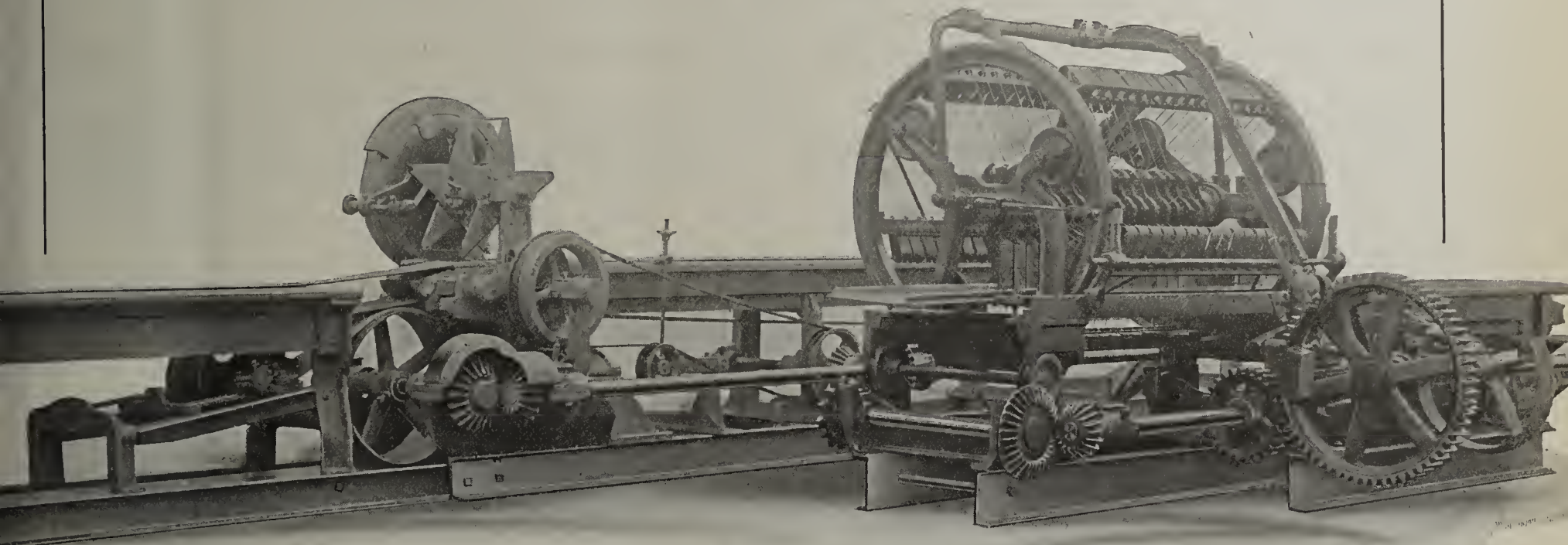
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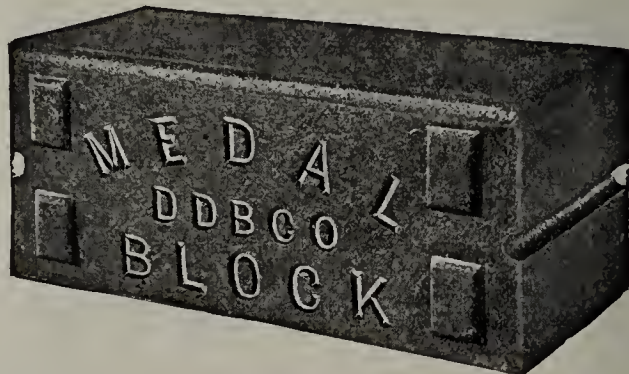
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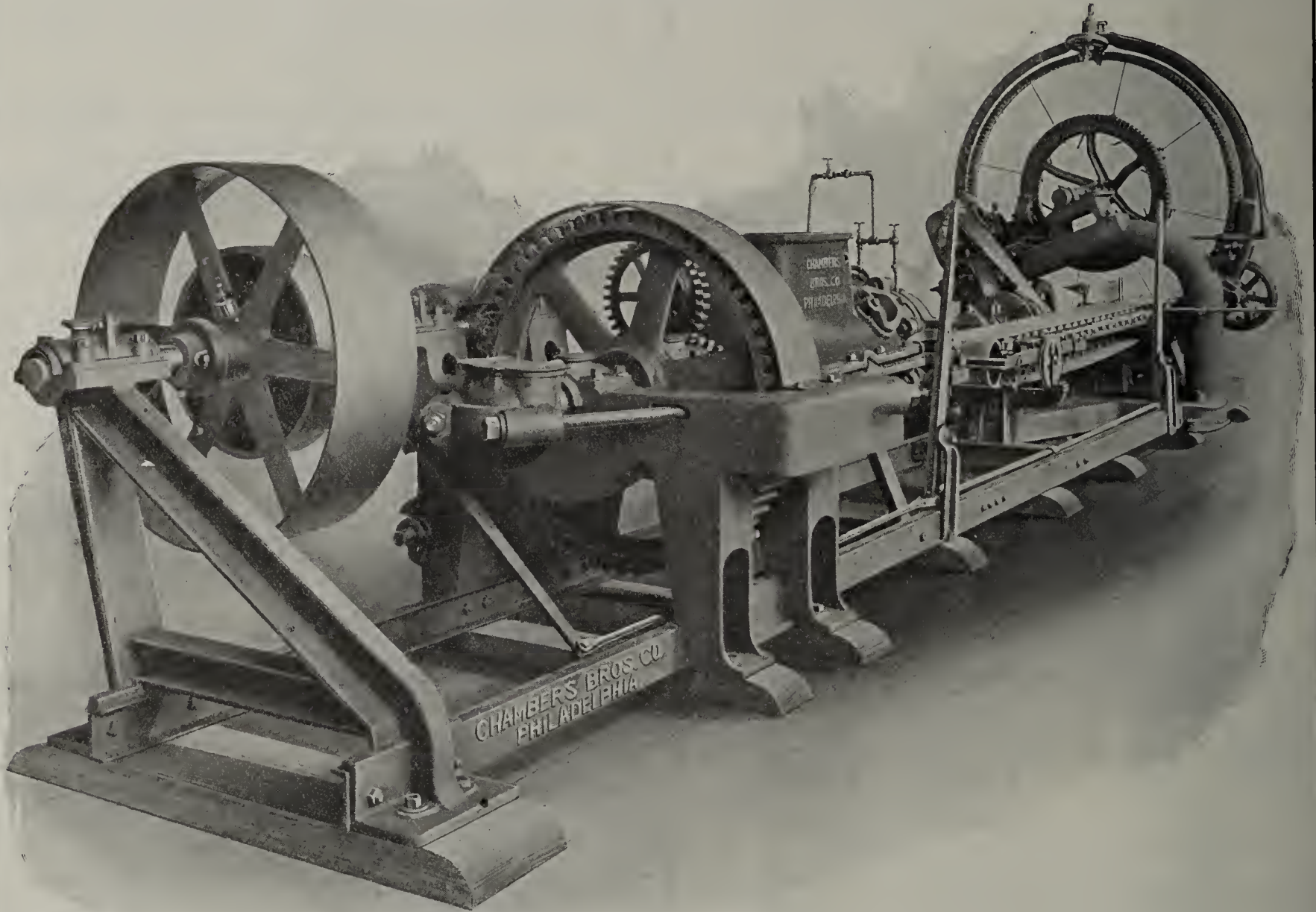
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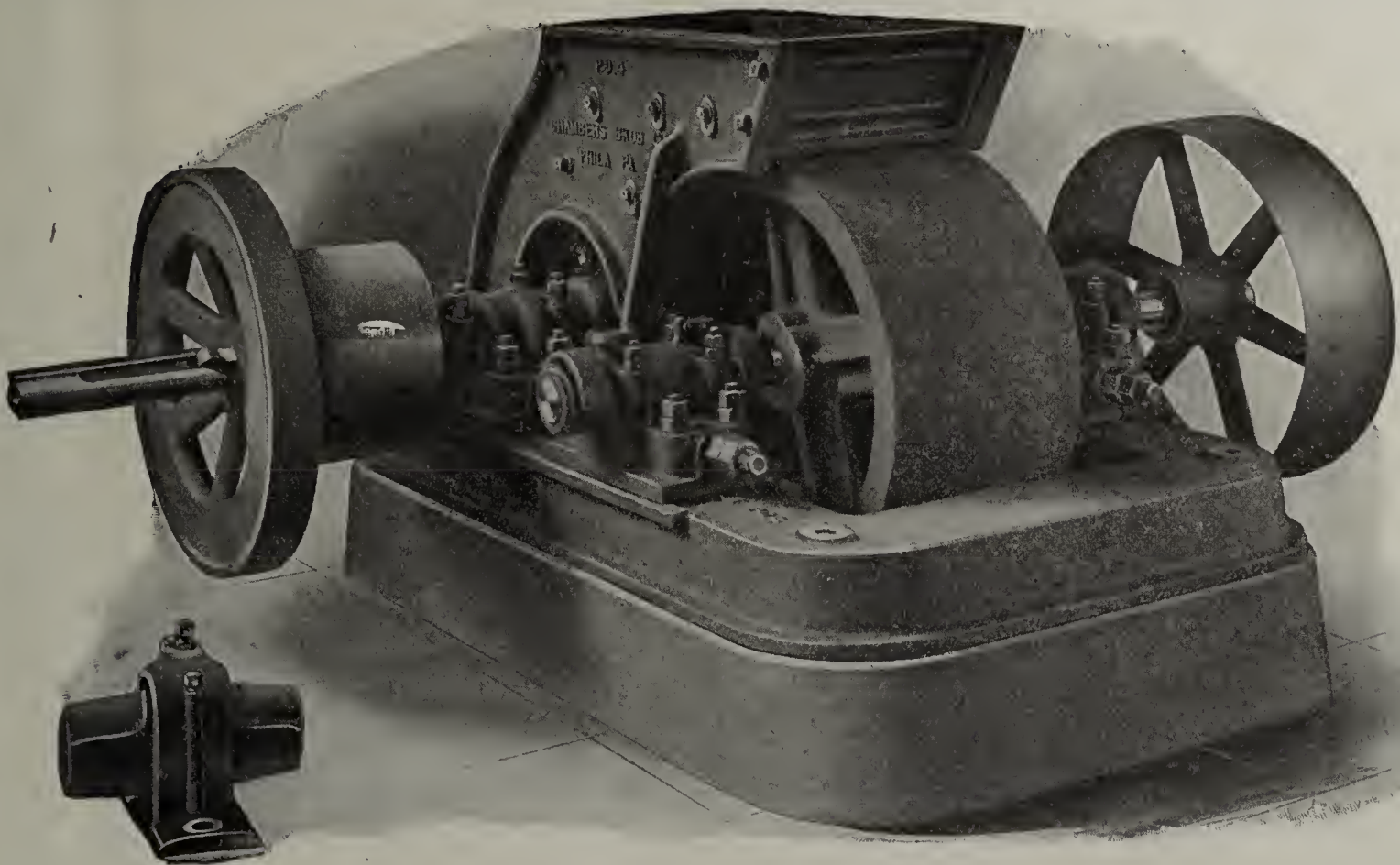
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We build several sizes and have one machine designed for the man who feeds horse shoes and steel wedges along with other things sent up by the steam shoveler.

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My first cost could be lowered considerably if I were less conscientiously constructed, but the policy of my manufacturers for 25 years has been to make my equipment the highest-grade that money and brains can produce.

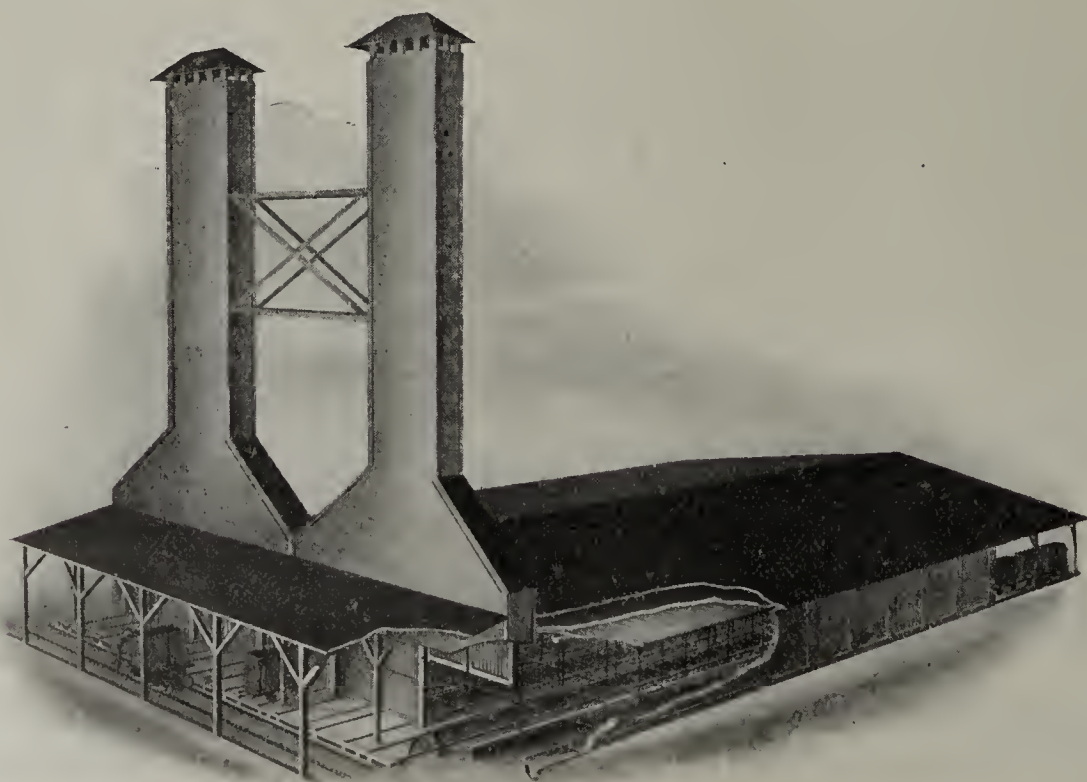
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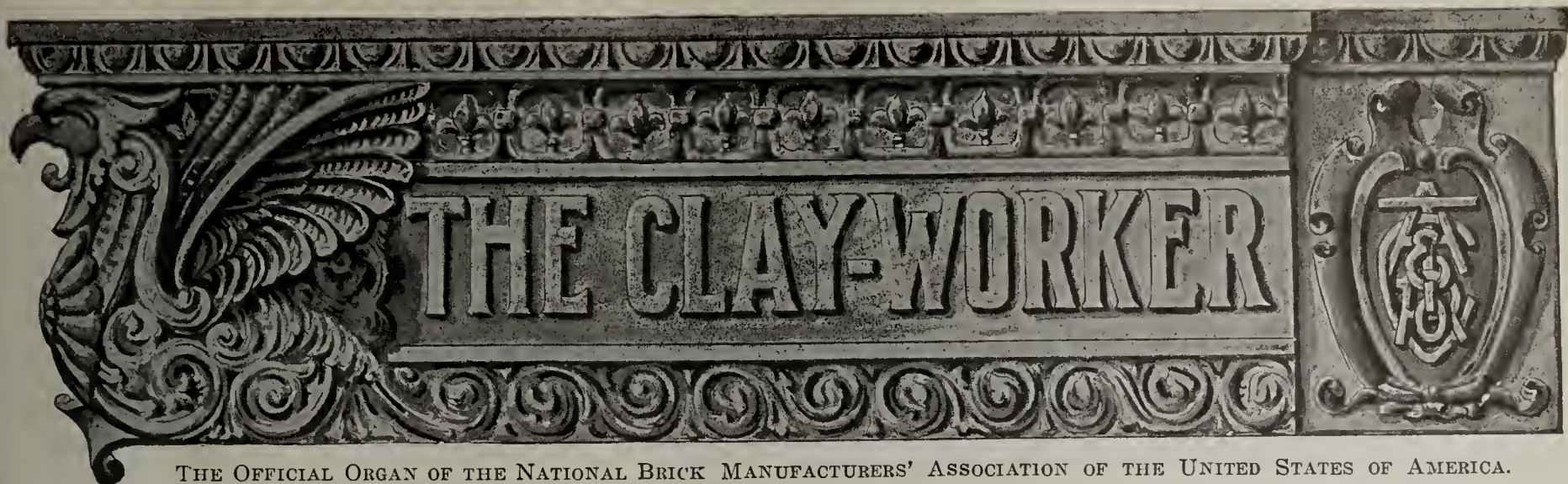
That's because of my superior efficiency and more economical consumption of fuel—and because I've no engine or complicated machinery to take care of and keep in repair.

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Mention THE CLAY-WORKER.



THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LVII.

INDIANAPOLIS, IND., MAY, 1912.

No. 5.

BRICK PAVING IN HOLLAND.

Excellent Brick Paved Roadways in the Little Kingdom of Holland Defy Time and All the Elements.

THERE IS NO more important industry in Holland than that of brickmaking, no country in the world that, in proportion to area and population, uses bricks so largely. The annual production of bricks in little Holland exceeds one thousand millions (1,000,000,000), of which a large part is used in paving.

The following facts from an interesting little book issued

following which one has the 'hard gray,' the 'farmers' gray,' the 'red brick' for structural work; the 'pale-red brick' and a certain percentage of the product not burned at all. The last named are put into the kiln again for another baking (burning) or may be used to recover the kiln or to close the openings in the walls of the kiln.

"The density of the klinker is from 1.05 to 1.08; resistance to crushing from 500 to 600 kilogrammes per superficial centimetre. [A kilogramme is 2.204+ pounds avoirdupois; a centimetre is 0.393+ of an inch.—Editor.] The absorption of water should not exceed 10 per cent. of volume in from three to twenty-four hours' immersion.



An Ancient Brick Paved Highway—One of the Main Roads From The Hague, Holland.

in French by the Netherlands Association of Brick Manufacturers has been translated for the readers of THE CLAY-WORKER. One chapter is devoted to the "Klinker," the Holland Paving Brick:

"The product of an argillaceous mass, homogeneous as it may appear, is not uniform and of equal value. There are differences in color and quality according to the place in the kiln from which the bricks are taken. Thus it is impossible to bake (burn) in a kiln more than 30 to 40 per cent. of bricks called 'klinkers.' That is to say, bricks of such hardness as to give a sonorous sound when one is struck against another.

"The 'klinker' is the hardest brick obtained in the kiln,

"Our association' showed on a plat of ground in the Civil Engineering group at the Brussels Exposition the use of bricks in paving work. Different kinds of bricks were used on roadway and sidewalk upon a surface about 800 metres square (about 2,624 square feet).

"The use of klinker brick for paving is not confined to our country, nevertheless there is no place else where there is so great a number of brick roads. And these not only for 'the open road to the country,' but there are also enormous quantities of bricks used for paving in our cities and villages. Of the 1,900 kilometres (nearly 1,200 miles) of state roads more than 1,200 kilometres are of brick, while of open provincial

roads, roads in the communities or private roads there is beyond this a length of more than 2,000 kilometres of brick paving.

"To give an idea of the surface paved in brick in our cities we point out that Rotterdam at the close of the year 1908 had a paved surface of 2,026,480 square metres of roadway, 907,540 square metres of paved sidewalk and besides this 207,060 square metres of non-public paved roads. Hence, there was a total paved surface of about 3,000,000 square metres.

"The method in use in The Netherlands for paving with brick is very simple. A casing is made to such a depth as to bring the street to the required level, after which a bed of sand is laid of from 10 to 20 centimetres in thickness, and upon this the bricks are placed. The arch should not be more than one-fiftieth or one-sixtieth of the width of the street.

"The convexity from the bottom of the casing or cut is often omitted, which is not usually the better method; it is

contact with the sides; the level of the latter should not be more elevated than that of the lateral rows. Nevertheless, most of the brick roads in our country are not as they should be. Even the state roads, except in Overijssel, where in recent years they have systematically raised the sides too high. Many times the lateral rows form a gutter which it is necessary to connect with the ditch by means of drains. It is important that these drains should be constantly regulated and kept free from all obstacles, without which water will penetrate the pavement and soften the subsoil, which should remain dry and solid.

"For the city street, such as we exhibit, the lateral rows should also be used, and there should be a gutter along the border. This border is usually of Hainault granite; some-



Brick Road, Nimrod Park, Hilversum, Holland.

evident that when the bottom of the bed has been arched the drainage of water from rains entering into the body of the road will be more readily towards the sides.

"It follows that there is not as great danger should the subsoil be soft, and that there should be (because of the circulation of carriages) a driving back of sand and mud through the joints of the pavement. To transfer the lateral pressure to the sides, a pressure due chiefly to the convexity, from three to five rows of bricks should be placed longitudinally with the route. These are called lateral courses.

"We are of opinion that paving 'en epi' of an entire road would present some incontestible advantages. We believe that a road so paved would have a prolonged life and the circulation of carriages upon it would be more agreeable, less noisy and smoother because of the almost total suppression of shock from the joints. Yet we know of but one road in our country paved in this way—that from Onstwedde to Valthermond.

"Concerning the open road, the lateral rows are in direct



One of Holland's Picturesque Drives Paved With Brick.



Slag Brick Pavements—Cycle Path on Right.

times it is basaltic lava. When it is necessary to work more economically a row of bricks is placed on end in place of a border. The street at the Exposition shows both methods.

"The following are the advantages of paving with bricks:

"1. The paving is uniform; there are not any points or protruding ridges, provided the road be well laid down.

"2. The roadway is not slippery and because of the numerous joints it affords a sure footing for horses even after a rain.

"3. The material is somewhat porous, but beside this allows the water after a rain to roll off quickly from the sides of the road. It follows that even after showers the surface of the bricks becomes dry in a little while.

"4. Because of what has just been related under paragraph

3 the brick street is usually very clean, droppings from horses and dust being readily drawn away by the rains.

"5. Brick roads are not, as are roads of gravel and roads of broken stone, muddy in the winter season and rarely dusty in summer. As to the latter there would be absolutely none if the joints were filled with cement or bituminous material.

"6. A brick road well constructed can resist an intense travel of very heavy loads without deterioration. * * *

"The paver should pay attention to see that the joints between the bricks are as narrow as possible, that no more than two half-bricks are laid in one row and that these two should be used only when necessary to make the points short in two consecutive rows of the pavement.

"In America, where there are many brick pavements, espe-



A Shady Brick Pavement the Acme of Roadways.



A Holland Slag Brick Pavement.

cially in the Western States, thick planks, heavily coated with tar, were at first employed for foundations. Later the foundations below the brick paving were made of concrete, the joints being filled with a mortar of cement. Between the foundation and the paving bricks should be applied a thin layer of sand, one to two centimetres in thickness, in order to have a mattress serving to diminish the jar and noise caused by the travel of vehicles.

"The net cost of paving with bricks on a foundation of sand, on a superficies of one metre square, is, according to thickness of the bed of sand, the condition of the subsoil, the location of the brickyard, from 1.60 to 2 florins (a florin is about 40 cents). A skillful paver can pave about seven metres an hour if he has a helper to pass the bricks to him.

"The prices of bricks themselves vary according to their dimensions and the place where they are made. The following are approximate figures: Bricks from the Waal, $5\frac{1}{2} \times 11 \times 22$ centimetres, 16 florins a thousand, 85 pieces to the square metre; bricks from the Rhine, $4\frac{1}{2} \times 9 \times 18$, 11 florins a thousand, 120 pieces to the square metre; bricks of the Yssel (these are all rivers in The Netherlands), $4 \times 7 \times 16$, 7 florins a thousand, 150 pieces to the square metre.

"The almost entire absence of freestone in Holland—there is only the tufa of Maestricht, which is little used—has caused the use of bricks there for a very long time. Running through the centuries the bricks have been well preserved, the solid construction of other days found everywhere in The Netherlands appearing to be indestructible. Not only is brickmaking an old industry in Holland, but likewise that of tiles and squares for covering roofs.

"The kinds of tiles made in The Netherlands are numerous. They may be subdivided as follows: Holland tiles, flat tiles



Brick Paved Dyke Road in Holland.

or slate tiles, and tiles in relief. In commerce these tiles are known as reds, blues and vitrified. The best means for determining the quality of the tile is afforded by the sound.

"Squares are also employed in making pavements and in trade are red and blue and enameled. The enameled squares are likewise used to line cisterns and cellars. The making of tubular tiles is also an important industry.

"In recent years while architects of The Netherlands continue to employ bricks largely, they have at the same time used much poor cement and some cement bricks, etc. Yet they look upon brick architecture as specially national and that bricks are specially adapted to the making of beautiful buildings."

All of you who are interested in the question of artesian water and where it comes from may get some light on the subject by sending to the United States Geological Survey for Bulletin No. 317, which contains a summary of the controlling factors of the artesian flows.

Written for THE CLAY-WORKER.

SOME OBSERVATIONS ON THE POTTER'S ART.

WORKING IN CLAY is one of the world's oldest industries. Long before the dawn of history, workers in clay plied their trade, and even now, centuries after, our complex civilization is able to read their records and find much to admire in their work. And so down through the ages, workers in clay have been the most important artificers. At least their work has been permanent if in many other instances it possessed no other merit.

If pessimists tell the truth, there is no longer originality in art. Mayhaps these dubious-souled individuals do not consider clayworking an art, and are prone to overlook the striking originality displayed by many workers in this plastic though permanent material. But if they do ignore the art of the clayworker, they are leaving out of consideration one of the most important constructive features of the times. Clearly the pessimist has no right to undertake criticism. He makes a lamentable failure of it whenever he makes the attempt.

Perhaps it would be invidious to undertake to make a distinction between the different branches of the clayworker's art, yet it is quite probable that ceramics would be considered as most likely to embody these elements which are commonly supposed to be necessary in the creation of an artistic object. Opinion will undoubtedly differ on this point, yet for the moment it may be well to accept this as a fact and consider it accordingly.

A man may be an artist and produce one attractive piece of pottery. If he produces ten exactly alike, he will be looked upon as an imitator, and if he goes farther and produces them by the thousand he becomes a manufacturer. The same striking originality may characterize the last that was present in the first and make it notable. That doesn't seem to change the verdict. The manufacturer's taint has affected the work, and what was at the outset regarded as a work well worth ranking with those produced by the great, has lost its charm and becomes merely one of a vast number exactly alike. His individuality has disappeared. Anyone may possess it, hence its value has declined and its subtle something which made it at first distinctive has become as nothing. What made it art has been smothered in the vast quantity turned out by modern commercial methods.

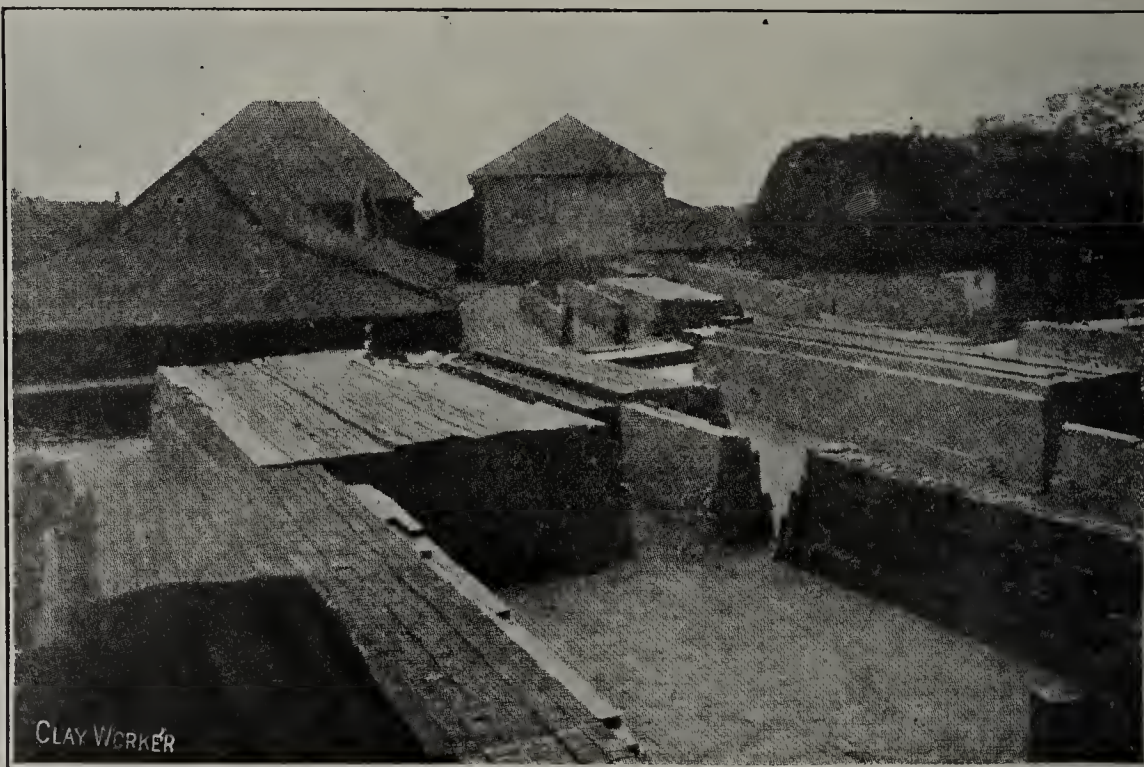
New Jersey is a great clayworking state. Its products have made distinction in the world of clay artificers, yet it would probably be a rash man who would boldly proclaim that New Jersey is contributing to the world of art in its production of clay. Even its terra cotta products, striking and individual in design, are commercialized by constant reproduction. Here and there something notable is done in terra cotta and the finished product is not reproduced to be scattered and set in all sorts of incongruous surroundings;

for so much the believer in the art of the clayworker may be thankful. Such examples tend to prove his contention that clayworking is an art, and one that should be recognized and cultivated.

Metuchen is a small suburban community in New Jersey. It has some claims to prominence in the literary world, since Mary Wilkins-Freeman, that somber and puritanic portrayer of New England type, lives there. The more optimistic Henry M. Alden, for nearly fifty years editor of Harper's Magazine, is another resident. Unconsciously, perhaps, the



Dutch Children Near Amsterdam.



Building Brick Plant Near Brussels, Belgium.

readers of magazine and novel have been regaled upon Metuchen until it should be well known. The distinction may not be worthy of consideration, yet there is a certain element of novelty in it which makes it entertaining, even if the question of its benefit may be doubtful.

Whatever the literary world may do or think about Metuchen, the ceramic world, of America at least, should turn toward it for a point of inspiration not to be easily overrated, for at Metuchen are located the Vollkmar potteries, and were the ceramic world as quick to respond to original

influences as the literary world, a smooth pathway would long since have been worn to the doorway of the somewhat rude building in which are fashioned some of the most original, individual and beautiful of modern ceramics. The Vollkmars, Charles, the father, and Leon, the son, are pursuing their own way, regardless of what others may do or think. They work for art's sake, relying upon the cultivated taste of those who appreciate their work to support them in their attempt to perform a distinctive service for ceramic art. Perhaps they do not consider it just like that. It may

can be simple in these days, when even life is ornate, is entitled to a reward for his self-restraint. But whatever others may do in similar work, the simplicity displayed in all the work of these two men constitutes one of its most notable characteristics. As yet, no taint of the commercial spirit of the age has crept in, and those who love ceramic art will fervently hope that none will appear in what is strikingly original and individual work.

One department of their work deserves mention. They match broken tiles. They do not imitate, but they reproduce the design and color of any tile that has become broken. But there they stop. If you take a tile to them to be reproduced, you do not need to fear that its design or anything approaching it will appear elsewhere. They are original and independent. Happy, indeed, might be the tilemaker who could surpass or even equal their work.

One is tempted, as in writing other things, to say the best work, but these master craftsmen have no best work. They may have designs and finishes which please more than others, but this has nothing whatever to do with quality. Everything which leaves their hands is best. It may be a plain tile in white, with a pale blue design. It may be a rich brown jug, with its flock of similarly colored mugs, wholly undecorated, or it may be a large vase delicately colored and decorated—the character of the work, the quality, is the same. The difference is only in those outward manifestations which appeal to the eye alone.

Perhaps the brickmaker fails to see any help for him in this description. True, brick will never be anything but brick, so far as outward appearance is concerned. But even brick can vary in quality, and the manufacturer who makes the best brick he can, even though it may be buried from human eyes in the huge skyscraper or the archway to the tunnel, has performed his part in the work of the world quite as well as the Vollkmars have performed theirs.

The message to the terra cotta worker is more clear. The artistic possibilities of clay so plainly exemplified should be an inspiration to terra cotta designers to make their work simple, artistic and beautiful. Clay yields readily to manipulation. The inspiration of the Vollkmar potteries should permeate every clay-fashioning establishment in the land and raise the efforts there exerted to a higher and more artistic plane.

Metuchen, too, it must be remembered, is the home of Charles A. Bloomfield, the worthy president of the National

Brick Manufacturers' Association, and a leading and potent factor in the social and industrial life of the community. The broad acres of the Bloomfield homestead lie just beyond the city limits, and the palatial residence is a conspicuous feature of the beautiful landscape. A trolley line passes the gates, which ever swing inward to visiting clay-workers, to whom a most cordial welcome is always assured. For years Mr. Bloomfield has been supplying Jersey clay to manufacturers of sanitary ware, fireproofing, etc., much of it going to points as far distant as New England and Canada.



A Common Method of Teaming in Holland.



Emptying a Brick Kiln, Near Brussels, Belgium.

be that their art impulse is so irrepressible that even this commercial age has been unable to crush or even modify it. If so, they are clearly destined to pursue their present course unharmed by the sordid influences which beset and ruin so many promising artists.

In a modest shop in this modest town, these two artists are maintaining the highest standards of ceramics. If one were asked to designate the most striking feature of their work, probably the answer would be simplicity. Assuredly there could be no greater recommendation. The worker who

CONSTRUCTIVE AND DESTRUCTIVE COMPETITION

BY RALPH E. SUNDERLAND, OF OMAHA.

An Address Delivered Before the Building Brick Association of America at Chicago, March 7, 1912.

Mr. President and Gentlemen of the Convention:

There is no conceivable forecast of the future of the brick business from which competition may be eliminated. Competition has always given the brick man grave concern, and competition stands out as the most important factor in any consideration of his future—at least up to the south edge of eternity. Beyond that, fire brick, perhaps.

There are two distinctly different kinds of competition; one is constructive and the other is destructive. One is consistent with all of those elements which tend to success, while the other savors of the characteristics which usually precede business disaster. One will build up the brick business until it is one of the greatest and most profitable pursuits upon the face of the earth, while the other will stunt its development and growth and cause it to yield but meagre earnings to those engaged in it.

In order to develop anything helpful or useful in this discussion we may first consider "competition" as a general subject and later divide it into the two particular kinds for analysis.

Competition began when time first entered upon its flight. Human life—and all other life, for that matter—is a record of the "survival of the fittest." Rivalry, contest, competition; these are parallel with progress and civilization.

Among men, among tribes, among nations, destructive competition with its annihilation, its desire to destroy, its greed for physical supremacy, such competition has written history in letters of blood uselessly, ruthlessly, lavishly shed.

Likewise, among makers and sellers of brick, there exists a destructive type of competition, with its annihilation, its desire to destroy, its insatiable greed for supremacy at any cost, and the history of it has been written and is still being written in the financial lifeblood of more than a few brick concerns desperately struggling for existence.

This sort of competition is not alone a relic of barbarism, but is characteristic of civilized nations, for civilization has inherited from savagery its brutal ideas of competition. But in no particular line of business among all branches of trade is there a competition more destructive than that which besets the face brick industry—and it is the face brick business only to which this paper applies.

The present cut-throat, brainless competitive practices are the best evidence that many of us are just now where Darwin says we began. We are indeed making commercial monkeys of ourselves and of each other, and it is high time to take an inventory of the whole nation-wide business of making and marketing brick.

Every phase of the brick business involves the general subject of competition. Competition has for its foundation the law of supply and demand.

From earliest history, man has desired a place in which he might live in safety and comfort; hence the demand for some sort of building material, and (until modern times) he has always used the best available material, cost and efficiency considered. True, there have come changes in the kind and quality of construction, but such changes have been merely expressions of an inherent desire to use the best.

The wheels of time have slowly ground out our present conditions, and, as before, men are still demanding the best construction materials of which they have knowledge, but they have not been told much about brick and consequently have but little knowledge of brick.

To me the past brings but two considerations that are worth while, memories and lessons. Memories have no place in this discussion, but the lessons we have learned and those we have refused to learn make up the foundation upon which our successes and failures are to be built.

Where should a consideration of competition begin? With a wise brick man, it begins when his mind first turns seriously toward the brick business as a place to invest his money and his effort. He first considers the market, the trade conditions, the probability of realizing a satisfactory profit.

In taking these things into account his uppermost thought and his deepest concern is the question of competition. He says, "Where am I going to land?" which, being interpreted, means "What will my competitors do to me?" And he answers this ques-

tion before he invests his money, if he has the build of a successful business man.

He knows, of course, that there will be competition. If he is wise (and wise men have been known to invest in brick factories and some of them have come out of it still wiser) he knows in advance the extent of that competition and it becomes a weighty factor in his consideration of the matter.

He must first determine upon a location. Does he conclude to locate at Hungrytown solely because, judging from outward appearances, one factory seems to have prospered there—and without knowing whether there is business enough there for an additional factory? Yes, too often, and with the usual disastrous effect upon one or both institutions and a reflex damage to the whole industry.

He must, of course, consider quality and availability of raw materials, cost of fuel, convenient and economical accessibility to the market, the demand for the particular kind of product—these and other essential questions are too seldom fully digested and too seldom decided upon the basis of the probable competitive advantages or disadvantages involved.

These are all competitive considerations and must of necessity have a bearing upon the outcome of the venture, but having established his plant, the test of actual ability, breadth of vision, fitness or unfitness for ultimate success is that man's attitude toward his competitor. Does he become a constructive or destructive force in the brick business.

Read the record and see. Read your own record, Mr. Brick Man, and point out to yourself wherein you have succeeded and wherein you have failed, and you can trace your success or your failure in a large measure to your attitude toward your competitors



Ralph E. Sunderland, Omaha, Neb.

and their attitude toward you. I wish to emphasize that statement and broaden it out so as to include the dealer as well as the manufacturer.

There has been a fatal absence of constructive competition, which is another way of saying that, as a class, we brick men (manufacturers and dealers alike) have been active forces in an era of demoralizing, devastating, dangerous competition; we have been shortsighted, narrow, bigoted, stubborn and jealous; we have sold our business birthright for a mess of lost opportunities and have robbed ourselves of both money and respect of the building public.

Take the new-born brick plant, conceived and delivered without thought of its own chance of a normal existence and with no regard to its effect upon brick society. What happens? Does the smart novice go to his established competitor and talk matters over, with a view to their mutual advantage? Does he try to develop a different product and attempt to establish a profitable business for it? Hardly! The usual attitude of the new recruit is that he will "show" his apparently successful rival what a precocious child can do, and he proceeds to do so, duplicating his product, cutting under his prices, knifing him in every way possible.

What does the aforesaid established manufacturer do? Does he suggest a conference, overlooking the fact that the young upstart should have first come to him on a similar errand? Does he use every reasonable means to save the situation for both concerns? You know the answer. He resents the intrusion and determines to show his inexperienced competitor that there is no room for both; he allots a short period, perhaps months, perhaps years, for his

complete annihilation, meanwhile wasting his own substance, which might better have been spent for advertising or otherwise building up his own business.

And thus, with daggers pointed toward each other and with two-thirds of their energy and thought directed toward a mutual desire to celebrate the other's funeral, they proceed with the balance of their discouraged faculties to market their own brick.

Gentlemen, this is a disgraceful picture, but no one can deny that it has many a counterpart in real life.

And what of the dealer? Is he a little angel of perfection whose whole soul is filled with a righteous desire to build up the fortunes of his competitor?

The dealer is the man who comes into contact with the prospective or actual user of brick (and in so far as the manufacturer comes into this relation, he is also a dealer in the meaning of this paper). The dealer is the potential force whose influence upon the building public counts for good or bad for the brick business. The dealer is the salesman by whom the commodity and all of those interested in it are judged. First of all, the dealer must sell his own line of brick. That is admittedly his first duty. What he may claim for his own brick is not at present under consideration. That is a matter quite between himself and his customer. The wise dealer will tell the truth, and his failure to do so—as in all lines of salesmanship—will be an asset to his competitor.

We may accept as legitimate any honest statement as to the quality and desirability of a competitor's product and any honest statement as to his ability to give satisfactory service in furnishing brick for a given project. As to the wisdom of such a practice, salesmen may differ, for some regard as dangerous any degree of "knocking;" that is, however, a matter of judgment, but the legitimacy of the practice may be admitted.

But we may well consider as wholly illegitimate, unworthy, distinctly discreditable and destructive—as well as finally unprofitable—certain vicious practices which are all too common.

The temptation to pursue contemptible methods is increased by the fact that most buyers of face brick buy but once, and the effect upon future business is often thought to be unworthy of consideration. "Anything to secure this particular order" is too frequently the governing motive. But this can not satisfy any brick man who is a credit to the business or who has any desire to be a factor in upbuilding the industry.

What about dishonest statements as to a competitor or his brick? This covers a multitude of evil minded concoctions which could not emanate from any self-respecting salesman, and which would not knowingly be tolerated by any concern of integrity and decency.

And I desire to point out some of these vicious practices which constitute glaring examples of destructive competition, and which must be abandoned if profitable business is to be developed to the utmost.

Covering a brick with an invisible film of parafine in order to beat the other fellow in an absorption test. Any comment necessary on such a practice?

Selecting and showing a cull or an inferior sample of a competitor's product, representing that it is a fair average sample—especially in the absence of that competitor—is hardly worthy of any man.

A photograph of a brick job showing, as efflorescence, a smear of lime or plaster dust under a window, where debris had been thrown out of a building, is not conducive to good feeling between competitors.

After losing an order in fair and square competition, it is hardly ethical to loiter around a building site for the purpose of making the buyer dissatisfied with the brick delivered by the other fellow.

It is a distinctly unclean trick to allege that buying brick from a competitor is likely to delay a building, hanging such a suggestion upon the fact that on a former occasion the said competitor had the misfortune to have a car of brick lost in transit—an experience common to all shippers.

It is not at all constructive, nor does it build up a profitable competitive situation, for a brick salesman to prejudice a buyer by telling him that the brick offered by a competitor was formerly sold at a less price. How absolutely inconsistent with ordinary horse sense this seems, and yet it is a common practice in some places.

If there is any one condition under which competing salesmen can afford to be mutually respectful it is at public lettings. Each is given a fair chance to present his proposition and a deciding vote

is usually taken. Up to that moment every atom of salesmanship may well be put to its very best use, but once the verdict is announced it is not an evidence of good faith to pursue methods calculated to undermine the successful competitor, especially by misrepresentations, wicked insinuations and worse. My salesmen are expected to accept the verdict, congratulate the other fellow when he wins, thank the board for a chance to figure, wish all parties a successful deal and go on after the next job. And this is no more than is customary among prize fighters and lawyers. What gain can come from a desire to spoil the deal for the other fellow, after having lost out?

Another reprehensible practice, of which more than a few dealers have felt the effect, is trying to hire away valuable men from competitors. This is the more despicable when the motive is fully as much a desire to cripple that competitor as it is to gain the services of the employee.

A most insidious method of stabbing a competitor in the back recently made its appearance. A dealer with a single grain of manly honor, who desired to secure the agency for a line handled by his competitor, would frankly indicate his wish to the manufacturer and pursue decent, orderly negotiations to that end.

But a cowardly competitor of the back-stabbing variety would prefer to poison the mind of that manufacturer with mis-statements, induce him to believe things entirely untrue, suggest or promise improbable increase in sales of the line—anything to break down the competitor's line and defeat his success in the hope of getting rid of his competition.

Then there are sometimes peculiar conditions under which one brick concern has a right to expect an order regardless of competition. It would be constructive if the favored party might be permitted to take the said business at a profit without being forced, by a destructive competitor, to take the order with the profit squeezed out.

Of what is the man made who, under such circumstances, without being asked for prices, is willing and anxious to submit a lower price than he would be willing to take the business, in order to compel his competitor to suffer a loss?

I am told of a million-dollar office building in a large city owned by a company whose vice-president was also an officer of the brick concern. A brick was chosen at a price which carried a fair profit. A price, unsolicited, was offered by a competitor who knew the situation, on what appeared to be the same brick. It was a cost price, a price at which the business would not have been acceptable to the firm offering it.

What was the result? A most embarrassing situation within the building committee; a reduction of the original price, such reduction coming out of the profits; a subsequent boomerang to the concern that did the dirty work and a general damaging, destructive effect upon the industry.

The motto "Get the business or make the other fellow take it at a loss," is vicious and shortsighted. It builds up conditions in the business which preclude the possibility of satisfactory profits for any concern.

There are men in the brick business who have exhibited no capacity whatever for developing better conditions, and who do not realize that except as all prosper none can prosper. But they have that capacity. Let us persuade them to rightly direct it.

Even if destructive methods could increase the demand for brick they would not be justifiable—but we all know that only by constructive policies can the use of brick be enlarged, and it is high time for us brick men to get in line with real progress.

If the misdirected energy that is being wasted upon destructive competitive practices should be used to increase the public interest in brick, a marvelous change would take place.

So much for destructive methods of competition. Although I have not pretended to include in this paper all of the practices which have been tearing out the very vitals of the brick business, I have selected a few from the many that have come from my acquaintances among the brick men of the country, and the instances may be considered typical rather than specific.

Taking up the constructive phase of competition, let us begin with the maintaining of profitable prices.

Of all commodities, face brick should bring a reasonable profit. First, because the seller needs the money, and, second, because there is seldom any fundamental necessity for cutting.

The best evidence of good judgment on the part of a concern or its salesmen is a decent consideration of competitors. Salesmen, who are really salesmen, will talk color, quality, texture, the beauty

of the finished wall, service, and every other profit protecting argument.

Genuine, brainy, constructive salesmanship will preserve margins so that he who finally lands the order may do so profitably.

Who thanks you, Mr. Brick Man, for a price from which the profit has been squeezed? Surely not your competitor. Nor does the building committee, the owner, the architect nor the contractor. "The memory of quality lingers long after the price is forgotten." Preserve margins and we can afford to attend these great conventions.

Another constructive force is advertising.

The printed advertisement is a silent salesman whose audience listens attentively to every word about brick. The B. B. A. has done much through advertising to increase the public interest in brick, but that organization alone can accomplish comparatively little. Most of the result-getting publicity must come through the local newspaper, where the merits of the material may be coupled with the personality of the dealer.

It would be splendid if in the Omaha newspapers there might appear weekly display advertisements in behalf of brick, paid for by the B. B. A. It would be splendid if the B. B. A. would pay one-half of the expense of local advertising, the dealers to pay the other half.

But nothing of this sort can be expected, for those who contribute to the treasury of the B. B. A. would rightly object to having the money used in any particular locality.

However, the local dealers might well join hands in a moderate campaign for publicity, but how? General advertisements of brick without the name of any advertiser would be of about the same force as anonymous letters. Advertisements carrying the names of competitors would suggest the possibility of a combination or trust. Separate newspaper advertising costs too much money.

Why not try this plan: Take Louisville, for example, with three dealers in face brick, all presumably members of B. B. A. They could create a fund of \$500 for newspaper advertising. Copy could be prepared by an expert or, possibly, by the B. B. A. The advertisement might appear in the name of the B. B. A., showing the names of the Louisville dealers as members of the B. B. A., might be more or less prominent, as desired by the dealers. This would be competitive as between the dealers, but you will agree that it would be entirely constructive competition. Of course, the very elimination of destructive methods would be the longest possible step in the direction of constructive competition.

Men, such ideas of conducting business as have been herein portrayed are beneath the actual level of the men who are engaged in the business of making and marketing brick, and I believe we can well afford to measure up to our real size and accept our full responsibility as builders of a business which our sons will accept as a curse or a blessing, according to the condition in which we deliver it over to them.

Honesty, just common honesty, as between competitors, would prove to be the most constructive force in the brick business. Not alone the kind of honesty that fortifies a definite promise to meet a financial obligation; not the kind that permits insinuations to serve as statements, resting upon the virtue of not having actually spoken an untruth. The only kind of honesty that will get us anywhere in a mutual effort for brick, is the kind that actually wishes well for our competitors; a genuine, wholesome, frank, inspiring honesty that has the manhood of men back of it.

It is a most inconsistent and absurd waste of time and money for competitors to gather at these great conventions in a hypocritical spasm of pretended interest in the advancement of the brick business and as often return home to pursue the same destructive tactics with which, for the preceding twelvemonth, they have been blocking the very progress they profess to desire.

All of this may be summed up in the suggestion that a mutually friendly relation be established and maintained between brick men, especially between those who are similarly situated or who actually compete.

And this may well lead us to the B. B. A., where we may all unite for the advancement of the great business of making and marketing face brick. What may not be accomplished by the combined constructive powers of the brick men of the country?

Unwillingness to be advised; resentfulness toward suggestions; failure to admit and accept responsibility; tendency to let the other fellow plan the constructive work, and a selfish, narrow view of the situation—these and kindred attitudes are certain to prevent doing much for the brick industry of the nation.

As I have studied the map of this country and, in my mind, have spotted the few men who have shown an interest in this concerted effort in behalf of brick, I have been amazed beyond expression that it has been possible to accomplish so much.

In this association we have builded well as far as we have gone; we have progressed remarkably considering conditions, but what can we not attain for the brick business and for architecture and for the home owners and for our land, if those who most directly profit from the use of brick put their shoulders to the wheel through the Building Brick Association of America?

Destructive competition must give way to constructive. Unworthy motives must yield to worthy motives.

These things are necessary, they are all possible, they are inevitable when the right relation between competing brick men is established. Let our watchword for the next year be "Constructive service in behalf of brick," and we shall feel the beneficial effects of it in our business and in our bank accounts.

The B. B. A. is the logical channel through which broad advancement is possible, but the foundation of the whole project depends upon the individual brick man and his attitude toward his competitor.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.

Vitrified Pipe Best for Sewers.



HE Public Improvement Committee of the city council, which has for a number of months been taking testimony to decide the question as to the best material to use in making sewers, has at last made its report.

It incited the Board of Public Works to sit with it in making the investigation, and a mass of over 2,000 pages of testimony was taken, not only the cement and clay sewer pipe giving evidence, but experts and engineers on both sides, both local men and the leading experts in various parts of the entire country coming before this committee, either in person or by communication. After making this most searching inquiry, the committee reports as follows: "First, that approved sanitary engineering requires that the best commercial product shall be used in sanitary sewers, for the protection of health and life of the citizens of the community. Second, that the best material to be used in the sewers of Kansas City is vitrified salt glazed pipe. That it is the most sanitary, durable and impervious, possesses the greatest strength and permanency, and presents the greatest resistance to deterioration and destruction, of all the commercial products for sewer construction now upon the market. Third, that bids for finished sewers, based on specifications, including both vitrified pipe and cement pipe, that have been submitted during the past few months, show that on an average the cost of finished cement sewer pipe is greater than the finished vitrified pipe sewer. Taking into consideration these facts, and the legal opinion furnished us by the city counselor, in our judgment this is a matter that should be left entirely with the Board of Public Works, and we so recommend."

It was noted several months ago that the Board of Public Works had ordered specifications prepared which allowed both vitrified and cement sewer pipe to compete on the same jobs, and, as will be seen from the above resolution, the result of the bidding was in favor of the vitrified pipe, which the committee found was the best material. As this investigation has covered such a wide field, and as the mass of evidence in favor of cement pipe also shows on the face of it that very great care must be taken in the making of such pipe, to insure the proper care and wearing qualities, and that the finished product does not in itself show whether this care has been used in the making, it would seem that very judicious use could be made of this committee report by those who produce vitrified sewer pipe to frustrate the attempt of those who manufacture cement pipe to break into the city sewer making business, where an absolutely sanitary sewer is the thing needed. Even if it was granted

that a perfectly made cement pipe was as good as a salt glazed vitrified clay pipe, there is no reason to expect that the cement pipe will be perfectly made when it is understood that so much depends upon the proper working of the material, from start to finish, and that all this working is done with common labor, which is known to be very unreliable in such matters as little details. This class of labor is always inclined to slight all the details, and the details form a very important part in making cement pipe. To make a first class cement pipe would require the services of an expert in every position on the working force, while with the vitrified clay product the experts do not need to be so numerous, as the few experts and the machinery turn out a product which can easily be tested for its value, and an inspector can see its flaws.

The Fidelity Material Company reports having sold the brick to be used in constructing the court house in Prince-

HOLLOW TILE FOR SEWER CONSTRUCTION.

ONE of the most striking advertisements for sewer block that has come to our attention is a leaflet issued by the Davenport Brick & Tile Co., Davenport, Iowa. On one side of the leaflet is an immense photograph, which we are pleased to reproduce, showing a large sewer in course of construction, while on the reverse side are illustrations of the manner of laying their hollow building block and vitrified foundation blocks in the wall. They recommend their vitrified sewer block for sewers from two and one-half to twelve feet in diameter, while they advocate the use of the hollow building block for general building purposes, inasmuch as they are fireproof, moisture-proof and vermin-proof and make the building cooler in summer and warmer in winter. No lathing is necessary and they are especially desirable for



A Hollow Tile Sewer in Course of Construction.

ton, Mo., the job requiring about 400,000 brick of all kinds. They have also sold the brick, common and face, to be used in the new Bank of Princeton, at the same point.

The Buffalo Brick Company, of Buffalo, Kansas, reports that it has nine million paving blocks on hand and has orders on file for eleven million, and shipments are being made at the rate of twenty cars per day. They expect the demand to keep up with their production through the year.

The Lyle Brick Company is now operating both its yards in Kansas City, and is reporting a steady demand for the product for building purposes.

Flanagan Brothers are operating their plant regularly, and are using a large percentage of their product in their own building operations.

The Elliott yard, on the Southwest boulevard, is reported to be in operation and selling its product readily.

KAW.

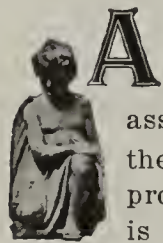
dividing walls, as they are sound-proof. They have had tests made of their blocks at the University of Illinois showing that their 20-pound block lying flat as they are put in the building will stand up to 184,600 pounds pressure, and the 15-pound block will stand up to 108,300 pounds pressure.

This company also makes a silo block, which they exhibited at the Iowa State Dairy show, and which they say attracted considerable admiration. Their exhibit at the big Clay Products Show in Chicago in March, where a full line of their products was displayed, attracted considerable attention.

I wonder why it is we are not all kinder than we are? How much the world needs it! How easily it is done! How infallibly it is remembered! How superabundantly it pays itself back! For there is no debt in the world so honorable, so superbly honorable, as love. "Love never faileth."—Prof. Drummond.

Written for THE CLAY-WORKER.

AN UP-TO-DATE BUILDERS EXCHANGE.



AMONG the building fraternity of the various cities there has, in the past few years, been organized in every progressive community an association of the builders in that vicinity for their own good and advancement. One of the most progressive and live organizations of this character is the Builders' and Traders' Exchange of Detroit, Mich., which was originally organized some forty years ago in a small way, but since 1909 has been steadily growing and increasing until at the present time it is one of the foremost organizations of its kind in the country.

The object of the Detroit organization, as is usually the object of such organizations, is the encouragement and protection of the building interests of their city or community, to inculcate just and equitable business principles and to promote mechanical and industrial interests, all for the ultimate purpose of elevating and bettering the building interests and the conditions surrounding it. The Detroit organization also endeavors to establish and maintain uniformity in commercial usages, believing this necessary in a line of business which has no particularly acknowledged rules to guide it. It also endeavors to avoid and to adjust, as far as practicable, the controversies and misunderstandings which are so apt to arise in such diversified lines of business, all to the end that membership in this organization may be an assurance to the public of skill, honesty, honorable reputation, square dealings, etc.

With such objects in view, the organization can not help but thrive, and within the past few years has grown from a small, obscure organization to a large and prominent one, which does not confine its activities to its own lines but also takes great interest in promoting matters of civic interest, and is always ready with a helping hand to assist in anything which is for the good of the city. The organization contains at the present time about 350 members, two-thirds of whom are contracting firms in the various lines of building construction, and one-third of whom are those engaged in the building supply line or furnishing equipment or selling bonds and insurance. This is practically all of the good contractors and those affiliated with the business in the city, and only that character and those who pass a rigid examination are admitted to this organization, it being understood generally that membership in the Detroit Exchange is a recommendation to the public.

The headquarters of the organization is in one of the best office buildings in the heart of the city, and occupies a space of 4,800 square feet, all in one large room. A small portion of this is divided by partitions into figuring rooms, reading room, recreation room and secretary and board of directors' office. All available space around the walls of the room are rented to members for desk space, while in the center of the room practically all of the space is used for exhibition of building materials. A telephone switch-board is presided over by an operator, and a clerk to look after the gate entering the room keeps close tab on all those who desire to enter, and while all members are freely admitted, visitors must present their card and are not allowed inside the railing until invited by those whom they come to see. The telephone switch-board has seven trunk lines and there are eighteen extensions from the same, around the room. A careful compilation of the telephone calls, in and out, shows that the daily average of such messages is from 700 to 800. The general daily average attendance of members is in the neighborhood of 150, and the general daily average of visitors is about 50.

A bulletin of building news, which is obtained daily first hand from the architects and other sources, and which is

the best record of building operations in this city or in any other, so far as is known, is prepared and read at 11:30 each business day of the week to those members who are gathered at that hour to hear this information. After such reading, it is then posted in a convenient part of the room and these bulletins are left there from day to day until Friday of each week, when they are taken down, a general summary from them drawn off, and a copy mailed to each member. This information is largely sought after, and there are many applicants who are not eligible for membership who would like to join this organization for no other purpose than to receive this information.

There are many other features of importance, beside the free telephone service and this bulletin, which the members of the organization appreciate and use very largely. One important and useful feature is the mail box system, where many members receive their mail and where all messages which are carefully taken care of by the switch-board operator when the member is not in the room when the telephone call is received, are placed, thus making all messages received absolutely certain of reaching their proper destination.

Another feature is the convenient, large, light figuring rooms, which can be closed up and made entirely private



Builders and Traders Exchange, Detroit, Mich.

when a contractor is figuring a set of plans or when he desires to use the room for private consultation with some client. Another is the recreation and reading room, in which is kept a complete list of all magazines and books on the building trades, and which is used to a large extent by members when waiting for telephone calls or for some client to meet them.

Another feature is the notary public service, through the secretary and assistant secretary, in the making of affidavits, which service is free to all members. Still another feature is the free consultation services of an attorney for all members of the Exchange, such services being contracted for by the year by the Exchange, but all of which must come through the secretary.

Another feature which has but recently been added is the credit report system, which consists in keeping a complete record, as nearly as possible, of the financial and credit conditions of all contractors and builders in the city of Detroit, as well as the supply houses and all those connected in any way with the building business, for the use of members or others in granting credit or in awarding contracts.

Many other features might be mentioned, but suffice it to say that everything which would be of interest or advantage to the members of such an organization is included

in this membership. It is primarily and practically altogether a business organization, although the social side is made considerable of, and smokers, banquets and outings are frequent from time to time during the year, depending upon the season. Only once or twice during the entire year is there an outing or dinner to which the ladies are invited, such affairs being usually confined to the active members of the exchange and for the purpose of getting the men better acquainted personally with one another, thus doing away with petty jealousies or embarrassments which might exist.

The organization does not take any stand on labor matters, being absolutely neutral in this particular and leaving such matters to be settled by the individual contractors as they see fit.

During the year it has been the practice of the organization to invite some prominent business men of the city to appear before them from time to time at their noonday meetings and to address them on some topic of large and common interest, either directly pertaining to the building business or to the city's improvement at large. In its membership are numbered many men who are prominent in business and in the politics of the city.

While its work in the past few years has been largely



View of Upper End of Main Room.

constructive, its work in the future is more along administrative lines and there is a large field for its activity. The local building code and the State employers' liability matters and other features of legislation have had its very close attention, and its influence in this direction has been large. The mechanic lien law of the State, which, it is thought, should be changed, and some other legislative matters will occupy its attention in the immediate future, as well as other matters that arise from time to time.

The officers of the organization believe that the life of such an organization is shown by its committee work, and it therefore has four or five very active committees who give considerable of their time to their particular work. Considerable assistance has been given by this organization to other organizations in other parts of the country in organizing along the same lines, and almost daily some request is received as to what has been done by the Detroit organization to make it such a success.

The members are all proud of their organization and they are very enthusiastic and active in its work. Its influence is broad and its creed of uplifting and bettering conditions is making it an organization of which Detroit is very proud.

WOLVERINE.

Beauty and utility vie with each other considerably for the favored place in architecture these days.

Written for THE CLAY-WORKER.

THE DRYING OF CLAY PRODUCTS.

BY I. M. JUSTICE, DAYTON, OHIO.

THE ABOVE SUBJECT is as old as the art and science of clayworking, and if age adds value like it adds quality to wine, then you should find in it something more than a passing interest.

Nearly two hundred generations of men have had the pleasure of expounding on this subject and much has been learned and written, known and forgotten concerning it until it has come very close to the impossible for anyone to dress it up in such new clothes as will secure attractive interest to hold the reader to the end of the thought expressed.

However, we have learned some facts and some truths regarding this great perplexing and most baffling subject, and since we are passing rapidly down the great wide way we can not be restrained from writing to you about them. We are not writing these things hoping to benefit those who have been favored with a college education in ceramics and have knowledge to sell, but we hope to give material aid to those who have financial interests either large or small in established clayworking plants, or those contemplating investments in such plants.

All that which enters into this great problem are most simple things, found about us everywhere in nature and controlled by the simple but fixed natural laws. We now enumerate the several items entering into our subject and problem—clay, water, air and heat.

Clay is the term applied to those earthy materials occurring in nature, whose most prominent property is that of plasticity when wet. Clays abound in every country of the world, and while they differ widely in their natural structure, still the base in all is the same, being silica and alumina, to which is added usually a certain percentage of salts, alkalies, magnesia and iron, and sometimes lime and other impurities. The natural structure of any clay fixes its drying quality and therefore establishes the condition under which it can be dried, but the natural structure may be changed and thereby change the drying quality and the condition under which it can be dried.

The clay may be changed by adding another or other clays, ground burned clay, sand, cinders, sawdust, etc., and the drying quality made better or worse. A change in drying quality means a change in the condition in order to secure the most successful results.

Those clays which present the lowest drying quality are made up of silica that is most finely divided; sufficient alumina and colloids to produce great plasticity, and in which the colloids are fully developed by nature, requiring but little mixing or pugging in preparation, and those where the drying quality is highest, are where the silica is coarse, the alumina and colloids affording fair plasticity and requiring thorough mixing and pugging in preparation. Examples of the former are found in the lower Mississippi valley, and of the latter in the north central states.

The fact to be established here is that nature has fixed the drying quality of each particular clay and it remains for us to find the condition under which it can be dried, if a practical one exists. Since the various kinds or classes of clays, each occurring in thousands of places, differ so widely in their chemical and physical properties, it is not difficult to conclude that the drying quality of all must differ as widely as the clays do. Many failures in drying clay products are attributable to the artificial means employed not having a sufficiently wide range to find the condition that must prevail to dry the ware successfully. Systems are sometimes pronounced flat failures when in reality they are successful, due to the fact that the drying quality of the clay was over-estimated. The most

successful drying systems are those having the widest range of drying conditions.

Water—a very common fluid, the component parts of which are oxygen and hydrogen. It is so common that it covers three-fourths of the entire surface of the earth, and is always impure except when caught falling from the clouds or purified artificially. In the manufacture of clay products water plays a prominent part. Clay in its natural state always has water present in it, and we add to or take from, as the process employed may require. Under the application of heat, water is expanded and volatilized. Water is not heated by the direct rays of the sun, but receives heat by absorption from solids. It boils at 212 degrees F. and can not be increased in temperature unless confined, and in the process of drying clay ware this is impossible. When subjected to cold it congeals and at first contracts, but under a lowering temperature expands. When green clay ware is subjected suddenly to either heat or cold, the water in it is expanded and the ware destroyed.

The amount of water which shall be employed in the preparation of the clay for moulding into ware always depends upon the condition of the clay in its natural state and the process of manufacture. In the dry process five to ten per cent of water is the usual amount required, but the exact amount needed in any given clay depends on the natural formation of the clay and its compressing quality. Under the manufacture of clay ware by the stiff mud process, sixteen to twenty-one per cent of water is needed to develop its plasticity and prepare it for proper moulding into the desired ware. The specific amount of water necessary under this process depends on the natural structure of the clay and the particular kind or class of ware being produced, while the soft mud process requires from twenty to twenty-five per cent of water, depending upon the natural condition of the clay and its quality for moulding.

The process of removing the mechanical or added water from the clay without injury to the ware constitutes the real essence of the drying problem, and since only simple natural elements combine in the production of all clay goods it must evidently follow that the fixed laws of nature must not be violated if successful results are to crown our efforts.

Air is such an abundant natural element that we often fail to recognize its vast importance in the art of clayworking. Air surrounds the entire world to a height of five hundred miles and when not in motion is just atmosphere, but when in motion and according to its velocity it becomes a breeze, wind, hurricane or cyclone.

Air is composed of two principal elements, oxygen and nitrogen. Oxygen is a gas, without taste, color or smell, and supports life and combustion. It is also capable of containing heat and is the great agent by which water is carried, transported and distributed throughout all land (clay) areas in the world. Nitrogen is a colorless, tasteless and odorless gas supporting plant life to a large degree, and it constitutes about eighty per cent of atmospheric air by volume. It does not support animal life or combustion and has no faculty for the absorption or distribution of water.

The heat of the sun, which travels in straight lines in rays of light, does not warm the air while passing through it, and if such were the case the world would soon be consumed by it. When the rays of light fall upon the earth the heat of the sun is absorbed by the clay and the air pressing upon this solid under pressure of about fifteen pounds per square inch is heated, and thus a primary fixed natural law is established by which air is heated. This law must never be lost in our forethought when designing artificial drying systems of any character, especially in the production of clay goods.

Heat is a form of motion, energy, manifested in fire, the sun's rays, etc. Heat is temperature above zero and cold is temperature below zero when measured centigrade. Heat, light, power, force, energy and electricity are all one and the

same thing, because any one of them may be converted into the other.

In time long past, scientific men believed heat to be a material, but that theory has been exploded by the later discoveries of man. Heat is produced in a number of ways, such as the mixing of chemicals, friction of two solids in contact with each other, but the most common method of producing heat is by combining the oxygen of the air with the carbon of wood, coal, oil, gas, peat, lignite, etc., forming combustion. All solids have an affinity for heat in varying degrees, and heat travels through solids by conduction.

When solids have absorbed heat until they are filled to any degree above normal temperature, and air is brought in contact with them, the heat is given off by the solids and taken up by the air by radiation and the air in this manner transmits the heat to other solids, fluids, or gases.

In all artificial drying systems used in the manufacture of clay products the natural law of creating heat, passing it to solids and then to air and from air to the ware, must be and is employed. It is essential that the consumption of the fuel take place near the drying ware and, furthermore, the heat generated shall be brought in contact with greatest amount of solids for the conduction of the heat to air in the dryer in order to conserve the heat after generation. In any dryer system there are just three prevailing conditions which must be subject to wide ranges of adjustment that the varying conditions to meet the drying value of every clay fixed by nature may be secured. These prevailing conditions are the temperature of the air, velocity of the air, and the humidity of the air. It is a well-known and established fact that the radiated heat system of drying clay products in general affords the most complete and perfect control of essential conditions, and also affords the widest possible range of these conditions absolutely controlled.

The most tender drying clays, as well as the "fool proof" clays, can most successfully be handled in the radiated heat type dryer for the reasons set forth above. If you would be successful in the drying of your ware you must comprehend the science of drying clay products and also have knowledge of the dryer you are using, as well as its operation. If you are facing trouble in drying your goods, or in the operation of your dryer, you should employ someone who knows the dryer "game."

"IT PAYS TO PAVE."

The above is the title of a short editorial that appeared in a recent issue of the "Louisville Times," which is worth reading and passing along to your home paper, for things of this kind do good both for the community and for the paving brick business. The editorial follows:

"As an argument for good roads, consider these figures. According to the Denver Chamber of Commerce, 6,000 motor cars visited Colorado the past year and left in that State not less than \$2,700,000. What would such an incursion mean to Kentucky? Consider again. The American Automobile Association states that it has good reason to believe that 500 touring parties, four persons to the car, will cross the continent this summer, and will leave in their trail as much as \$1,025,000, probably more. The presumption is that these cars will cross from east to west, and no provision is made for Pacific coast people coming in this direction.

"Kentucky is famous for her hospitality; when she is as well and as widely known for her good roads, her good roadside hotels, her consideration for the tourists' needs, Kentucky will become one of the most popular of commonwealths. It pays to pave and to prepare."

Canada may not exactly understand the meaning of reciprocity, but she seems to be learning from experience something about acting in haste and repenting at leisure.



BY W. G. WORCESTER.

Patented vs. Unpatented Tiles.

While the growth of the roofing tile industry has been comparatively slow in the United States, the inventive minds have been exceedingly busy. Since 1835, when the first patent was taken out, we have been favored with approximately 160 patents on roofing tiles; of this number about twenty per cent has been given to foreign inventors.

To one familiar with the subject, a study of the patent sheets of roofing tiles reveals the fact that for the greater part the inventors have had but a limited, if any, conception of the requisite properties necessary for a good tile. Many of the designs have been impossible of manufacture, while others that could have been made would have proven too expensive as a commercial product. Of the entire number of patents granted, the really good designs are very few. It would not be far from correct to say that the list would not exceed a dozen.

At the outset most of the manufacturers of tile operated under patent designs, but, as their patents ran out, and even before, no attempts were made to renew them, for the reason that these same manufacturers had long since realized that their patents were of little, if any, commercial value to them, but instead their success depended upon their ability to fill orders promptly with a good grade of material.

No company or person need entertain for a moment the idea that they can bring out a patented design that will control the market, or even cause a new ripple to the constantly growing demand for the standard patterns now in general use.

Porous vs. Vitrified Tiles.

A customer, upon entering the roofing tile market, is confronted by the advocates of two general groups or classes of tile. On the one hand he is offered vitrified ware with many claims in its support, while on the other hand he is invited to investigate the merits of porous tiles. The questions thus arising are, why are there two kinds of roofing tiles, and what are the true merits of each? As a general rule, if the first question should be left to the tile manufacturers for answer, the claim would be made that it is due to the choice of the individual makers. This, however, is not wholly true. If there was but one kind of clay and it would permit of the two kinds of tile being made from it, then their answer would be true, but with different clays it is only natural to expect to find that each must be given its particular pyrometric treatment to produce durable ware. For instance, with most clays in their consolidated condition (shale), it will be found necessary to burn the ware made from it to a high degree of vitrification in order to insure durability, while with soft clays, that is, clays that can be dug with a spade or shovel, it is in most cases unnecessary to carry the burning beyond a point where the body is still more or less porous and open. This latter condition may be a matter of choice, though with many clays it could not be otherwise; for instance, with the calcareous (limy) clays it would prove disastrous to attempt to approach too closely their vitrification point. Thus the manufacturers that

are working limy clays are producing porous tiles out of necessity rather than choice. While on the other hand those that are using shale are carrying it to a high degree of vitrification, not through any particular desire to do so, but through necessity also.

The second question, or, what are the merits of each kind of tiles? can be answered in two ways—first, as to their durability, and, second, in reference to their comparative cost of manufacture.

Taking up the question of durability, it must be stated that an accurate comparison of the two classes of tiles can not be made, because the vitrified product is still in its infancy when compared to the porous tiles. The latter have been used from the very beginning of history.

Germany and France, for instance, probably the two greatest tile centers in the world, have produced hardly any other than the porous type of tiles. Had this class of tiles not proven durable they would not be found today upon the roofs of edifices erected many hundreds of years ago. While it is not possible to point out such old roofs of vitrified tiles, no one familiar with clay products for a moment questions the durability of a well vitrified piece of ware. It is only in cases where the ware is not burned sufficiently high to properly cement the grains of clay together that there is danger of failure.

There seems to be no marked line where the one class of tiles leaves off and the other begins. It would seem at first thought that a measure of absorption or porosity would indicate the point of division, but it does not. In Bulletin 11, Ohio Geological Survey, "The Manufacture of Roofing Tiles," by Worcester and Orton, there is given a table that covers the per cent of absorption on sixteen different commercial tiles gathered from various sources, where they had rendered service varying from three to ninety-two years. These tiles represented both the porous and vitrified types. The highest absorption in any case was 18.96 per cent at the end of a ten-hour immersion, while the lowest for the same period was .24 per cent. The average for all samples was 8.05 per cent.

In some cases tiles that were sold for vitrified ware were found to take up six per cent of water, while tiles of the porous type were found with equally as low a per cent of absorption. Thus it can be seen that there is, commercially at least, an overlapping of the two groups.

In no instance had any of the tiles failed or disintegrated, hence it is not known what per cent absorption would be necessary in any single case to cause failure. This point is undoubtedly an individual one with each clay and is dependent upon its physical makeup. It would, therefore, seem safe to say that a comparison of absorption from tiles made of one clay to tiles of another clay bear little, if any, relation.

The manufacturer of vitrified tiles makes the claim that his competitor's tiles take up so much water that they are very heavy after a rain and are a menace to the roof timbers. While it is true the porous tiles take up some water, it was only after a steady soaking of ten hours that the highest absorption reached 18.67 per cent (Bull. 11, O. G. S.). This extra load, if complete, would not be excessive nor would it equal the load frequently caused by wind pressure. Roofs, as a rule, are designed with a high factor of safety in order to care for these extraordinary conditions, hence the mere absorption of eight to fifteen per cent of water should in no manner endanger them.

The manufacturer of the porous product retaliates by pointing out that vitrified tiles when layed on open construction, that is, hung on iron purlins or wood strips without sheathing boards, will sweat during cold weather and cause dripping upon the floor beneath, while with his own product, even though the sweat may form, it will be absorbed by the tiles. Granting that the porous tilemaker's claims are true, he does not mention the fact that a comparatively small

per cent of roofs are layed on open construction. Thus, trouble from this source is quite limited. Coming down to the facts, each manufacturer knows that there are perfect tiles in both groups and he does not hesitate to advise the use of clay roofing tiles of either class in preference to any other roofing material.

It is not the writer's desire to convey the impression that all vitrified tiles are good and equal, nor that all porous tiles are so, but, if each are properly made and burned, there need be no fear of roof failure from either. There are, of course, different grades or qualities in the present day roofing tile products, the same as there are in bricks.

In reference to the comparative cost of manufacture of the two kinds it must be said that the porous product has several points in its favor. In the first place, as a general rule, the raw material is soft and is, therefore, easier and cheaper to win than is the case with shales. Secondly, the grinding and preparing of the material for the porous tiles is slightly less than for vitrified tiles. In the latter case the shale must first be pulverized and, lastly, tempered or mixed with water to the proper condition for working. In the case of the soft clays they are passed through rolls that act as crushers and then into a mixing machine, which also serves as a tempering device; thus it can be seen that in the latter case the amount of machinery and handling is less than is the case with shales.

As to the forming of the ware and its drying, there is practically no difference, but, as the dried ware reaches the kilns ready for setting and burning, the method of procedure in each case is quite different and, as will be seen, is somewhat in favor of the porous class.

It is a well-known fact that ordinary shales and clays will, upon being burned to vitrification, deform more or less; especially is this true of thin section ware like roofing tiles. To overcome this warpage or deformation, it has been found necessary to set the ware in such a manner that each tile has only its own weight to support. This is accomplished by building up boxes or compartments in the kilns with fire clay blocks. The boxes are then filled by placing the tiles in them, one deep, either on edge or end. Thus, as the burn proceeds, each tile stands without any superimposed load. In the case of the porous tiles, the burning is stopped while the ware is yet free and safe from deformation. By so doing it is possible to set the tiles one above another from the floor of the kiln to the crown, after the method of setting bricks. Thus all of the available kiln space and heat is utilized by the tiles, while with the block system much labor and time is spent in putting them up and taking them down at each burn. In addition, the space they occupy in the kiln and the large amount of heat taken up by them is a considerable item. Furthermore, there is always a much larger percentage of loss in a kiln of vitrified ware than there is in one of the porous type. Hence, there are strong economical reasons in favor of manufacturing the latter class of ware.

There is, however, a very strong argument against the average porous roofing tile, and that is their natural color, in most cases, is poor. To overcome this it becomes necessary to slip or coat each tile with a good red burning clay. The preparing of the slip and its application will, in a considerable measure, offset the other favorable points. In addition, the manufacturer that has to rely upon a slip coating to give the desired color is never free from the anxiety that there is danger of the slip freezing or peeling off. If he has given a guarantee that the roof will remain perfect for a given length of time, and the slip peels off, it is up to him to make good with a new roof, which will very quickly consume any extra profits that may have accrued through his lower cost of manufacture.

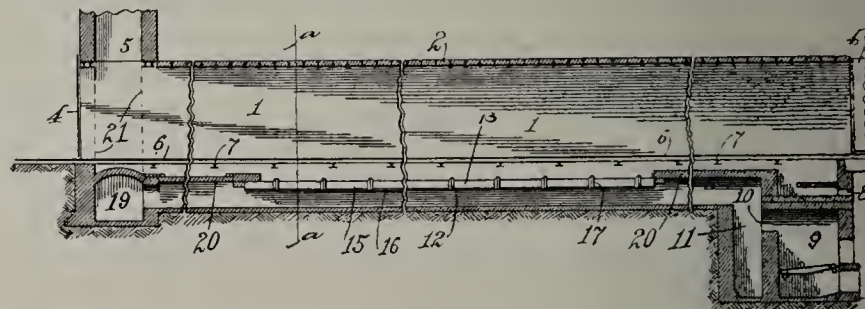
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RECENT PATENTS.

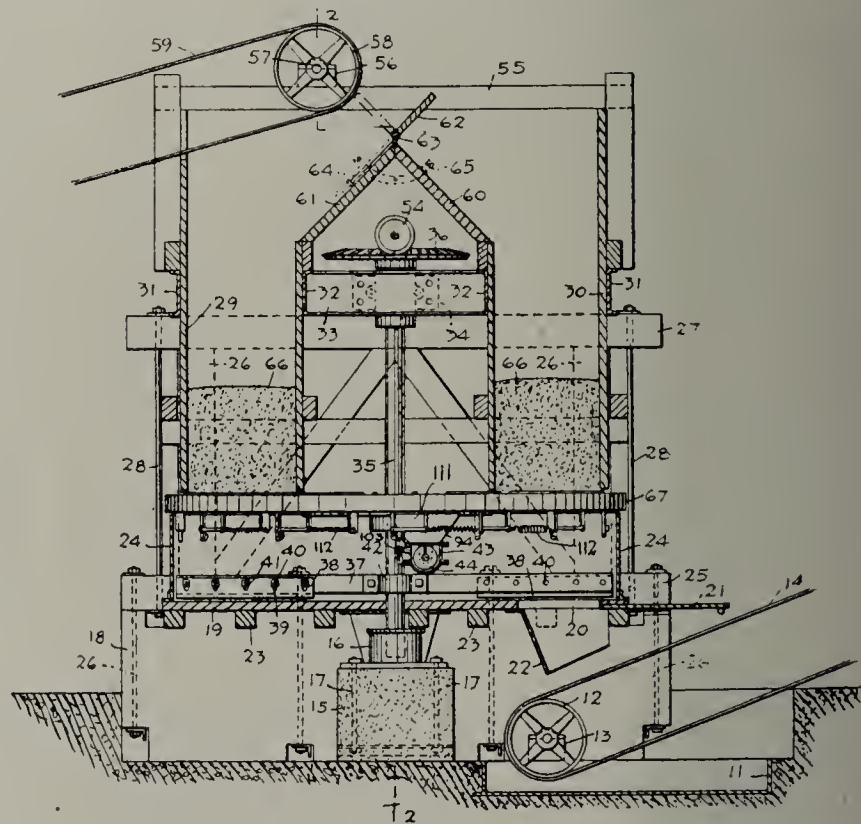
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Dryer for Clayware: Herman Heuss, of Dayton, Ohio, assignor to the C. W. Raymond Company, of Dayton, Ohio. 1,022,082. Patented April 2, 1912.—This invention relates to new and useful improvements in dryers for eliminating the excessive moisture from clay ware preparatory to hardening or baking the product by the burning process.

The object of the invention is to provide a dryer flue for the products of combustion, which is adapted to resist the deteriorating action of the products of combustion, and which



1,022,082



1,024,262

will facilitate repairs and will effectually seal the smoke from the drying tunnel.

In a dryer constructed in accordance with my invention, the air which expels the moisture in the clay enters the tunnel through the openings (8) in one end thereof, and coming in contact with the flue (13), the temperature of the air will be elevated to a sufficient degree to expel the excessive moisture in the clay ware. The air eventually passes out through the stack (5), thereby maintaining a constant circulation. The circulating air will receive most of its heat from the metallic shells (15), but will also receive some heat from the brick portions of the flue. The circulating air will also be initially heated from the top and sides of the furnace (9) as the air enters the tunnel through the openings (8) around the furnace (9).

As the metallic portions of the flue are made of members which are easily handled, the flue may be disassembled to facilitate cleaning.

Clay-Cleaning Machine: Bernard Jacquart, of South River, New Jersey, and John V. V. Booraem, of New York, N. Y. 1,024,262. Patented April 23, 1912.—Our invention re-

lates to clay cleaning machines—that is, to machines employed for separating pebbles, small stones, and various other hard impurities from large masses of mined clay, in order to render the clay plastic and otherwise suitable for forming bricks, earthenware members, and other articles of the kind.

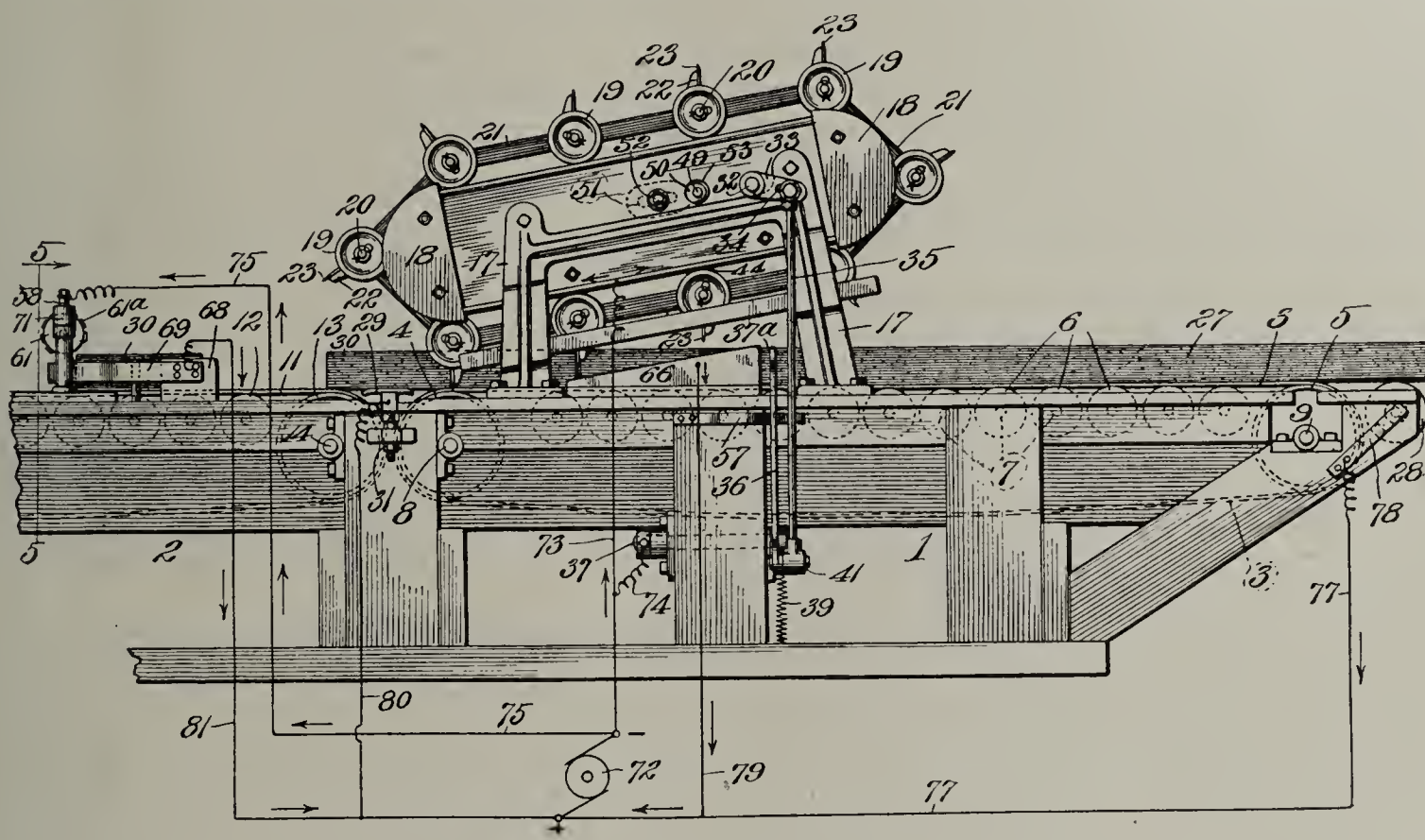
Our machine is of the general type which cuts away the soft, plastic or semi-liquid parts of the clay, leaving the pebbles or other impurities or masses of the same in convenient form to be removed as waste matter.

Our invention further comprehends improved devices for taking care of the pebbles and other impurities as the same are separated from the clay so as to render the removal as little troublesome as possible, and also to render it as nearly as practicable continuous and automatic.

The operation of our device is as follows: The various working parts being in action, mined clay or stock is fed to the conveyor belt (59) and by this belt is conveyed up to the top of the machine. The door (62), under control of the arm (64), is shifted to the right or left, according to the will of the operator, and as indicated by full and dotted

this takes place, of course, at the instant when the arm (87) is tripped by coming into engagement with the roller (92). The result is that any pebbles which have lodged against the adjacent edges of the knives (80, 86) are dislodged and thrown into the hopper (111) and by aid of the spiral conveyor are carried out of the machine. If it happens that large pebbles (see 118, Fig. 8) are present in the clay, they can not pass through the slots (81) as just described, and are consequently carried along by the knives. They are brought against the doors (115), and causing the latter to swing open pass out of the machine and are conveyed away. Suppose, for instance, that, as indicated in Fig. 8, a large pebble (118) is lodged against the door (115). The pebble being now struck by the knife (80), the door (115) swings upwardly, allowing the escape of the pebble. The pebble (118), being once outside of the door (115), is acted upon by centrifugal force so that the pebble is immediately thrown off the turntable and thus finds its way to the floor.

The operator does not maintain the hand lever (108) in position, as shown in Fig. 10, if the clay be full of pebbles or similar impurities. If, however, the clay be comparatively



1,024,122

lines. If the door be to the right according to this figure, the clay drops into the hopper (29). If, however, the door (62) be to the left, or as indicated in dotted lines in this figure, the clay drops into the hopper (30), in either case piling up and remaining in the hopper until used up. The turntable (67) being constantly in motion, the long and short knives which it carries are passed successively under the hoppers. Each time a knife passes under one of the hoppers it cuts off a thin slice of the clay. It will be understood for this purpose that the clay contains more or less water and is to some extent plastic. Each knife takes off a thin shaving from the bottom of the charge of clay, and this shaving drops downward, lodging upon the floor (19). The sweeping knives (38) gather up all of the shavings and cause them to drop through the spouts (22, 22 a), and the shavings thus discharged are by aid of the conveyor belts (14, 14 a) carried away from the machine and are ready for use. If, now, very small pebbles are present in the clay, these pebbles lodge against the knives (80, 86). Since, however, the trap members (83, 85) are periodically rocked (to the left according to Fig. 5, as above explained), the pebbles are easily discharged through the slots (81) and

free from such impurities, and, consequently, it is not necessary to eject the pebbles very often, the lever (108) may be turned downwardly or into proximity to the notch (107), being turned back only in instances where it is desired that the pebbles be ejected periodically.

Brickmaking Machine: John R. Dawkins and Dennis Parks, of St. Louis, Mo., said Parks assignor to said Dawkins. 1,024,122. Patented April 23, 1912.—This invention relates to certain new and useful improvements in brickmaking machines of the type in which clay, suitably prepared, is forced in a continuous column from a container having a rectangular outlet, by means of an auger.

The invention comprises two salient features, viz., the application of electricity to facilitate the free passage of the column of clay from the auger machine, its subsequent indentation and severance into sections of brick length, and the impressing in each brick of a given mark or word; and novel mechanisms whereby the various objects described are attained. Chief among these may be mentioned a novel construction of cutting device, which is operated by the moving column of clay, said cutting device comprising a number of blades mounted on an endless carrier, which blades, in opera-

tion, penetrate the column of clay at right angles to its line of movement, and, as stated, sever portions therefrom of the length of a brick. In this operation the clay is prevented from sticking to the knives by the application of electricity, as previously mentioned, and hence it is that we are enabled to use blades which insure a straight, smooth cut, as distinguished from the employment of wires, which are now universally employed for this operation.

As regards the broad idea of the application of electricity to movable objects to prevent clay from sticking to them, the present invention is an application of the generic idea, in this regard, described and claimed in Reissue Letters-Patent No. 12,715, granted November 5, 1907, to John R. Dawkins, one of the applicants herein. The application of this discovery to the purposes of a brickmaking machine, however, presents certain specific and important advantages, due to the nature of the work on such machines, which has hereinbefore imposed certain limitations upon its improvement. Among these important advantages may be mentioned the fact that in the case of a brickmaking machine of the auger type, to which the present invention relates, the clay can be utilized in a more moist condition than would be possible without the employment of electricity; and such use of moist clay enables us to make a brick, the body of which is more homogeneous in its structure, by reason of the particles adhering and cohering to a far greater degree than would be possible with the clay in a dryer condition. Without the employment of electricity, such moist clay as we are enabled to use would adhere to the walls of the die or mouth of the auger machine, and to other parts of the machine with which it would come into contact in the course of being shaped into bricks. Another of the advantages referred to is that we are enabled to make bricks without the necessity of passing them through a repress after the cutting operation. This advantage we secure by the combined operations of electricity and the novel form of cutter referred to, the former insuring a perfectly smooth surface to the four sides of the column of clay, and the cutters, also aided by the electrical action, operating to sever each brick from the column of clay by means of a straight, smooth cut, thus avoiding jagged and irregular surfaces, so that the brick, when severed from the moving column of clay, and, if desired, impressed with a suitable name or mark, may at once be conveyed to the drying kiln.

The use of blades on an endless carrier possesses the further advantage that we are enabled thereby to run the cutting device directly from the column of clay, by impact and contact of the clay with the broad surfaces afforded by said blades, thus dispensing with intermediate gearing between the belt moved by the clay and the cutting device. This arrangement insures that the cutting device shall act in unison with the belt carrying the clay, and produces an absolute uniform cut irrespective of the rate of speed, or of the variations in the speed, of the belt.

In co-operation with the cutting mechanism we have devised an automatic creaser, which operates to indent the clay on opposite sides in the line of the cut of the knives, so that the brick will have beveled side edges. The creasing of the column of clay prior to the cutting thereof also tends to prevent the clay at the end edges of the bricks being torn off by the descent of the knives through the column of clay.

Referring to the drawing which shows a side elevation of the complete machine, 72 indicates, diagrammatically, an electric generator, from the negative side of which a wire (73) leads to, and is electrically connected with, the metallic frame or run-way (18) of the cutting device. A branch wire (74) leads from the wire (73) to, and is electrically connected with, the pivot or spindle (37) of one of the creaser-arms (36). A wire (74a) connects the two spindles (37). A branch wire (75) also leads from the negative side of the generator, and is electrically connected to one of the posts

(58) supporting the marking wheel (61). A further branch wire (76), shown detached in Fig. 1a, leads from the negative side of the generator, and is electrically connected to the die (24) of the auger machine. From the positive side of the generator a wire (77) leads to, and is electrically connected with, the metal roller (28), this being effected, as shown, by connecting wire (77) to an arm (78) which is in contact with the bearing of said metallic roller (28). A branch wire (79) connects the positive of the generator with the plates (66) carrying the brushes (67). Another wire (80) connects the positive of the generator with the support (29), and a wire (81) leads from the positive of the generator and is connected to the two brushes (69). By means of these various electrical connections the following results are secured: (a) The column of clay, in a more moist condition than has heretofore been found practicable, passes freely out from the die (24) without adhering to the die, and having its sides and edges perfectly smooth and regular. (b) The various cutters (23) are successively passed through the column of clay to sever the same into brick lengths, making an even, smooth cut, and are as readily withdrawn from the clay, being entirely free from adhering material. (c) The marking roller will make a clear-cut impression of its mark on the surface of the brick without the clay adhering to the wheel.

The principle involved in the application of electricity to prevent the adherence of clay to a metal object brought in contact therewith is fully set forth, so far as the same is known, in the said re-issue patent to Dawkins, referred to above; in order to make a complete description of the present invention, it may be well to state, briefly, that such principle consists in connecting the negative side of a generator with the metallic object and the positive side of the generator with the clay, in which circumstances the object may be brought into intimate contact with the clay, or forced into or through the same without the clay adhering thereto.

EASTERN COAL SITUATION.

How seriously the coal strike may inconvenience eastern brick manufacturers it is impossible to say. Worse than if the winter had not been abnormally cold. It was impossible to move coal in boats during the winter owing to the fact that barges and lighters were frozen at the docks, and shortage of cars made it impossible to secure the usual supply by rail.

Most yards along the Hudson are equipped for coal burning, though a certain proportion use wood alone, and others can use wood if necessary. At last accounts the supply was sufficient for the first thirty days. Beyond that, predictions were somewhat pessimistic.

The Hackensack district has about a thirty-day supply. Yards can use wood if they must, and one or two burn wood anyway. Hackensack makers do not appear to be seriously worried, though they admit that the strike means shortage.

In the Raritan district, both coal and wood are used. The coal supply seems adequate for the next thirty, perhaps sixty, days. There is plenty of wood available if it is needed.

Most plants in Connecticut use wood, and huge piles of it surround the sheds. Some are dependent upon coal, and where this is the case, from thirty to sixty days' supply is reported. Manufacturers are reported not seriously troubled there and are making preparations for work with little fear of future shortage.

As this is written the grade of coal used in burning brick has advanced \$2 to \$3 per ton. Dealers do not agree that the question of shortage enters into the advance. They say that all expenses connected with handling it have increased and they have been forced to push up prices proportionately. The guess is freely made, however, that with no strike, coal would have remained at its former price.

QUESTIONS OF INTEREST TO CLAYWORKERS

ANSWERED BY J. J. KOCH.

How Can We Cut Down the Percentage of Common Brick in Our Kilns?

This question is rather indefinite in its character as the burning results are influenced by the clay, model of manufacture, type of kiln, class of fuel, and the cost question is also influenced somewhat by market conditions.

Clay.

If you have more than one kind of clay, it is advisable to set the brick made from the clay that does not require so much heat; in the places where you get the common brick, and the higher temperature resisting clay product in the spots or places where such higher heat is obtained in the kilns. Or it might be well to use a mixture of very low temperature clay with higher temperature clay, in such proportions as will give the desired heat range. It is also sometimes advisable to add fluxing material to the high temperature clay to lower the burning heat so as to get a fluxing proposition at proper temperatures, to do away with the common bricks.

Mode of Manufacture.

As is well known, the structure of a dry clay press brick is radically different from that of the product coming from a mud machine. In the dry clay press brick, the clay particles are held together by the limited amount of water contained in the clay, producing adhesion of one particle to the other. In this way a body is formed where a coarse particle of clay may be close to fine particles, or a solid particle is adjacent to a porous particle, and in this way an irregular and unpredetermined structure body is obtained, and even after all the moisture is evaporated from this type of brick the body has only a comparatively small amount of pore space to allow the burning heat to enter the brick and permeate the whole mass. As this pore space is increased when a larger amount of moisture is left in the dry clay and upon evaporation, it follows that there then will be found a larger amount of passage way or pore space in such a brick and therefore afford a more rapid entry of of heat and diffusion of the same as well. It has been found, in practice, that the more moisture in the dry clay brick, the darker the color the brick will burn and the stronger the body. The writer knows of a concern that took advantage of this phenomena and made a paver by the semi-dry process, which pavers stood a better absorption and rattler test than any stiff mud paving brick that had been submitted to the testing department of one of the largest municipalities in the United States. There is also a plant where the writer made determinations for a larger or smaller water content in the clay, to produce a lighter or darker shade of brick from the same clay on dry clay process, regardless of position in the down draft kiln. It was found, on this particular plant, that with a larger proportion of moisture in the clay a so-called "loosening up of fluxes" took place and the concern was thereby enabled to vitrify their product just as well as by the stiff mud process. The writer has often set wetter brick on the bottom of down draft kilns to cut out the common brick successfully.

In the manufacture of brick by the stiff mud process, the amount of water employed induces a cohesion of the

clay particles. This cohesion, in a great measure, prevents such brick from getting shaky in drying off and in turn effects a strong bond in the burned particles. The evaporation of this water leaves a larger pore space than with the ordinary dry clay process, hence the heat can enter more rapidly and the brick burned more satisfactorily. As a general thing, mud brick are tougher and harder burned than ordinary dry clay brick, burned to the same temperature, but it is an open question whether it can be done more economically if the factor of weight is taken into consideration. But practically the same results can be accomplished by using wetter clay in the dry clay process, especially so where the stiff mud brick are put through the repress, where the "cohesive" bond is transformed into an "adhesive" bond, and in this way the original bond of the stiff mud brick is destroyed and the resultant brick is on a par with the product of the wetter clay brick made on a dry clay brick press.

Kilns.

As is well known, in up draft kilns the common brick are found in the upper part of the kiln, whereas in the down draft kilns the softer bricks are found in the bottom rows, and in both cases from the same cause, namely, the heat can not be packed or held long enough to do any good. In both types of kilns the common bricks can sometimes be cut out altogether by setting wetter made bricks, or bricks made from clays that burn properly at the lower temperature. In some cases, in down draft kilns, the common bricks have been cut down almost to nothing by tighter or closer setting on the floor, so that the heat was retained longer. In other plants the common brick on the top of the up draft kiln have been cut out by setting mud brick in the common places where the balance of the kilns have been set with dry clay bricks. In other places, the percentage of soft or common brick is cut down by mixing fine coal with the clay used for making the bricks, as when the brick being burned are hot enough, the coal contained in the bricks catches fire and produces local heat enough to burn such bricks harder than usual. In other plants, in up draft kilns, when set and just before putting down the platting, fine coal or coal dust is dropped down the flue spaces, both in the body of the set kiln and along the heads, which coal burning, later on, burns the top brick harder. But this process gives a lot of extra ashes which are apt to soil the brick when drawing the kiln. At one plant this last mentioned method has been discarded, as their local market is a great stickler for color. At another plant they use what is called sodding or claying the top, which consists of covering the platting with clay after the heat is up, which thereby holds the heat in the kilns, in that they aim to have this sodding crack just enough to keep the fires going at a rate to furnish the heat to burn the brick properly, taking care that very little heat is wasted through the platting. The writer has seen up draft kilns burned this way where cone 7 was brought down just under the platting, where the kiln was set forty-two brick high. At another plant the owner, having determined religious views, ordered the kilns on fire closed down on Saturday night from twelve o'clock Saturday night to twelve o'clock Sunday night, thus bottling up the heat in his down draft kilns. In this way, a diffusion of heat took place in the kiln that did away with the common

brick. The owner claimed that superiority of product more than paid for the loss of time, although cutting down the kiln capacity. The writer preferably uses what he terms "freezing up" a kiln, which form of burning can be used in either up or down draft kilns. Essentially this is to let the fire boxes cool down when the maximum heat has been reached. Then fire hard again to bring the heat back again and transfer this new heat to the cooler parts of the kiln and so on alternately until the kiln is completed. In some parts of the country this burning is sometimes called "firing in pinches," or "heat waves."

Fuel.

A great deal depends on the type of fuel and the employment of proper fire box for burning the same. One burner may be used to a soft, free burning coal, and when using the same have no trouble to get the top. But when the coal was changed to a harder coal, containing more

are obtained than when burning with natural draft, in either type of kiln mentioned, and that, too, for a simple reason. The stack draft generally does not have the proper velocity to bring the air into the kiln for supporting the correct combustion, so that the resultant heat can be packed in the kiln and thereby affording time for heat absorption by the clay ware. The writer knows of a successfully operating natural gas burning plant where the multiple stack system rises just above the highest point of the crown in the round down draft kiln system. For burning coal, there would not be sufficient stack power to do any good, whereas hardly any stack power is needed if the natural gas and air are brought into the kiln under pressures. At another plant a pressure oil-burning system is used in their up draft kilns, yet they use, besides, clay on their platting to hold the heat in the kiln for the longest possible time, as then the heat loss will be reduced to the minimum. It should not be overlooked that the fire boxes should be adapted to the type of pressure burning system that is applied.

The Profit End.

When you have a local demand for your common bricks, a small percentage of same works very little hardship, but



Buhrer Drying Chamber Filled With Drain Tile.

carbon, then the arches were overburned and a larger percentage of common bricks was the ultimate result. The failures are truly, in this particular case, blamed on the wrong construction of the fire box. At another place the burner had an experience with a certain type of fuel in up draft kilns where he was in the habit of using the air damper, to bring the fire to the heads, and when this same burner was put on down draft kilns the use of the air damper caused an excess of common brick. However, if the air damper or control had been in the proper place, for the coal used, the results would have been materially improved. It is thus shown that a number of factors enter into the brick burning problem, but as a quite general rule the burner gets the blame if anything goes wrong, and very seldom indeed are any allowances made for poor or faulty construction or for errors made that are not under the burner's control.

It is generally admitted that burning under pressure, whether coal, oil or natural gas is the fuel, better results



Office and Dryer Building at the Works at Goding, Vienna, Austria.

if you have only shipping demand, the possibility exists that your apparent profit may all be buried in the common brick pile, and care should be exercised and means provided to cut down the common bricks to the minimum.

Location of plant and proximity of trade demand are factors that must not be overlooked. The writer knows of a face brick plant that never made a dollar for many years because their larger, and therefore heavier, soft bricks could not come into shipping competition with the smaller common bricks. Advantage of arising conditions should also be taken advantage of; for instance, on an old established plant, the clay bank was getting farther and farther away from the factory, owing to the annual clay gathering where the clay had been taken away; a bottom of poor clay was left behind. It was discovered, later on, that underneath this poor bottom clay there was a bed of shale, and on this dry clay plant a small mud machine was installed to work up this bed of poor clay with a certain depth of shale. This wet mixed clay product gave a better common brick than the older dry clay product, and one, too, that would stand shipping. Taking the fact into consideration that thereby the shale bed was cleaned off, the common brick in this case proved a source of profit. Lack of kiln capacity and

faulty burning is believed to be the main causes of too many common bricks. It is not improbable that the loss on one year's production of common bricks on a great many plants, if put into enlarged kiln capacity, would practically eliminate such loss. It does not mean to use more fuel in burning bricks, but it does mean to take more time so that the heat produced can be absorbed by the bricks to be burned. The writer had the following experience in burning manganese face brick in ten-arch square down draft kilns: These two kilns were the last of the season and contained



Four Buhrer Kilns on Redlich Brothers' Plant, Vienna.

the brick, plain and fancy, for two shipping jobs. We ordinarily turned those kilns in six days and had the usual number of soft bricks in the bottoms, but owing to the size of the order, everything set had to be burned hard enough for shipment, and we were given a little longer time for burning without using more fuel, but by taking more time; these two kilns were burned so perfect that every brick was shipped out on these two orders, and ever thereafter the burners were allowed more time than formerly, because, as the general manager said, "There is more profit in it, as it cuts out the soft brick, which we have to sell as common brick, besides it wipes out the following detrimental factor, the bricks for which we get the least money have to be handled at an increased cost."

Resume.

It is fair to presume that, by adopting correct time methods described herein, you may be able to overcome your large percentage of common bricks, but would certainly caution you to furnish abundant kiln capacity.

Those Mexicans will keep on opening up hornets' nests until by and by they rouse the ire of your Uncle Samuel's eagle, and then there will be something doing.

LARGE VIENNA BRICK AND TILE WORKS.

The Plant of the Redlich Brothers at Goding, Near Vienna.

AT THE outskirts of the capital of Austria, there are very rich clay beds. Brick works are numerous, and include the largest plants in Europe.

Market conditions are now very different from what they once were, and technical improvements have to be generally made in the plants in order to keep them in the running.

Messrs. Redlich Brothers' brick works, at Goding, have undergone thorough modifications. During the last winter a Buhrer kiln of 24 chambers was erected, with dryer of 176 chambers, half of which are located on the ground floor and the other half in the first story.

The fire gallery of the new kiln is 265 yards long and lined with firebricks to increase its resisting power against the action of fire and the sudden changes of temperature. Below the Buhrer kiln is a drainage to keep the sole of the fire gallery well dry.

Above the drainage are the smoke flues with valves for regulating the draught produced by a single fan, which, at the same time, is working one of the three Hoffman kilns.

The duct for preliminary warming of the goods is above the vault of the fire gallery of the Buhrer kiln, and pre-heating is done by the heat of the cooling chambers.

This duct is in communication with



Buhrer Dryers in Course of Construction.

the hot air chamber located in the middle of the kiln, and above the smoke chamber, and hence the surplus heat of the Buhrer kiln and of a Hoffman is taken out by another fan and thrown into one of the dryers.

A third fan is working the two other Hoffmann kilns, the surplus heat of which is also utilized in the dryers.

The capacity of the three Hoffmann kilns has been considerably increased by the strong fan draught, which causes the fire to advance at a much higher speed than when three

stacks were producing the draught; one of these stacks has been demolished, and the two others closed by throttle valves.

In the machine room there are several presses on the first and second story for making ceiling tiles, grooved tiles, bull-nose tiles, and drain pipes. The clay pit is 330 yards away from the factory. The winning of the clay is done by two electric shovels, and a chain conveyor carries the clay to the factory. After having passed through three wet pans and several roller mills, the clay is taken to the presses by a conveyor with swinging trays. The two wet pans prepare the clay to be made into solid bricks, which are dried in the dryer on the ground floor and outside in the sheds. All these wet pans are fed by mixing and feeding devices, into which the clay is carried on trucks. The filling and emptying of the dryers is done in the same way by cars taking the goods automatically at the machines. These cars, which are carried with their load on transfer cars to the dryers, enter into the chambers of the dryers for off-setting the goods there. The dried goods are carried into the kiln in the same way. Thus the goods are not damaged, because there is no need for handling them from the machines to the warehouse, a good deal of labor being saved besides.

All the machines and fans are actuated by electric motors, the power being taken at a central station, the dynamos of which are put to work by two steam engines of 250 and 500 horsepower. As a reserve, there is a steam turbine available at 1,000 horsepower to avoid any interruption in the working of the factory, which at present is one of the largest and best equipped in Europe. Its yearly output of the different goods mentioned above amounts to 60,000,000 pieces. The bricks are $9 \times 4\frac{3}{8} \times 2\frac{3}{4}$ inches. The illustrations give an idea of the importance of the work done in this plant.

THE AMERICAN ASSOCIATION FOR HIGHWAY IMPROVEMENT.

Probably the greatest group of men ever gathered together in one cause is now enlisted in the work for the betterment of the public roads of the United States under the auspices of the American Association for Highway Improvement. Starting out little over a year ago with the intention of crystalizing and correlating the road movement, then under way in the various States but with no central clearing house for general co-operation, the American Association has now the most compact working organization in the country, and its list of members include some of the most prominent men in all walks of life.

President Taft, for instance, is one of the leading members of the association, and Andrew Carnegie is a sustaining member. Other sustaining members are General T. Coleman DuPont, of Delaware; Alfred Noble, the eminent engineer of New York; Thomas Nelson Page, of Washington; John J. Duff, of Washington; Charles Henry Davis, of New York; Interstate Commerce Commissioner Harlan; James Laughlin, Jr., of Pittsburg, and Bryan Lathrop, park commissioner of Chicago.

Among the regular members there are such men as Maj. Gen. Leonard Wood, Chief of Staff of the army; Brigadier General W. H. Bixby, chief of the corps of army engineers; Onward Bates, past president of the American Society of Civil Engineers; United States Senator Chilton, of West Virginia; United States Judge Aulston G. Dayton; Henry G. Davis, former senator, of West Virginia; President F. A. Delano, of the Wabash railroad; Fourth Assistant Postmaster General DeGraw; State Highway Engineer A. B. Fletcher, of California; W. W. Finley, president of Southern railway; Governor Glasscock, of West Virginia; Rear Admiral Richardson Clover; Charles C. Glover, of Washington; Dr. E.

J. James, president of the University of Illinois; Judge Martin E. Knapp, of the Commerce Court; Congressman William B. McKinley, who is the director of the National Taft Bureau; Senator Owen, of Oklahoma; Lee McClung, treasurer of the United States; A. G. Spalding, of California; Rear Admiral Willard Brownson; Rear Admiral Stevens; B. F. Yoakum, chairman of the Frisco lines; Senator Carroll S. Page, of Vermont; General John C. Black, chairman of the Civil Service Commission, and W. C. Brown, president of the New York Central lines.

All the prominent members of the association, of whom there are nearly 1,000, are taking an active interest in the work that is being done. About 140 local and State associations have been formed by the American Association and the purpose is to provide every locality in the United States with an association working for the improvement of the public roads. Every State in the Union is now represented in the American Association by regular sustaining members, and it is the hope of the directors of the association that before the end of the year affiliated associations will cover every section of the country. The fact that Logan Waller Page, Director of the United States Office of Public Roads, is the president of the association is a guarantee that the work will continue to be carried on in the most practical manner.

A WIDE-AWAKE NEW HAMPSHIRE, BRICK MAN.

Mr. W. S. Goodrich, Epping, N. H., has contracted with the Ed. H. Callaway Engineering Company, 50 Church street, New York City, for two Callaway portable cross conveyors. These conveyors are designed to run in the alleyways between the drying racks and carry the pallets of brick from the machine for distribution in the racks and to return the empty pallets to the brick machine, thus dispensing with all trucking and saving four to eight men to each brick machine. These conveyors are so constructed that they can be removed from one alleyway to another in a few minutes. Mr. Goodrich is a hustler and has the best equipped and most economical brick plant in New England, is always on the lookout for devices to reduce the cost of manufacture and improve the quality of his brick, consequently is prosperous.

BRICKMAKERS DINE.

THE HACKENSACK Brick Manufacturers' Association held its annual banquet in Hackensack the evening of March 26. Practically the whole membership was present and a very enjoyable evening was passed.

The Hotel Susquehanna, where the banquet was held, is renowned for its care in such affairs, and no one could complain of what was done for the association or for the members individually.

The real pioneers in the business along the Hackensack river, including the two Gardners, known familiarly as "Willie" and "Curq;" Edward Schmultz, the dean of them all, were present and assisted in instructing and entertaining the guests.

John R. Ramsey, ex-county clerk; George M. Brewster, ex-sheriff, now court house commissioner and extensive contractor; Martin J. Bristol, freeholder from New Barbadoes, were among the guests and contributed to the pleasure of the evening with short addresses.

The speeches were all couched in hopeful language and showed the confidence which animates all the brickmakers in the district.

This association was organized some three years ago for the purpose of improving business by getting the manufacturers together so they could know each other better and understand the difficulties which beset others in the same line. The association has been successful and some of the makers feel quite certain it has been of much advantage to them.



WISCONSIN MARSH SOILS.

Wisconsin has between two and one-half and three million acres of marsh lands. A part of this area is in large marshes of 25,000 to 100,000 acres, but the greater part occurs in smaller tracts scattered over a large portion of the State. As a result of the wide distribution of these lands, thousands of farms contain a small area of thin class of soil.

Recognizing the vast importance to the farmers of the State, the University of Wisconsin has published a special bulletin, No. 205, treating of the development of marsh soils.

The following extracts from the bulletin will be of interest to those who have to deal with marsh soils in all sections of the country, but more particularly in the North-western States:

The Needs of Marsh Soils.

When compared with upland clay loam or sandy soils, marsh soils are found to differ from them in several important ways, both physically and chemically. Physically, they lack drainage and are usually cold, and in their undrained condition are subject to frosts. The peat marsh soils are often too loose to form a good seed bed for many crops. Chemically, they are characterized by excessive amounts of vegetable matter and often are deficient in mineral elements.

While marsh lands need drainage and are excessively rich in organic matter, they differ radically from each other in several respects which will be mentioned later, and it is important that these differences be distinctly recognized. Many marshes will prove highly productive while others are of very much less value. On account of these differences marsh soils require different treatments, and it is of the utmost importance that persons operating such lands understand their character as fully as possible. The most important factors to be considered in the management of marsh soils are: (1) drainage, (2) preparation of seed bed, (3) use of manure and other fertilizers, and (4) the selection of the proper crops to be grown.

The Drainage of Marshes.

The first step in the development of any marsh land is to drain it. In case of large areas this will require the construction of large main ditches, requiring the use of a dredge, and co-operation among the adjoining owners, either by organizing a drainage district or by having the town or county officers take charge of the work. In the case of smaller areas this can frequently be done by mutual agreement between two or three adjoining owners.

Two kinds of drainage must be provided for; first, surface drainage; and second, subsurface drainage. It is occasionally true that the construction of ditches around the edge of a marsh tract in such a way as to carry off most of the water from the surrounding higher land without letting it onto the marsh will reduce the wetness of the marsh land to such an extent that crops can be grown without further ditching. Ordinarily, however, ditches on the marsh itself are necessary.

The necessity for subdrainage, either by deep, open ditches or tile, depends very largely upon the character of the subsoil and its relation to the surrounding land. When subdrainage is necessary, the use of tile makes it possible to do away with open surface ditches and so greatly facili-

tates the operations of cultivation. Nevertheless, the muck and peat of marsh lands usually shrinks and settles considerably on drainage, making it often desirable to leave open ditches for three or four years until this shrinking has taken place, after which the ditches may be cleaned out and tile laid and covered.

On some marshes, particularly those covering considerable areas where the marsh soil is coarse fibrous peat and underlaid at relatively shallow depths by coarse sand, it is possible that too thorough drainage may occur so that crops on such land, during very dry seasons, may suffer for lack of water. Under such conditions it is quite probable that the use of dams at intervals in the main and larger lateral ditches for holding back the water during very dry seasons, will be found advantageous. Such a plan has been used to a limited extent on the Portage county marsh south of Stevens Point.

In making plans for the drainage of any marsh land a complete examination of the subsoil should always be made as this is the chief factor in determining the plans which should be made for its full drainage.

Overflowed Lands.

Overflowed lands can be reclaimed and largely protected from overflow by clearing out, straightening and deepening and widening the channels of bordering streams and by constructing levees along the sides of the streams. The first cost of such improvements ordinarily would seem great, but in most cases adjoining land owners would find it profitable to unite and work together. In many instances such work is largely of a public nature and should be regarded in the nature of a public benefit.

Generally, lands that overflow are very fertile and will repay a considerable expense in reclaiming.

A careful study of the conditions during overflow will show how the water comes to the overflowed lands and aid in determining methods of prevention.

In some cases, changing the location of a creek with a comparatively small amount of levee work will be all that is required.

Lands that only overflow occasionally can be greatly benefited by a system of surface and under drains to remove any water that might be left standing after the flood recedes. Although a crop would be lost at times by overflow on such lands, the crops raised by industriously farming them at all times would be very remunerative. If an early crop should be drowned out, a late one might be raised by planting after the flood had receded.

Recommendations.

The committee on legislation of the Iowa State Drainage Association recommended the following practices to be observed for the betterment of drainage work:

1. Laying all tile to a line, this line always carried on three stations. Engineers error in figuring detectible if it occurs.
2. Manhole or catch-basin inlets, with silt basin below grade line.
3. Protected inlets by catch-basin and sewer tile, under berm bank to admit surface waters into open ditch.
4. Catch-basin between large lateral and the county main.
5. Proper leveling of waste bank before it grows weeds. Observe the neglected waste banks everywhere you travel.
6. All connections by Y or junction tile.
7. Rubble or rip rap work at outlet of tile mains into open ditch to prevent erosion.
8. The use of a waterfall in bringing open ditch from higher bench land to lower bench and thus preserving uniform grades. N. B. Actual saving in first cost is effected by the excavation saved in the case observed.
9. A full and complete preliminary survey showing all the data necessary on which a body of business men could

reach safe conclusions as to the wisdom of the ditch project.

10. The use of tile wherever tile and an overflow ditch can do the work in preference to open ditch.

11. Complete lateral systems enabling tile to get land drained out so storm waters are readily absorbed. NOTE—Tile mains are effective only when laterals are in. An engineer explained this to his patrons and satisfied them so that they use tile mains and do put in plenty of laterals. In newer counties the land owner does not have the money left to do this; easier financing of public ditches would help. We give these suggestions from various engineers whose practice is proving satisfactory in the highest degree.

CLAY IN ILLINOIS.

A COMMITTEE appointed by the paving committee of the Galesburg city council recently made a test of the brick turned out by the Purington Brick Company. This was made at the Purington yard. Another test was made in the behalf of the Chicago, Burlington & Quincy rail-

superintendent of the new brick plant which is being erected by the Albion Shale Brick Company at Albion, and has already entered upon his duties. The reservoir constructed last year has demonstrated that it will be able to supply the plant.

A red clay which, when burned, makes a fine mineral paint, has been discovered in the cut on the Cairo & Thebes railroad, near Cairo.

The tile factory of Nicholas Berns, nine miles south of Pana, was recently destroyed by fire, causing a loss estimated between \$5,000 and \$6,000. Nearly all the machinery was ruined. Suspicions that the place was set on fire by incendiaries was strengthened by a trail followed by bloodhounds. The State fire marshal is investigating.

S. T. Morse, an engineer of Carlinsville, Ill., delivered an address on farm drainage before the Macoupin county Farmers' Institute at Carlinsville, November 2, in which he urged the use of burned clay drain tile, as it has proved superior to concrete. He went into the subject in detail, giving esti-



Four of the Buildings Constructed of the Sacramento Sandstone Brick Company's Product.

road. A heavy, dark-colored brick was subjected to hydraulic pressure and withstood a pressure of ninety-five tons of 190,000 pounds. In the previous test a 200,000 pound pressure was recorded. The lighter weight brick stood a forty-ton pressure.

W. L. Halbert, of the Illinois Drain Tile Company, of White Hall, Ill., demonstrated the vitrified silo block at the Greene County Fair at Carrollton, Ill. Mr. Halbert also was at the Kansas City Stock Show and the State Fair at Sedalia, Mo., and at the Chicago Dairy Show.

F. H. Strausbaugh, of Morrisonville, has accepted a position as superintendent of the Witt Brick and Tile Company, at Witt, Ill., succeeding Robert Redman.

Prof. A. N. Talbot, of the University of Illinois, Urbana, has been appointed vice-chairman of the committee of the American Society for Testing Materials which was named to formulate specifications for drain tile standards.

John Dyer, 73 years old, identified with the tile industry at Lovington, Ill., is dead at his home there.

Clarence C. Crook, of Pennsylvania, has been appointed

mates and specifications, and gave figures showing the average increased production.

S. P. RING.

TERRA COTTA BODIES.

In order to get a very uniform body for terra cotta and majolica manufacturing, the clay should be washed through a filter press. If the clay is very fat, it will stop up the filtering sacks, and the capacity of the press will be greatly reduced. In order to overcome this trouble, a mixture of burned clay grog material should be added to the clay. Such body mixture will press well and give fine terra cotta bodies. From ten to fifteen per cent of grog will wash easily through filter press process. If a mixture of clay and grog will give to open body, the following mixture can be used: Fat clay, 50 parts; flint, 30 parts; whiting, 20 parts, and ground grog, 10 parts. With such body it is possible to press 1,500 pounds dry material in three hours with a thirty-chamber press.—Spreschaal No. 4, 1912.

AN INTERESTING CALIFORNIA BRICK PLANT.

IN SACRAMENTO, CALIFORNIA, is located the plant of the Sacramento Sandstone Brick Company, a thriving concern that makes a good quality of sand-lime brick in all colors and shades, and, 'tis said, sells their product for from \$28.00 to \$34.00 per thousand on cars or on the job in Sacramento. Their chief endeavor has been to make a good face brick with firm corners and edges, and supply them in any color or shade of color desired. Their buff, red, brown, white, gray, granite, both in the rough and smooth face, and with black and white specks, have made quite an impression on western architects.

The plant is well equipped in every way, and has been in successful operation for the past three years. During this time all of the brick have been made on a Grath five-mold special brick press without a single breakage. This speaks well for the character and strength of the Grath

is getting such good prices for their product speaks well for the brickmaking business in their section, the quality of the product and the Grath five-mold brick press on which it is made.

Written for THE CLAY-WORKER.

NEW YORK BUILDING PROSPECTS.

ACCORDING to conservative estimates, at least \$40,000,000 worth of building will be released in Manhattan alone this season. Much of this work has been held up for different reasons. The proposed building code, and various rulings on the present code have exerted some influence. Capitalists have objected to loaning money for the construction of certain types of buildings in which New York has been overbuilt during recent years. But most of these objections appear to be passing away and the outlook for structural work is very promising this season.

May 1 is always a critical time in the structural world



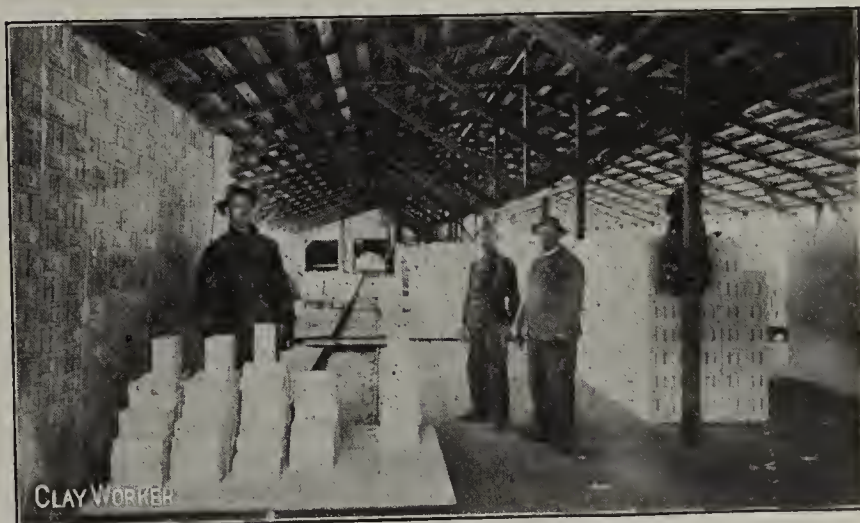
Plant of the Sacramento Sandstone Brick Company.



Grath Press on Which Brick are Made.



Boiler and Engine Room.



Inside of Stock Sheds.

press, for a much heavier pressure is required in making the sand-lime brick than any clay or shale brick. The press used in making the sand-lime brick, however, is the same the Illinois Supply and Construction Company build for the clay manufacturers.

Mr. C. W. Bostwick is the manager of the Sacramento Sandstone Brick Company. He believes that the sand-lime brick plants over the country would be more prosperous if the individual manufacturer would devote his time exclusively to the production of a sand-lime brick to compete with the best clay facing brick. That this can be done, he claims, is proven by the fact that the Sacramento Sandstone Brick Company has been doing this right along at their own plant. If the sand-lime brick manufacturers would realize that sand-lime brick should be made as facing brick only, and work to that end, they would put the sand-lime brick-making business on a different and more prosperous basis.

The fact that the Sacramento Sandstone Brick Company

of New York, but it promises to be less critical this year than heretofore. Present agreements seem in a fair way to continue unchanged. So far the various workers' unions have not promulgated their usual strike threat. Perhaps they will not. If they do not, boss builders will feel as though they could go on another year and perhaps make a little money for themselves.

It is impossible to say what the public and semi-public work about New York will be. Some aver that important contracts are ready to be given out, while others are of the opinion that comparatively little will develop this year. Because of this uncertain situation, those chiefly interested in this class of work have little to say about the indications of the future. They admit in general terms that things look fairly good, but they are not sufficiently specific, and few know to what they allude when they speak of large contracts.

By far the greatest structural work of the future is the

extension of the subway system. Whether work will begin on that this year is a mooted question. There are all sorts of charges made and it may be the discussion will become sufficiently acrimonious to prevent actual work. In that case brick men will dispose of less brick. But ultimately the demand will come.

Until the Department of Justice renders its decision regarding the status of the Greater New York Brick Company it will be impossible to say just what will be the outcome of the present situation. The season opened with much promise, building contracts aggregating millions being released, and others aggregating further millions were under consideration. Then came the investigation of the Greater New York Brick Company, with the uncertainty which a move of that character entails, and now it is impossible to say what will occur.

The attorneys for the company are certain that nothing will be found against it, while others are equally sure that it will be declared an organization in restraint of trade and will be forced to dissolve. It is scarcely necessary to enter into a long discussion of the pros and cons of this concern.

Until the company is dissolved, if it is dissolved, the price of common brick around New York will remain at the present level. They are held at \$7.00 to \$7.25, with some going even higher. That figure affords the maker some profit and he is loath to submit to the dictation of a dealer who may force the price lower. The market has been stable and the quality of the brick has been better since the Greater New York Brick Company was organized. Builders are not objecting seriously, but there are those who lived by selling who are objecting to having their source of livelihood cut off and they are the ones who are creating the disturbance.

Arrivals from up the river has been heavier during the month. In some instances cargos have come down which have shown extraordinary quality, and these have gone out at even higher values than the regular quotations, but in the main, prices mentioned cover sales.

It is to regular building operations that brick men must turn for the bulk of their business, and that looks fully as promising as for some years. BURTON.

BIG TRIUMPH FOR BRICK.

An echo of the recent Clay Products Show at the Coliseum in Chicago comes all the way from Boston, where a colony of substantial homes is planned on much the same basis as the famous Forest Hills, Long Island, work now being conducted for Mrs. Russell Sage. By chance this Boston colony is also at Forest Hills—Forest Hills, Mass.

The original plans called for the use of cement.

Brickmakers returning from the Coliseum with the assembled facts as to the real cheapness of artistic brick work fresh in mind, called on Mr. Henry Howard, president of the company, the well-known yachtsman who was defeated by King Alfonso but had the honor to win against Prince Henry of Prussia in the sonder class race at Kiel. Mr. Howard called in the architects, Messrs. Kilham and Hopkins, and Mr. Grosvenor Atterbury, who asked for comparative costs, and delivered the plans for estimate, with the result that the first twenty-four dwellings in this interesting development are now to be built of brick, in a variety of colors and patterns. Mr. Robert Windsor, of Kidder, Peabody & Co., and Cardinal O'Connell, with Mr. Howard, are among those at the head of this development.

The prominence of the gentlemen who have thus shown their conversion, and the wide public interest in the conduct of this unique enterprise in low cost and substantial suburban development, makes this a most conspicuous triumph for brick, which as a building material for dwellings has been so largely neglected by America alone among the civilized nations.

Written for THE CLAY-WORKER.

PHILADELPHIA NEWS LETTER.



GOVERNOR TENER has appointed a commission to revise the building laws of Pennsylvania in view of inaugurating several important reforms, among which may be the conferring of more power on the Bureau of Building Inspection of Philadelphia to see that its orders are carried out. As the laws exist now, a builder can be punished only after long proceedings through the city solicitor, and the punishment then provided is only a small fine for the most severe infraction of the building laws. It is believed that the Bureau of Building Inspection will seek to have its powers so enlarged that it will be enabled to refuse permits to builders who have persistently ignored its orders in the past.

The character of buildings and the regulation by the commission for the buildings in the congested sections of the city is another subject which will be taken up and thoroughly investigated. The Bureau of Building Inspection is desirous of obtaining powers to prevent the erection of anything but fireproof buildings in certain sections of the city which are congested now and promise to be more so in a few years hence.

Uniform building laws for second and third class and for suburban communities will be another subject that the commission is to discuss. It is claimed that in the smaller towns in the State there is no inspection of buildings worthy of the name, and that the architect does most of the inspection when he supervises the erection of the building. The builders have been guilty of gross violations in nearly all of these small towns, through ignorance or a desire to cheapen the jobs. The commission intends to give serious consideration to the charges made by the Bureau of Building Inspection in Philadelphia.

W. R. Chapman, Fifteenth and Washington avenue, has the contract for the brick work on the new stock exchange now being erected on Walnut near Broad street. This will be one of the finest stock exchange buildings in the world, not only in size, but in cost.

L. R. Channel, 313 Hale building, has the contract for all the enamel brick to be used in the addition to the Bellevue-Stratford. Mr. Channel is the local representative of the American Enamel Brick and Tile Company.

Applications will be made about the latter part of May for a Pennsylvania charter for the Dolan Crucible Company, to manufacture and sell crucibles made of clay, graphite and other materials. Joseph P. Dolan is the active spirit behind the company, his associates being D. Clarence Giboney and Daniel W. Holloway.

Edward Stokes, 1208 Harrison building, reports business to be in a very healthy condition. He is receiving many inquiries from outside towns and his share of the Philadelphia business.

Members of the Builders' Exchange, Commercial Exchange and other organizations in the Bourse are much interested in the efforts of the city administration to boom the trade of this port. A circular letter has been written by the mayor to fifty-five steamship companies, setting forth the advantages of Philadelphia as compared with other eastern ports. To this the managers of the Hamburg-American, the Scandinavian-American, the Panama railroad and many other lines have responded, favoring increased service. The channel of the Delaware, as the mayor points out, is now being deepened to thirty-five feet, and the city of Philadelphia is building new wharves and docks, which will be for rent, when completed, at figures only a fraction of the charges at the city's greatest competitor. At this, city steamships discharge their inward cargoes of merchandise and also

load their outward cargoes of manufactures and merchandise at wharves on which the cars of the trunk lines run direct. This avoids lighterage and furnishes the most direct, expeditious and economic transfer and interchange of import and expert traffic between ocean and inland carriers. Water carriage is cheaper than by rail, and therefore, the mayor says, Philadelphia being 100 miles further inland than New York, delivers traffic intended by the ocean carrier, say, for Chicago, that much nearer its final destination, and the through rate is therefore much lower, while delivery of shipments takes less time.

The National Fireproofing Company, 317 Land-Title building, has been asked to estimate on the work for the new Windsor hotel in Atlantic City, and the Vendig and a new hotel in Philadelphia.

The United States is being left behind in the commercial and business opportunity's in the awakened republic of China, according to Dr. John J. Mullowney, of the University of Pennsylvania, who has just returned from a four-years' trip in the east.

"I wish," he said, "that Americans would wake up to the fact that they are not grasping the opportunity that has opened up in that country. They have started to build larger buildings and laying better roads, putting in sewerage plants, and countless improvements, and the other countries are getting all the returns.

"There are countless products wanted such as bricks, tile, and other building material, and this will all be handled by foreign countries if the American business man does not get on the scene of action at once.

"The Chinese are now opening up their mines and building new railroads and bridges. It is up to the progressive American to get in on the ground floor. If we are to become a vital factor in moulding the spirit and the heart of the east, we must project our maritime commerce and introduce our products at once."

The city architect, after a careful examination of the buildings occupied as fire headquarters, at Juniper and Race streets, reported that it was unsafe, and recommended that instead of repairing it, which would cost about \$35,000, that an entire new structure be built, involving all the new ideas of fireproofing, and making it one of the finest structures of its kind in the country.

Mayor Blankenburg is in favor of the project and sent a communication to both councils recommending that \$135,000 be appropriated to build the new building, which will be three stories high.

The Independent Brick Selling Company, 1001 Crozier building, has received a contract from George W. Bow for 250,000 salmon brick, 60,000 first hard, 20,000 hard and 300,000 face bricks. The same company has the contract for furnishing 300,000 rough, hard and face bricks to the Foresters' Lodge, Court No. 100, at Riverton, N. J., and the contract for the tile roofing on the Steigerwalt mansion at Overbrook, Pa. All the bricks for the Carroll operation at Sixty-third and Media streets are to be supplied by the Independent Brick Selling Company.

DISCOVERY OF ANTIQUE PORCELAIN IN STAMBOUL.

Prof. Dr. Ernest Zimmerman, the director of the Royal Meissen Porcelain factory, was recently called to Constantinople by the Turkish government to examine some porcelain which was found in Jildis Kiosk. These antique porcelains were found in his treasury house, and also some 6,000 pieces were found in a deep cellar which dates back to the Byzantine age. Prof. Zimmerman has examined most of the pieces, and has found that they are very old Chinese pieces, and also some pieces of the early stages of the Dresden potteries.—Tonind. Z. No. 84, 1911.

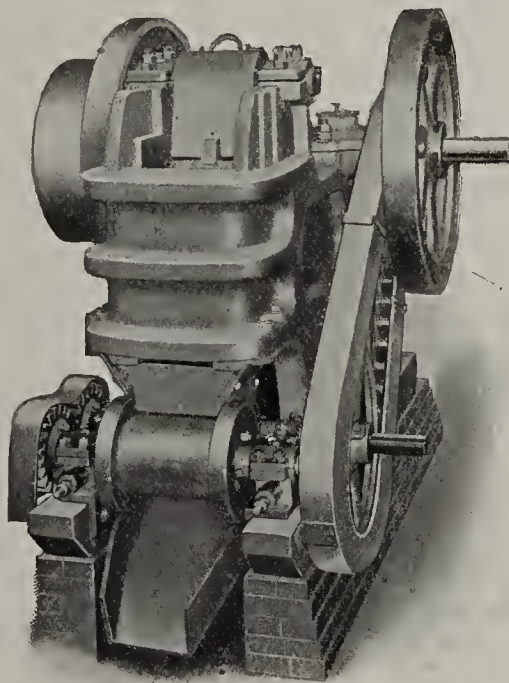
MODERN CRUSHING OF TODAY.

THE Henry Martin Brick Machine Manufacturing Company, of Lancaster, Pa., call particular attention of clayworkers to their new and modern type of stone crusher and grinder, which is built in four different sizes, and on account of its great adaptability have found great favor with all users of crushing machinery for no matter what purpose, and at no time in the history of the company has the demand for this type of crusher been greater.

It is adjustable, so as to crush the stone from large pieces of rock down to the fineness of sand. It can quickly be regulated, and without expense, so as not to crush to the fineness of sand but coarse, say to one-half inch or one-quarter inch material; furthermore, it can be used for stone down to one inch, and one-half inch, or two-inch material.

These crushers will crush to the fineness of sand, or coarser grades if required, limestone, sandstone, ironstone, cobblestone, hard brick, soft brick, vitrified brick, silica rock, pebbles, gravel, granite, marble, lime, oyster shells, coal, cinders, coke, plaster, cement and concrete materials, etc., etc.

The body of the crushers are cast in one solid piece, thereby doing away with bolted joints; the small parts are all well proportioned, the swing jaw or pitman being excep-



The New Martin Crusher.

tionally heavy and strong, the jaw or toggle plates are very hard and made of a special mixture, chilled on the wearing surfaces semi-steel, and easily removed. The cylinder or grinder beneath the upper jaws are chilled, rigidly attached and adjustable with draw-bolts, built throughout in the best workmanlike manner.

The entire machine is driven with one belt, and is provided to also attach an elevator and a screen if desired, so that they can be driven from the eccentric shaft of the crusher, using the one belt from the engine or motor to drive the complete outfit.

This company is ready at all times to go into detail with clayworkers on any subject pertaining to the betterment of their plant or the erection of a new one.

Tile drainage by dwellers in swamp districts is being urged by Fred F. Shaffer, a drainage engineer connected with the United States Department of Agriculture, who has been en route with the dairy lecture car of the Frisco railroad in Missouri and other western States. He advises ditching one mile apart and rows of tile each one hundred feet long parallel to these ditches, which will both drain and aerate the soil.

Written for THE CLAY-WORKER.

NORTHWESTERN BRICK AND BUILDING NEWS.



THE BACKWARD SPRING has retarded building operations in Toledo somewhat, but prospects for future business continue extremely bright. Since the few warm days during the past week there is a noticeable improvement and plans for some important structures are now being drawn by local architects. Among the new structures now assured is the twenty-story office building of the Second National Bank, new school buildings, additional factory structures and hundreds of new residences. Toledo has not been very forward in the matter of using brick for residences, but brick men here expect to make an active campaign this year looking toward the increase of this class of business and showing the value of brick as residence structures. The valuation of new buildings and improvements for which permits were granted by the city building inspector during the month of April is more than double the valuation of improvements during the same month last year, according to the report issued a week ago. A total of 285 permits for 350 improvements were issued during April and the valuation was \$585,450, as compared with 212 permits for a total of \$267,473 during April, 1911. The valuation of buildings for which permits were issued during the first four months of 1912 is \$1,427,013, as compared with \$1,083,309 for the first four months of 1911. Building brick are reported scarce in Toledo, and this condition, it is thought by local brick men, will continue until about July 1, when the usual summer quietude will be due and most concerns will have caught up with their orders which are now coming in with a rush to make up for the tardiness. Now that good weather has come, there has been an extremely heavy demand for brick, and local dealers and manufacturers are finding difficulty in securing enough teams to fill orders. Some of the manufacturers are thinking seriously of installing motor trucks, believing it a paying investment. All the local yards are running practically at capacity and at full time. Building brick are selling in this market for \$7 per thousand.

There has been a fair demand for paving brick, coming mostly from the eastern portion of the State, where brick are being largely used in the paving of country roads. While not many northwestern Ohio country roads are being paved with brick, a movement is on foot in several counties in this section looking towards the use of brick for these purposes. Williams county, especially, seems favorable to the project, and there is a general sentiment throughout that county in favor of using brick, which, it is claimed, are much cheaper in the end. Northwestern Ohio authorities have been using macadam largely for road purposes, and year after year thousands of dollars are spent in repairs, while it is declared that brick are practically indestructible, and good paving brick, although costing more in first price, would more than make up the difference in durability. No. 2 paving brick are selling here for \$14 at the plant.

"We are busy trying to take care of the orders with which we are swamped," was the report of the Hydraulic Press Brick Company. "Competition is so strong in Toledo that it holds the price of brick down at least \$1 a thousand lower than it ought to be. We are operating at full capacity and full time. While we had a good many brick in stock, we could sell a good many more if they were available."

The annual meeting of the stockholders and directors of the Citizens Building Association of Tiffin, Ohio, was held recently and the following officers and directors were re-elected: President, A. A. Cunningham; vice-president, Henry Brohl; treasurer, W. H. Hertzer; secretary, B. W.

Crobaugh; directors, J. J. Fleck, John W. Brown, Charles Martin, A. F. Black and George Horner.

The Smith & Boulay Co., of Toledo, have been selected by the city council of Bryan, Ohio, as engineers to prepare plans and superintend the construction of \$175,000 worth of street paving, a large portion of which will be of brick construction.

The Collingwood Brick Company, of Toledo, Ohio, is running one machine full time and expects to have the other machine in operation next week. Business is reported good.

John Hayburn, an employe of the Puritan Brick Company, of Hampden, Ohio, was killed in a clay mine of the company when five tons of clay caved in and completely buried him. He was 47 years of age.

The Ohio Brick Company is rushed to the limit and beyond its capacity with belated orders coming in with the better weather. While this concern has a good deal of brick on hand, the factory is running full time and full capacity. The greatest difficulty experienced is in securing teams to deliver.

A new company, formed to develop a new process of manufacturing brick from sand, is seeking a location, and from present indication will locate at Silica, a village near Sylvania, Ohio. It is designed to establish a plant with a daily capacity of from 100,000 to 300,000 bricks, and the various sands at Silica have been tested with the result that a superior article of brick has been produced. One of the big inducements for the location of the new concern at Silica is the recent incorporation of the Silica & Northern railway, which will soon become one of Toledo's great network of transportation lines. The right of way of the Silica & Northern starts at Silica, the home of the Toledo Glass Sand & Stone Co., the Toledo Silica Sand Company, and the Standard Chemical Company. The total length of the new road will be three miles and it will be operated by steam, although capitalists are agitating the advisability of electrifying the branch so that passenger service could be had.

T. O. D.

INCREASED CONSTRUCTION.

State bureaus charged with the publication of any sort of trade statistics are notoriously slow in getting their work before the public. In some degree this militates against the value of what is issued, yet it doesn't wholly destroy the value of such publications.

The Bureau of Statistics of New Jersey follows the development of the business enterprises of the State very closely and its figures are accurate up to the time of sending its books to press, but they come out a trifle late. This, of course, ruins their value as news, but it doesn't prevent one acquiring a good idea of what is occurring in manufacturing circles throughout the State. The latest issue gives in one table a list of the old firms which increased their plants and the new plants erected during the year previous to publication. The clayworking industry was represented by the following expansion:

The Phoenix Ceramic Company, Perth Amboy, manufacturers of glazed sanitary ware, put \$30,000 into improvements; the Elite Pottery Company, of Trenton, manufacturers of pottery, spent \$2,200 on improvements; the Trenton Potteries Company, makers of sanitary ware, \$2,000; the Superior Fire Linings Company, Trenton, fire brick, \$500; B. H. Reed & Brother, Cranbury, brick and tile, \$1,000; the Monument Pottery Company, Trenton, porcelain ware, \$15,700; the Trenton Potteries Company (Equitable plant), sanitary ware, \$10,000; Federal Terra Cotta Company, Perth Amboy, terra cotta, \$35,000; Sayre & Fisher Co., Sayreville, brick, \$25,000. Probably others have done equally well since, but the statistics are not ready for publication.



FOREIGN SCRAPINGS

Brick Industry in Denmark.—In Denmark about 35,000 brick (Danish size), 230 x 110 x 55 millimeters (9 1-16 x 4 x 4 3-8 x 2 5-8 inches) is considered a good day's work for a machine in ten hours. Four men will set 30,000 brick in ten hours, and will get 12¼ cents per hour, so that it will cost about \$4.85 to set each chamber in a continuous kiln.—*Ler-industrien* No. 4, 1912.

Clay Storage.—As clay storage improves to such a great extent the quality of the burned clay product, it should always be recommended. Such mechanical installation can be made cheap. The clay is brought in the shed by overhead track or conveyor, and the different clays are thereby mixed

Fig. 1

Fig. 2

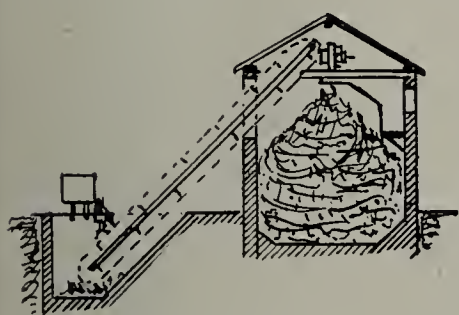
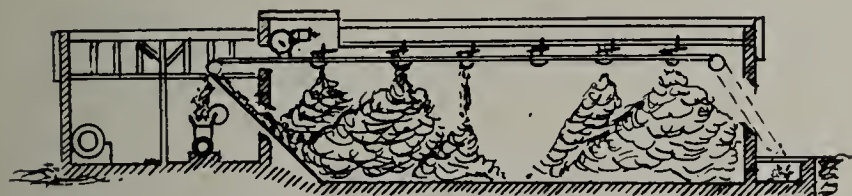


Fig. 3



A Clay Storage System.

and blended. Fig. 1 shows the method employed if the conveyor is installed, and the dumping of the material is done on the yard level. Fig. 2 shows the clay stored, and the method employed in order to get the mixed clay to the machine. The clay thus stored will be even in regard to the moisture, and will be easier to pug and make of the right consistency for the manufacturing of clay ware. It will overcome all defects which green clay shows, and it will make a greater capacity on the brick machines.—*Revue Generale de Ceramique* No. 2, 1912.

Continuous Kiln Dimensions.—In order to burn brick economically the continuous kiln is the best one. The results obtained with artificial draft have been very satisfactory, and in building any new kiln the fan system should be installed. The main flue in such cases must be long, but the width and height should correspond. With a daily capacity of 26,000 brick a continuous kiln with eighteen chambers will be sufficient. Each chamber should have a length of sixteen and one-half feet, with a width of seven and one-half feet and a height of eight feet. The cost of building such kiln will be as follows: For excavations, about \$150; for labor on kiln proper, \$1,560; for the kiln house, with proper roofing and drying spaces, inclusive of all materials, about

\$1,680; for drafting plans and superintendency, about \$125. The iron on this kiln will amount to \$500, while the installation of the fan will be about \$250. If it is necessary to build a small stack, all depends upon the city ordinances in this respect; but, anyhow, a small, low stack in connection with the fan will give the best results.—*Deut. Topf. & Z. Z.* No. 10, 1912.

A Japanese Kiln for Burning Porcelain.—The kilns used in Japan for the burning of porcelain are of two types, the so-called "Ko-Gama" (old kiln) and "Maru-Gama" (round kiln). The illustration shown herewith is of a Maru-Gama kiln; it is of semi-continuous type. The fire is started in the lower part ("A") first, and is raised to chamber No. 1 and so on. Chambers 1, 2 and 3 are mostly used for the firing

Fig. 1

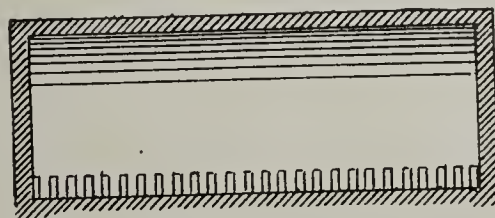


Fig. 2

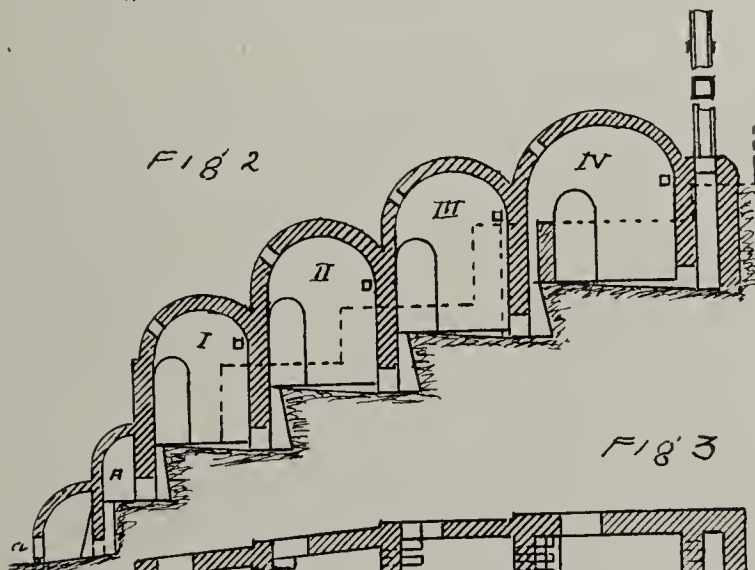
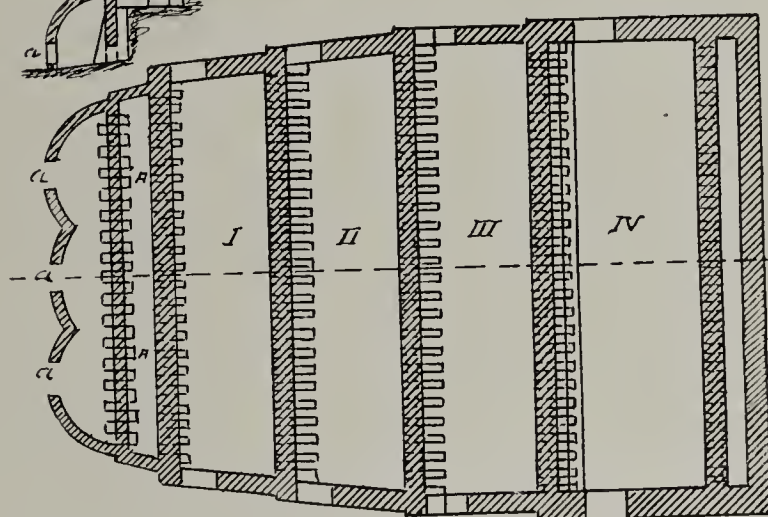


Fig. 3



A Maru-Gama Kiln.

of glazed porcelain, while chamber No. 4 is used for biscuit burning only. The porcelain is mostly burning in saggars, but sometimes also on slabs, and burnt free in the kiln. Each chamber is fired through the doors, and wood is used as fuel. The following table gives an idea of the duration of the fire and the amount of fuel used:

	Duration of firing Hours	Fuel used Pounds
Watersmoking, light fire.....	15- 16	7,000- 8,000
Chamber No. 1	12- 13	13,000- 14,000
Chamber No. 2	44- 50	31,000- 33,000
Chamber No. 3	36- 42	29,000- 31,000
Chamber No. 4	51- 59	40,000- 42,000
	158-180	120,000-128,000

The burning temperature in the Ko-Gama kiln varies from Seger cone 8 to 13, while in the Maru-Gama kiln it is more

uniform, and varies from cone 9 to 12. In the center of the chambers the temperature is very uniform, is about cone 11. In the Ko-Gama kilns cones 14 and 15 are sometimes reached if the firing has not been properly attended to.—*Keramische Rundschau* No. 4, 1912.

Proposed Visit of the German Brickmaker to the United States.—In connection with the International Congress of Applied Chemistry, which will be held in Washington in September next, the German Association of Clay, Cement and Lime manufacturers plans to have excursions to visit this country.—*Tonind. Z.* No. 16, 1912.

Slipclay Glazes.—If a slipclay glaze which is being burned at the heat between cones 8 and 9, shows a yellow deposit on the surface, the trouble is mostly in the method of firing the kiln. If the kiln conditions are alternating, oxidizing or reducing, at the time the glaze starts to melt, then the trouble will not show up. The trouble will show itself quicker if the ware is fired in open kilns than when it is burned in saggers, as they will prevent the kiln gases from acting quickly on the glaze. The kiln should also be cooled quickly, and the quicker the kiln is cooled the darker the color will be.—*Sprechsaal* No. 2, 1912.

Sewerpipe Burning in Square Kilns.—The square kiln for burning sewerpipe has given better results than the round kiln. The setting of square kilns with pipe is easier and also the drawing of the kiln will work quicker. The amount of fuel used will be about the same in both kilns. The application of the semi-continuous principles to both styles of kilns will materially decrease the cost of the fuel. The square kilns should have a capacity of about 1,765 cubic feet. A square kiln of 5,000 cubic feet can be considered very large.—*Tonind. Z.* No. 21, 1912.

Absorption of Holland Brick.—The Holland "Klinker," which is so extensively used for street paving, and which has stood the test for centuries, absorbs 17½ per cent water, this being the average of fourteen different makes. Hard burned brick absorbed 25.6 per cent, average of twelve samples, while the regular building brick has an absorption of 29.5 per cent. The crushing strength of the klinker varies from 2,400 pounds to 5,600 pounds per square inch.—*Tonind. Z.* No. 23, 1912.

New Size Brick in Austria.—On account that the brick size used in Austria is so very large, there has been some agitation to reduce the size of the brick. Dr. Hans Kellner has been very active in this work, and has shown that there will be a great saving for the owners, builders and brickmakers if the size was properly reduced. The proposed size will be 25 x 12 x 6.5 centimeter (9⅞ x 4¾ x 2½ inches). It has been suggested that this new size will be adopted by the government and all city officials, and that all brick have to be this size, otherwise the brick will be rejected on the job.—*Tonwaren Fabrikant* No. 6, 1912.

A KILN LUG WITH A REPUTATION.

We are pleased to call our readers' attention to the advertisement of the Tecktonius Manufacturing Company, on page 812 of this issue. This firm has supplied kiln band lugs to brick and tile manufacturers all over the United States, and has the reputation for making a lug that is cheaper, stronger, safer, neater and easier attached than any other lug on the market. If you are going to build a new kiln or remodel an old one, write the E. C. Tecktonius Manufacturing Company, of Racine Junction, Wis., for their latest literature on the subject.

SCIENTIFIC MANAGEMENT RECOGNIZES THE IMPORTANCE OF CORRECT METHODS FOR HANDLING FINISHED PRODUCTS.

INVENTORS of the past have confined their efforts pretty closely to devising machinery which will perform automatically the various processes which transform raw materials into finished articles of commerce. Likewise we have witnessed the advent of the system expert and the professional teacher of scientific management, all of which have made possible lower costs in production by reducing payrolls and increasing volume of output.

It is only within very recent years that the subject of scientific handling of the products of our industries has been given attention or study. When we consider how simple are the means for quick and economic handling of finished products in and about the premises where they originate, including their transition through the channels of commerce from maker to consumer, it is truly surprising that their invention and adoption have been so long delayed.

The past ten years, however, have witnessed a vigorous awakening to the fact that the truck, the push cart, the wheelbarrow and the platform elevator have long stood in the way of progress toward the establishment of ideal conditions which make possible a perfect system of industrial economy.

This tardy recognition of vast waste in labor and time is not the only burden which has lain heavily on the minds of our industrial captains. The human equation has not kept pace with changing conditions in manufacture. The constant unrest and disposition to precipitate trouble, the ill-considered demands and the uncompromising attitude of labor have strengthened the growing determination to adopt every practical device which will help to reduce the payroll.

It was for the purpose of correcting the inefficient and expensive methods involved in the handling of merchandise that Mr. R. P. Mathews set himself to the task of providing ways and means to eliminate the waste of time and labor. He invented and put on the market a crude and imperfect type of gravity conveyor, and was not long in discovering that he had opened up a vast field for development rich in possibilities. Steady progress was made in perfecting and extending his gravity idea, as suggested by actual and continuous working tests.

Notwithstanding the fact that Mr. Mathews died before he had come to a full realization of the value of his devices, the company which he formed went ahead without interruption, until today the Mathews Gravity Carrier Company is recognized as the largest exclusive manufacturers of handling devices in the world, the original factory having been recently moved from St. Paul, Minn. to Ellwood City, Pa., where a plant double the former capacity has been built and equipped to take care of its rapidly growing business.

Endorsed by the Larkin Company.

That this policy is not merely a shallow claim but an absolute fact is clearly substantiated by the decision of the Larkin Company, the world's greatest manufacturers of over 500 different products, to place a contract with the Mathews Gravity Carrier Company for the installation of a complete system of handling equipment in their immense railroad terminal warehouse at Buffalo. This contract calls for over 4,000 feet of gravity conveyor, eight gravity spirals and twelve automatic receiving and discharging elevators, and covers seven floors of one of the largest warehouses in the world.

In view of the fact that the Larkin Company has a perfect system which governs every department of its business—a system which embraces a staff of experts skilled in buying only such materials as will conform to the highest tests of efficiency—the placing of a contract of such magnitude with the Mathews Company should be sufficient evidence that the products of this company are capable of successfully passing the most searching investigation into their scientific and mechanical construction.

GOOD ROADS MOVEMENT IN OHIO.

Brick Paved Highways Boosted at a Big Meeting in Conneaut

IN THE April CLAY-WORKER we told an interesting story of the movement for good roads in Pennsylvania which will undoubtedly result in the laying of many miles of brick pavements in that State.

Now we are pleased to chronicle a similar movement in Ohio. Thanks to the energetic officials of the Motor Club of Conneaut, a meeting was held there April 25th which gave a mighty boost to the good roads movement in that vicinity. The county officers and local municipal officials took an active part in the meeting and a lively interest was awakened in the subject of better roadways.

Several noted good roads enthusiasts were present and delivered addresses on the importance of permanent highways and the best methods of securing and maintaining them. Conneaut has some excellent brick pavements which served well as an object lesson, proving the superiority in economy and durability of brick as compared with other pavements.

Fortunately, for the community, Conneaut's first brick street, paved some eighteen years ago, was constructed in a manner approaching the present improved method of construction. Consequently it is, after all these years of use, and practically without cost for repairs, still in excellent condition, and judging from its appearance will still be a good pavement at the end of another eighteen years.

Conneaut is the home of the Dunn wire-cut-lug brick, the inventor, Mr. Frank B. Dunn, having resided there for many years. During the past season he paved a private driveway with Dunn wire-cut-lug brick from the kilns of the United Brick Company, a local enterprise with which Mr. Dunn was formerly identified, and which is one of the pioneer companies in the manufacture of the Dunn wire-cut-lug brick. The driveway mentioned was inspected by the visitors and its excellence caused much favorable comment.

Among the invited guests were J. H. Dodge, superintendent of the office of good roads, Department of Agriculture, Washington, D. C.; Jesse Taylor, editor of "Better Roads," Jamestown, Ohio; Will P. Blair, secretary of the National Paving Brick Manufacturers' Association, Cleveland, Ohio, and Fred C. Hood, president of the Cleveland Automobile Club, each of whom contributed to the program of the meeting and the banquet and smoker which served as a fitting finish for a good roads meet which, it is hoped, may be repeated in every county in Ohio. Other States please follow suit.

"ONE HUNDRED BUNGALOWS."

All over the country, in every community, people are building small houses of the bungalow type. The advantages of having most of the living rooms on one floor appeals to the housewife; it saves a multitude of steps and greatly reduces domestic labor; for the family which lives in a simple fashion it makes the ideal home.

How many of these bungalows, Mr. Brickmaker, are being put up in your neighborhood, of your brick? We know the answer—practically none.

Is it not true that the average bungalow builder never thinks of brick, and is it not time for you to tell him something about the material you sell?

To show the brickmaker himself as well as the general public what a beautiful and economical bungalow can be built of brick, the Building Brick Association has secured over six hundred designs from leading architectural offices of the country from which a selection of one hundred of the best and most economical has been made. These will

shortly be published in their new book entitled "One Hundred Bungalows" and will be accompanied by interesting and clever articles by well-known writers.

This book is now offered to the general public at 50c per copy and to members of this Association at about the cost of publication, or 30c per copy, plus transportation charges from New York City. It is important that you place your order that they may know how many copies to print.

It is time you joined this Association, Mr. Brickmaker, if you have not already done so.

Last year the B. B. A. issued over 35,000 copies of brick advertisements; distributed over 83,000 copies of brick literature; received letters from over 5,000 people who are going to build, asking for information about brick construction; secured the publication of live, interesting articles about brick in many of the leading magazines, and put new life into the brick business.

They propose this year to furnish the members with a series of well written articles for publication in their local newspapers; these articles will bring forcibly to public attention the advantages of brick construction.

The general good which the B. B. A. has already done to the brick business and the work which it has in hand all warrant your financial support. Will you not join the Association right now?

A REGENERATIVE CONTINUOUS TUNNEL KILN.

The Gas Machinery Company, of Cleveland, Ohio, build a regenerative continuous tunnel kiln which they claim burns clay products more economically and better than any other kiln on the market. In a circular received from them recently the following points are mentioned which no doubt will be of interest to our readers:

The old style of periodical kiln, which has almost been entirely displaced in Europe by the tunnel kiln, requires a large amount of fuel, produces a large percentage of seconds and culls, does not give an even burn, and has many other disadvantages. A continuous tunnel kiln is fired from the top; either bituminous coal, lignite, peat, wood or oil may be used for fuel. The kiln is usually provided with from 16 to 22 sections, but the proper number of sections depends upon the kind of ware and desired capacity.

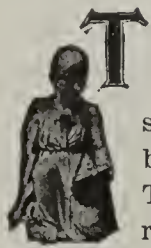
While the burning of the ware is being finished in one of the sections, the burned ware is being cooled by the air required for burning the fuel in the firing sections; the burned, hot gases of the firing sections pass on into succeeding sections for preheating the ware. The watersmoking is done by hot air, which also derives its heat from the cooling ware. In this manner practically all of the heat in the fuel is utilized, which accounts for the high fuel economy; as the ware is also very gradually and evenly watersmoked, preheated and cooled, the clay products are uniform and of even color.

The first cost of a continuous tunnel kiln is approximately the same (per daily capacity) as of the ordinary or periodical kiln, but it has several advantages: (1) Only one-third of the fuel is required, as the heat stored in the burned ware is recovered, and as the hot gases preheat the unburned ware; (2) ware has a greater and more uniform burn, and is of more uniform color; (3) less seconds and culls; (4) less labor required for firing; (5) less maintenance and repairs; (6) longer life; (7) elimination of the smoke nuisance; (8) less ground space required per given daily capacity; (9) less handling of finished ware; (10) superior arrangement for watersmoking; (11) easier supervision; (12) easier control. See their advertisement on page 812 of this issue.

The man that invented the municipal bond idea was no slouch as a promoter.

Written for THE CLAY-WORKER.

MONUMENTAL CITY BRICK NEWS.



THE DEMOCRATIC CONVENTION seems to be of more importance to Baltimore and Baltimoreans than building houses, office buildings, schools, etc., and in consequence of this the poor brick salesman has to listen to talk of Teddy or Taft, Wilson, Clark or Harmon, and the usual spring rush of orders is not materializing. Then, too, the season is necessarily late owing to the severe winter, two months of which building operations were held up absolutely. However, there is building talk and lots of it and it has been predicted that Baltimore will have one of its best years. There is much large work outlined and one of the biggest builders here says that he has more large work outlined than has been in his office at any one time in years.

The spring has been late in opening but there are some large buildings in course of erection now, among them the "Esplana de Apartment" House, Maryland Casualty Builders' Homewood apartment house, Latrobe apartment house, St. Charles College, Polytechnic Institute and the Hearst building, a large number of private residences and the usual run of houses.

Roland Park and the development of the new boulevard have helped the builders' business considerably, and many beautiful residences have been built in that location and many more are contemplated.

The Johns Hopkins University will soon start its new buildings which, when completed, will be one of the most beautiful colleges in the country.

A large number of fine schools will be built and the city and the State have made a large appropriation for hospitals and schools throughout the State. Plans for several office buildings are now being made and the usual number of speculative houses will be built.

The Hydraulic Press Brick Company has received its share of the business, having furnished face bricks for most of the above named buildings. It is little wonder that Mr. Alfred Tyler, sales manager of the company, wears a smile that won't come off.

We should like to mention the fact that Mr. Otto G. Raymond, formerly with the Baltimore office of the Hydraulic Press Brick Company, has accepted a position with the Buffalo Builders' Supply Company, Buffalo, N. Y., to take charge of their face brick department.

Mr. Jacob Klein is in a hopeful frame of mind regarding the success of the spring brick business. The output is equal to the demand, prices are steady and much big work outlined will cause a busy season.

Burns & Russell have many building operations of rows of houses and many contracts for larger work that have not yet been closed.

S. B. Dobbs, whose Baltimore office is located at 55 Central Savings Bank building, considers the outlook for the year quite promising. At the present he is to furnish the Fidelity building with a large quantity of enamel brick and recently completed the Bargain House in grey tapestry brick, also the sewage disposal station in iron spot brick. The three jobs approximaed about 2,000,000 brick.

In addition to this he is furnishing several residences in Roland Park section in red tapestry. In Philadelphia his most important work in recent months has been the Columbia avenue station, Logan station, and East Falls station for the Philadelphia & Reading Railway Company, the Logan and East Falls stations being executed in red tapestry brick; St. Patrick's Roman Catholic church, Twentieth and Rittenhouse, the exterior and interior finish of which is gray tapestry, requiring about 300,000 brick; Roman Catholic church, Twentieth and Diamond streets, requiring about 150,000 gray bricks. Bell telephone exchange station, at Lansdown and Ardmore, is executed in red tapestry; the addition to the Bellevue-Stratford hotel, Broad and Walnut streets, required about 300,000 Templeton brick; the Ritz-Carlton hotel, about 100,000 Templeton brick; the Stock Ex-

change, Broad and Walnut streets, about 200,000 Templeton brick.

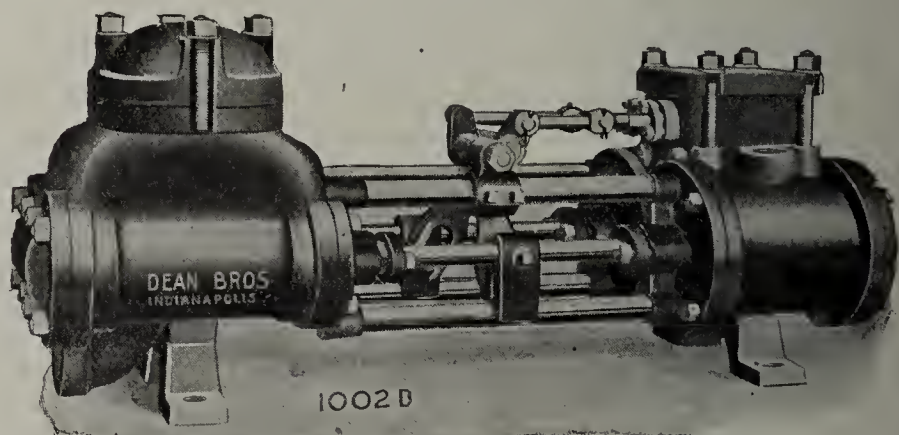
In addition to these representative buildings Mr. Dobbs is furnishing the usual quota of building operations in other parts of the Quaker city. Atlantic City has been a strong market for material in his line in recent months and the outlook at this point is promising.

For years the Lexington market has been famous for its wonderful display of plants and flowers equaled by no other city. Add to that improved gardens with a wealth of color refreshing and satisfying the rolling country surrounding the city itself; the decree requiring each and every householder in Baltimore to keep cellars and back gates free from all debris, and Baltimore raises her head in pride and beauty unsurpassed.

M. E. T.

DURABLE DUPLEX PUMPS.

The steam pumps made by the Dean Bros. steam pump works, Indianapolis, Ind., have a high reputation for quality and service. There are many good features in these pumps—that is the reason they always prove satisfactory. The stroke is long, the valve gear simple and unique, there are no rock shafts, the levers turn on studs, the frames are made of polished steel rods, the upper rods support the levers, and the lower rods serve as guides for the cross heads, the levers are both alike and interchangeable, the



Dean Bros. Durable Duplex Pump.

whole valve gear can be removed and reassembled in a few minutes, the piston rods are held from turning by the cross heads. There is no danger of bending or breaking the levers when screwing up the piston rod butts, both the steam and water cylinders are removable. The levers are between the rods of the frame, where they are protected from injury. There is an extra thick and heavy water valve plate to prevent springing and an extra heavy steam chest cover. The water cylinders are tested to 500 pounds to the square inch, while the steam cylinders are tested to 400 pounds to the square inch. There are many good points about the Dean Bros. steam pumps. The fittings furnished with the pumps are four drain plugs for the water cylinder, four cylinder cocks for the steam cylinder, one Gland nut wrench and one draw screw for the follower of the water piston. If you want a good pump you can not be better pleased than with the pump the Dean Bros. manufacture.

Members of the Cleveland Builders' Exchange, will spend their annual vacation this year at Conneaut Lake, making the trip the latter part of June. The exchange attended this resort once before and had a most enjoyable time. E. A. Roberts, of the Cleveland exchange, has been unusually active in organizing new exchanges throughout the State during the past year. A new exchange was recently organized in Massillon and Zanesville and a movement is under way to have one in the city of Akron.

Written for THE CLAY-WORKER.

CLEVELAND BRICK NEWS.



BUILDING BOOM is on in Cleveland. With the arrival of warm weather an unusually active season for building has opened up in this city. After being frozen up solid for four or five months, many operations were only waiting decent weather to proceed. When this weather arrived everybody got busy and there is now probably more going on in the way of building work than ever before in the history of Cleveland. The offices of the brick companies here are busy spots these days and an unusually good line of orders is being filed continually.

The manufacturers in and about Cleveland are also very busy and look for a big year. The paving block men have their plants working to capacity and report, in many instances, that they are sold out up to the middle of the summer. Brick is becoming more and more favored as a paving material throughout Ohio and adjoining States. In this vicinity it is particularly adaptable to conditions, for the soil is underlaid with clay. Many miles of brick pavement will be laid in this county during the coming summer and fall.

Unusual activity exists this spring in increasing hotel accommodations. Operations are now in progress which will mean the adding of over 2,000 hotel rooms to the city. The new Stattler hotel, a beautiful oriental brick and terra cotta building containing 700 rooms with baths, is having the finishing touches put on it, and will be ready for occupancy in the fall. A new hotel being erected by the Harvey Company, on Superior avenue east of East Ninth street, will contain about 300 rooms.

The Hollenden hotel is erecting a new section which will have about the same number of rooms as the old section. A new section is being built to the Hotel Euclid with about 275 rooms. The Colonial hotel has secured ground and will erect a building with between 200 and 300 additional rooms. Several other smaller hotel buildings will bring the total capacity to 2,000 rooms. In addition to this another hotel containing 600 rooms is projected on a site on the west side of the public square.

Definite announcement was made during the month that a campaign to raise \$750,000 for a new music hall and auditorium will be launched during the coming fall. Arrangements are on between the business men's committee and the city administration to locate the handsome new auditorium as a part of the group plan. The building will be of terra cotta and stone and will have a capacity for seating 10,000 persons. Hopes are entertained that it will be ready for occupancy a year from this summer. The business men's committee in charge of the project is headed by F. F. Prentiss, a prominent Cleveland business man.

A plan was announced during the month for the erection of a \$400,000 model tenement building in Cleveland. A company stands ready to promote the project if necessary details can be worked out. The city aims to co-operate in making the tenement an object lesson. The plans for the new proposed building have been prepared in the office of Architect J. Milton Dyer, and it is hoped that work can be proceeded with during the coming summer.

During the coming month construction will begin on a new six-story fireproof building to be erected on the east side of East Fourth street between Euclid and Prospect avenues. The building has been designed by William Kirsch, architect, in the Swetland building, and will be fireproof throughout. The front will be of white terra cotta with walls of brick. It will be known as the Frederick building.

A handsome new brick theater known as the Olympia has just been completed by the Campfield Realty Company, at a cost of \$250,000, at the intersection of East Fifty-fifth

street and Broadway. It seats 2,000 people, is absolutely fireproof and embraces every modern idea in theater construction. The building, in addition, includes eight ground floor stores and thirty suites. It is believed that its erection in that particular neighborhood will stimulate greater development in brick architecture thereabouts.

Tapestry brick facing and terra cotta trimming are being used in a handsome new \$40,000 Greek Catholic church which is being erected at Scovill avenue and East Twenty-second street. The building will cover a lot 61 x 86 feet in size and will have an auditorium seating 1,200. The structure was designed by G. S. King, architect, in the Permanent building.

The new Truman building on Euclid avenue, just east of East Ninth street, promises to be one of the striking structures in that neighborhood. Its entire front is of white terra cotta with interior walls of brick. The building is ninety feet front and extends back 200 feet and is six stories high. The building is just about ready for occupancy. It was designed by Architect William Hirsch. It adds another to the row of splendid structures on upper Euclid avenue.

Bids on contracts to pave forty different streets were received last week in the office of the director of public services of this city. With one exception this is the largest number of paving bids the city has ever received at one time. About ten years ago the city received bids on one occasion for paving sixty streets. Most of the new pavements will be of brick on concrete base with stone curbing.

Cuyahoga county, of which Cleveland is the county seat, has about thirty miles of brick pavement under way this year. Lake county, joining Cuyahoga county on the east, is paving five or six miles with vitrified brick. Other counties in the immediate neighborhood are taking up the work and are extending brick pavements which come to their lines through to other county seats.

During the past month William P. Blair, secretary of the National Paving Brick Manufacturers' Association, who has his headquarters in this city, had a visit with his former townsman, Mayor Shank, of Indianapolis. Mayor Shank came to Cleveland to tell people here how to beat the high cost of living game. While in this city Mayor Shank inspected the Cleveland roads that lead to Cleveland from rural districts and expressed his delight at the excellent condition in which he found them.

During the past month the Cleveland Face Brick Association was incorporated under the laws of Ohio. The new association consists of six brick distributing agencies of this city and includes the following: The Cleveland Builders' Supply Company, ninth floor Hippodrome building; the Cuyahoga Builders' Supply Company, Schofield building; the Hydraulic Pressed Brick Company, Schofield building; R. L. Beck, The Arcade; the Queisser-Bliss Company, Schofield building, and the Stowe-Fuller Company, Rockefeller building. The association has been formed for the purpose of promoting the sale of brick for building purposes and will conduct an advertising campaign for this purpose.

The National Clay Company, of Hatton, Ohio, organized for the manufacture of drain tile, was incorporated during the past month for \$30,000 by C. G. Sankey, Jesse Stephens, George A. Reed, F. J. Miller and Harry Corrigan.

A lively controversy is on in the village of Cleveland Heights, adjoining Cleveland. A number of roads are to be paved this year and village officials are undecided whether to use macadam or brick. The majority of property owners, however seem to favor brick set on a concrete base and it is believed that this material will win out. BUCKEYE.

There is a fair quantity of street paving contracts being reported these days. Are you getting your share of it for brick?

Written for THE CLAY-WORKER.

BRICK NEWS FROM THE TWIN CITIES AND THE NORTHWEST.



THE BUILDING SEASON is actively under way, but the brick industry has not received as much benefit from the opening of the season as had been hoped. There are a number of good sized jobs which serve to run up the totals in Minneapolis, and to a somewhat less extent in St. Paul, but the brick trade, and particularly the common brick trade, has not shared the business to the extent that seemed likely earlier. The common brick yards have had but a limited amount of business so far this spring—so limited that a number of them have not arranged to resume operations yet, as they have enough on hand to serve their demand for some time. Some yards may not operate until late in the summer, if at all. The demand has been quite slack and the result has been a certain amount of price cutting in one way or another. All realize that there is no money for anyone if prices are cut, and the general understanding is that \$6 at the yard must be realized if there is any money to be made. But it is concluded occasionally that a sale is a sale and if a little shave is made it will bring in money, while brick lying at the yard will not bring in anything. The condition is not as bad as it has been in some other seasons, but it is not as promising as could be hoped. Perhaps a little better conditions will work out as the season advances. Some of the yards have been able to place a good amount of brick, which gave them an outlet, but not all have done this. Against this is the fact that outside yards are able to come into the market and place brick on a margin which a number of the local yards can not meet.

The spring has been late and uncertain and the first week of May was not certain that frosts would not occur with serious damage to the material of any yards which had started operations. Only a few yards throughout the northwest have done more up to the 10th of May than get their plants in shape for operation—clean up, get the machinery into good working order and make such repairs as seemed to be needed.

A new river transportation company has been formed at Hannibal, Mo., for the purpose of operating a barge line up the Mississippi river to St. Paul to haul cement up and flour down. Should the plan be successful, it will undoubtedly lead to transporting other building materials, especially of a weighty and bulky character such as brick. Face and fire brick and other kinds which are shipped to the Twin Cities from St. Louis and other points in the south could very easily be handled on a barge line. The development of a first class system of river transportation would serve to equalize freights in these lines as well as afford a very satisfactory addition to the movement of freights.

The A. C. Ochs Brick and Tile Company, of Springfield, Mo., continues to land orders for furnishing its clay block silos for farmers through southern and southwestern Minnesota.

The Minnesota State Geological Survey is working through different parts of the State gathering information relative to clay deposits and their character and possible use. In this connection the University of Minnesota has recently installed additional testing facilities and invites clay-workers through the State to send in clays where they wish to have tests made and advice given as to their possibilities and best uses. The department has not been as active in this respect in the past as it now expects to be, because of the lack of facilities which have but recently been installed. The department and Professor Grout anticipate being able to do a great deal for the advance of clay industries throughout the State.

The Detroit Brick Lifter Company of Detroit, Minn., has

just been formed to engage in the manufacture of a brick lifter or carrier, invented by W. A. Norcross, of Detroit. This device enables a workman to carry ten bricks at one time.

The Barr Clay Products Company of Wanamingo, Minn., is rushing construction work on twenty-four new kilns for the new plant. The plant will be one of the most modern in the State.

Building permits for the first four months of 1912 in Minneapolis show a falling off of about \$600,000 from the same period last year. This is accounted for in part at least by the severe winter this year, which held down construction for the first two months to a minimum. April ran well ahead of April of last year.

Brick Structures Projected.

The Knights of Columbus, of St. Paul, have awarded the general contract for a modern three-story brick structure to Lauer Brothers, of St. Paul. The building will have all modern equipment and will cost about \$100,000. James F. Denson, of St. Paul, is architect.

John Everall, of St. Paul, will erect a modern brick and stucco residence in Macalester Park in that city, to be 40 x 38 feet, two stories, costing \$6,000.

Herman G. Graaf, of 767 Osceola street, St. Paul, has started work on a handsome brick veneered residence on Summit avenue between Fairview and Prior, to cost \$10,000.

Ambrose Guiterman, a clothing manufacturer of St. Paul, will erect a handsome residence at Linwood and Grotto streets, to be of brick and plaster veneer. It will cost \$10,000. Mark Fitzpatrick, architect, St. Paul.

Frank H. Raidt, of Minneapolis, received the general contract for the erection of a brick parish house for the Church of the Incarnation in Minneapolis. It will be of vitrified brick exterior walls, 53 x 57 feet in size. Cost, \$20,000.

J. E. Pilgram, of Minneapolis, was awarded the general contract by the board of education of Minneapolis for the erection of an addition to the Bancroft school, on plans by Edward S. Stebbins, architect. Cost, \$165,000.

C. M. Youmans, of Winona, Minn., has had plans prepared by William Channing Whitney, architect, of Minneapolis, for a handsome residence to cost \$20,000. It will be of Winona red sand mold brick and tile.

Heusche & Dake, of Northfield, Minn., received the general contract for the erection of the new brick church building to be erected at Northfield by St. John's Lutheran congregation, at \$23,000. Hartford & Jacobson, architects, St. Paul.

The Benedictine Monks, connected with Assumption Catholic church in St. Paul, recently had plans prepared by E. Brielmaier & Son Co., architects, of Milwaukee, for a priory to cost about \$75,000. The building was to be three stories 48 x 88 feet. Its immediate erection has been dropped but the matter will probably be taken up again in the fall or possibly not until spring.

A. G. Erickson, of St. Paul, received the general contract for the erection of the foundation of the new Merriam Park Presbyterian church of St. Paul. The structure is to cost about \$65,000.

I. C. Hazlett, of Minneapolis, will erect a modern residence of Menomonie colonial brick at 2322 Oliver avenue, south, on plans by Jackson & Stone, architects, of Minneapolis.

Kees & Colburn, architects, of Minneapolis, recently prepared plans for a garage and 600 feet of fence, all of brick, to be erected at the residence of General S. E. Olson, 2413 First avenue, south, Minneapolis.

Splady & Albee, of Minneapolis, received the general contract for the erection of a large addition to the Hotel Maryland, Grant street and Vine Place. The building is to be four stories, brick, and will cost about \$100,000.

Pike & Cook, of Minneapolis, received the general con-

tract for the erection of a modern brick veneered residence for B. S. Bull, at 300 Ridgewood avenue, Minneapolis. The structure is to cost \$23,000. William Channing Whitney, architect.

T. WIN.

Written for THE CLAY-WORKER.

MILWAUKEE AND WISCONSIN BRICK NEWS.



THE BUILDING SITUATION in Milwaukee and about the State is at a decidedly favorable stage and brick jobbers and manufacturers are meeting with a good business as a result. Brick plants all over Wisconsin are now in busy operation and the indications are that the output will be larger this season, owing to the increased demand. If conditions in Milwaukee are to be taken as a criterion, the use of brick in manufacturing buildings and apartment houses will show a decided increase this season. The use of concrete has shown an increase as well, but local brick men say that there is an especially large percentage of big structures which will be of brick construction this season.

Figures at the office of the Milwaukee building inspector show that the number of building permits which is being issued from week to week and the amount involved is considerably larger than at this time a year ago. During the past week alone, 144 permits were issued for improvements costing \$256,150. This is slightly below the figures for the corresponding week in April, 1911, but it is more than offset by the big gains which were made during April. Four large downtown bank buildings are now in the course of construction, two buildings at the corner of Second street and Grand avenue are being razed to make room for a twelve-story department store building, the Northwestern Mutual Life Insurance Company is erecting a new \$2,000,000 home office building, while a record number of flats and apartment houses are going up. Plans have been submitted to the building inspector for the erection of a \$100,000 structure at the corner of Third street and North avenue on the site belonging to the Nieman estate. The building will be 50 x 150 feet in dimensions and will be six stories high. It is reported that eastern capital will be back of the venture.

According to F. G. Simmons, recently appointed commissioner of public works of Milwaukee under the new non-partisan administration, the "Milwaukee type" of paving, laid and praised by the Socialist administration last year, at a cost of approximately \$1.40 per square yard, although it has been down less than a year, is beginning to show the results of wear and tear to an alarming extent. Holes, in some instances, a yard long and extending through to the concrete foundation, are beginning to appear, while in many cases the asphalt is starting to flow, giving the pavement a wavy effect. While the Socialist administration reduced the cost of paving about \$1 per square yard, indications are that the saving will mean a big waste, in that much of the pavement will have to be torn up or repaired.

"Because of many complaints, I inspected the pavement on North avenue from Twenty-seventh street to Thirty-fifth street," said Commissioner Simmons. "This is one of the last pieces of work done by the Socialists, and yet large holes are scattered all over the surface. Evidently there is something wrong somewhere. Many of the pavements laid last year are flowing to an alarming extent. This is probably the result of the failure of the asphalt surface to secure a proper bond with the concrete foundation. It is probably due to the fact that the concrete had not properly set before the layer of asphalt was laid. As soon as our new superintendent of street construction, Mr. Blodgett, begins work it is my intention to have him make a thorough investigation of all street construction to see if we can not get a set of specifications which will give the city a cheap pavement,

but cheap only from a standpoint of economy. I do not think we will go back to the old binder course, particularly on the lightly traveled streets."

John Ringle, of Wausau, Wis., president of the Wisconsin Clay Manufacturers' Association, and one of the best known brick manufacturers in Wisconsin, has been elected mayor of Wausau. In his inaugural address, Mayor Ringle made a plain statement of the financial condition of the city, pointed out where it would be necessary to invest considerable sums of money and advocated the issuing of bonds to take care of floating indebtedness and to put the city on a cash basis. He showed that economy in the administration of city affairs would be necessary, but urged that economy be not practiced at the expense of efficiency. Mayor Ringle says that these are the principles which he has always followed in his brick manufacturing business.

News from Racine, Wis., says that there is a decided scarcity of brick in that city this spring and that mason contractors have been forced to import heavy shipments from Chicago to satisfy the demand. Contractors say that there will be more brick buildings erected in Racine this year than ever before in the history of the city.

A. BADGER.

THE GOOD ROADS SPECIAL.

That the Mississippi floods temporarily halted the progress of the "Good Roads Special," sent out by the Frisco lines to educate the farmers and other citizens along the route of that railroad system to the economic importance of better highways, is the report made by H. S. Fairbank, assistant field secretary of the American Association for Highway Improvement, in explaining why the train was held up for two weeks in New Orleans.

Many of the farmers of Texas, Oklahoma, Arkansas, Louisiana, Missouri and Alabama, have been inquiring of the American Association for Highway Improvement in Washington what has become of the "Good Roads Special" which was to have visited their districts on certain specified dates. J. E. Pennypacker, Jr., the executive secretary of the American Association for Highway Improvement, now makes the announcement that owing to the floods along the Mississippi, it was necessary to put the special on a siding, the schedule naturally being disarranged. He said, however, the officials of the Frisco system expected that the original schedule would be carried out and that the train would simply remain on tour two weeks longer than originally intended, probably continuing until the fall.

The trip of the "Good Roads Special" was arranged as a result of the co-operation of the United States Office of Public Roads and the American Association for Highway Improvement with B. F. Yoakum, chairman of the Frisco lines, who is also a member of the executive committee of the American Association. The full government exhibit, showing the effects of good roads and bad roads with stereopticon views, electric models showing how roads are made and stone crushers at work, is on board the train. H. S. Fairbank, assistant field secretary of the American Association, is delivering lectures from the train, and at every stop is lending his aid in the formation of road improvement associations for the local communities. In his report to Secretary Pennypacker, he says that twenty such associations have been formed already and that all have become affiliated with the American Association for Highway Improvement. The "Good Roads Special" is one of the best equipped ever sent on tour and its visits are meeting with enthusiastic approval from each section where a stop is made.

It doesn't really matter how much business a man does one year, he is not satisfied unless he sees prospects of doing more the next year.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Poetry to the Editor's Liking.

It is blessed far more to give than to receive,
My account you may credit with six bones and relieve
Your book-keeper and mine from the smile and the frown;
For in the book with the debit the credit is found.
Tilt back in your chair with that sweet English effect,
For the brief words are coming—"Enclosed find my check."

R. B. CHILOF.

Hervey Haigh Takes up Residence in England for a Time. Friend Randall:

I want to thank you for the good words you said about me in the last issue of THE CLAY-WORKER. I do not know how to convey to you my appreciation of the results I have got from my ad in THE CLAY-WORKER, and while it is true you will take me off your advertising list for the present, I want to say I shall still be identified with the brick business. To all present users of the Haigh kiln, and to future ones also, I want to say they will get the benefit of my experience. You know I was always a great believer in having a good understanding in business. In other words, I think the trusts are the finest and best things for the present, under proper control, and in my opinion we live in an age where there is more of a spirit of live and let live than there ever was before. I have faith enough in the future generation to believe that as time goes on we will see more of the square deal than we have ever dreamed of.

I have some matters over in England that I am going to take up, and my daughter is going to finish her musical education over there, and while I am there I want you to send THE CLAY-WORKER to Wesley House, Slaithwaite, Huddersfield, England. You will get my \$2 a year so long as you charge that price, and if it is raised to \$3 you will get that, for I consider THE CLAY-WORKER the best advertising medium in our line that is in the field today. I except none, for I have tried them all. Inquiries are one thing but orders are another, and you have my best wishes for your continued prosperity.

I have read with a great deal of interest and profit the many practical articles that have appeared in THE CLAY-WORKER, and fully believe that you will continue to forge ahead as new things develop.

Kindly remember me to THE CLAY-WORKER staff and, again, with best wishes for yourself, I remain,

Very truly yours,
HERVEY HAIGH.

Uncle Sam's Protection Needed in Mexico.

EDITOR CLAY-WORKER:

I inclose postal order for my subscription for the current year. Please change my address from Parral, Chih., Mexico, to El Paso, Texas.

I left Parral, together with the majority of the foreigners, on the first train that the consul could get after the looting of the town by the revolutionists; there are, nevertheless, some 117 Americans still left in the district, together with some 100 other foreigners, who are obliged to take the risks of staying or losing everything they have been years in accumulating.

The looting of the town commenced about 7:30 p. m. and

continued until the next day; doors of business houses and private residences were broken down with rifle butts, hammers and, if too solid, dynamite bombs were used. Foreigners were the principal losers; the total damage to them will probably exceed \$1,500,000. They were insulted on the streets, held up for what they had on them, their stocks entirely cleaned out, their safes blown open—in fact, the only thing the Mexicans overlooked was the killing of foreigners. In many parts of the country foreign women have been assaulted by the armed gangs of revolutionists and either killed or injured for life. Things they have done would put an Apache Indian to shame.

It is useless to hope that the government of Mexico will be able to control the situation; it is continually becoming worse. The principal reason is that the visions of loot and rape are too alluring to the average Mexican. They respect no flag or race. For instance, in Parral, a German had a very large German flag over his house; they dynamited the place and his wife and seven children escaped death or worse, no one understands how; also at the American consular office they demanded horses and money and arms, saying that it made no difference to them whether it was the American consulate or not, that our country was not only afraid but could do nothing. Their papers have been publishing that sort of stuff for some time, and you can readily understand the effect on the masses. Until there is armed intervention by the United States there will be absolutely no protection to either property or lives of foreigners. One of these days, unless our government moves quickly, there will be a massacre of foreigners in Mexico that will make the world shudder, worse than their killing of 300 inoffensive Chinamen in Torreon last year.

Any publicity you may feel inclined to give to above information will be appreciated by all of "us refugees." We and the foreigners in Mexico need the help of public opinion in the United States in order that the United States government may not delay matters too long.

Yours very truly,

April 18, 1912.

G. B. LEVINGS.

Making Staffordshire Blue Brick.

EDITOR CLAY-WORKER:

Also all subscribers to same. You no doubt might be interested in the following, which I hope will enlighten all my American brothers in the clay trade. I am writing this to give a popular understanding and method of the manufacture of Staffordshire blue brick for both paving and building brick. I will begin by a little criticising. I saw a letter in THE CLAY-WORKER some months since telling how blue brick could be made, but I differ with the writer of same, who does not sign his name to his letter. He states that blue brick are made by a process that is neither practical nor theoretical. He says that they should be burned in saggars; that the brick are placed in the saggars which are then filled up with small coal. Of course, this will produce a black brick if you don't get too high a fire. But that heat would not burn the brick hard. Then what good would such a brick be for the market? It would go to pieces in the building in less than six months, and that would be no good out in the States. Then comes the question of cost. The cost of small coal to put in the saggars would make them as valuable as the best of enameled brick, and no firm could make them pay. Blue paving and building bricks made in England cost very little more than the ordinary red building brick, and if my American brothers would like to give them a trial I will try to the best of my ability to tell them how they can be made.

The first thing needed is a body of clay with a goodly percentage of iron and manganese in it; without one or the other of these minerals in the clay it is an impossibility. To make a blue brick the body of clay must stand from 2,200 Fahr. to 2,500 Fahr. of heat, as the dust that is needed will not turn blue below these heats. The best way to make them is with a stiff mud or wire-cut machine, as by this process you get them made the cheapest way possible. Then they

want repressing, but before repressing they want dusting with the following: Sixty-five per cent of burnt wheel Swarfe, 35 per cent of crocus. The wheel Swarfe can be burnt by putting up a second wicket in your kilns after having filled ready for firing 8 inches or 10 inches from the first wicket, then fill in between with the Swarfe. When burnt seive it very fine and mix for dusting. A boy will dust 3,500 per day. Then when black hard, neither wet nor perfectly dry, have them set in down-draft kilns, the pavers on edge, the builders on flat, four deep. When kiln is full daub tops up and the wicket and put in the fire. Smoke dry with a fierce draft. When all steam is gone, put down your damper till there is only just draft enough to pull your smoke out of the fire holes. Fire like this till the brick are at a red hot heat. In this way the brick will go blue in the center of brick first and come out to the surface. Then when red hot lift your damper, giving a good draft for twenty-four hours and when you have got the bricks hard enough, which should be vitreous right through, put down your damper and soak for eighteen hours. If you follow these instructions you will be able to make one of the best pavers and one of the best blue building brick made in the world, both for paving and building and a brick that will never wear out and a brick worthy its place in the best building in the world. I hope to hear the opinion of some of my American brothers on this class of goods. I have heard that these blue brick can not be made in the States, owing to their being no clay suitable for them. That is a mistake, as I know from my own personal experience.

Yours truly,
H. W. HARDY.

Concerted Action Needed on Freight Rate Question.

Editor CLAY-WORKER:

The following is a brief description which, the writer hopes, will furnish you with what information you desire concerning the rate question which is now facing the drain tile and sewer pipe manufacturers.

Just after the first of the year the Central Freight Association, which consists of Indiana, Illinois, Ohio, Michigan and Wisconsin roads, met in Chicago and decided to advance the freight rate on drain tile and sewer pipe.

This advancement is an increase of about twenty per cent and it affects all railroads in the above mentioned territory. The shippers in the above States at once made an appeal, protesting to the general freight agents of their various lines, but as this was a ruling of the Central Freight Association, their protests were of no avail.

The shippers then proceeded to get organized so as to bring the case to the attention of the State and Interstate Commerce Commission. The manufacturers of Ohio met in Columbus, April 3, and appointed a committee consisting of Harry Landrum, of Columbus, Minor Beardsley, of Miller City, and the writer.

This committee at once got into communication with the manufacturers of Indiana and found that they had arranged for a meeting at Indianapolis. Mr. Beardsley and the writer attended this meeting in Indianapolis in order to get the Indiana and Ohio manufacturers working together.

Since that time the Indiana manufacturers have had their second meeting in Indianapolis, which took place April 25th.

The State of Indiana has much better laws than the other States, so far as the power of the Railroad Commissioner is concerned.

The manufacturers of Indiana have turned their case over to the Indiana Shippers' Association, which is under the able leadership of Mr. H. V. Zartman. The manufacturers of Indiana will have their case tried before the Indiana Commission on May 16, 1912.

It is now up to every manufacturer of Indiana to supply Mr. H. V. Zartman with all the data that he requires, before the date of trial, because it is impossible for him to win the case of the manufacturers without their hearty support.

If this case is won in Indiana before the Indiana Com-

mission, the manufacturers are then going to take it to the Interstate Commerce Commission. If the case is won in both Indiana and before the Interstate Commission, it will give the manufacturers of the other States a sufficient prestige to win their cases, although their laws are not as favorable as they are in Indiana.

It is the duty of every shipper in the Central Freight Association territory to get busy at once and get in communication with the committees of the various States. It seems as if the manufacturers of some States have not organized. If this is the case they should do so at once, because it is going to take the concerted action of all the manufacturers to win their cases.

Hoping the above information is sufficient, I remain,
Respectfully yours,

J. LEO CHILD.

Findlay, Ohio.

P. S.—Since writing this letter we have just received word that the Interstate Commerce Commission has postponed all rates until August 29, 1912. This is a great victory—everyone push and we will have them knocked out entirely.

CONVENTION ECHOES.

N. B. M. A. Houn' Doggerel.

The N. B. M. A. ain't no houn',
And the' ain't nobody goin' to kick it aroun'.
It's old enough to make a soun',
It's done a share of runnin' aroun',
An' the' ain't no city, state or town
Goin' to tie it's trotters down.
It's used to drafts—goin' up an' down—
An' hot discussion all aroun',
But it never was an ornery houn'
An' it ain't never goin' to be kicked aroun'.

J. C. T.

Praise for the N. B. M. A.

My Dear Randall:

It seemed like old times for me to mingle with the brick-makers at their annual meeting. It is quite apparent that things "have been doing" since my retirement from an active part in the business. The N. B. M. A. seems stronger than ever and that its field of practical usefulness has enlarged is evidenced by the notable success of the great Clay Products Show, held at the Auditorium.

With warm personal regards, believe me,
Very cordially,

WILLIAM H. HUNT.

Cleveland, Ohio, April 26, 1912.

Views of an Absentee.

Friend Randall:

As you may guess, I read the convention number of THE CLAY-WORKER with great interest. I was sick at the time of the convention or I would have been there. It is the first time I have missed a convention for many years. I was delighted to know that friend Bloomfield was elected president and that you were unanimously re-elected secretary. I much appreciate the opportunity in my humble way to give my views on these matters before the session of the convention, which I shall surely do if my health permits and the question should arise another year.

I very much disapprove holding the next convention in Chicago, as that city, with all its pretensions of superiority and doing things in such a gigantic manner, is not what the members of the craft desire. In my opinion they would like to absorb our identity and have Chicago the only place on the map for our association. I think there are very many much more desirable locations for the N. B. M. A. convention than Chicago. Furthermore, we have continued to change the meeting place of the annual conventions to the various sections of the country, and this has been of

great interest to the members of the craft, and has given us the opportunity of seeing other cities which we should not have seen otherwise, which, in my mind, is one of the best things about the convention.

I think Chicago had the nerve of a horse to attempt to defeat Charles Bloomfield. It was certainly contrary to all precedent. I think any one with such cheek as to attempt to do a thing of this kind has too much nerve to be appreciated by our association. Therefore, as the power of the association for selecting the meeting place for the next convention is invested in the executive committee, I hope they will use good common sense, as they always have in the past, and arrange for the convention to be held in some city where more courteous treatment will be shown the association. Wherever it is, I will be there, Providence permitting, ready to do all in my power for the association and those who have served so well and faithfully.

Yours very truly,

Shawmut, Pa.

ALFRED YATES.

The Good Work Done by the B. B. A.

Editor CLAY-WORKER:

Calmly reviewing the results of the recent convention of the Building Brick Association at Chicago, I can not help but be impressed with the one fact that stood out strikingly among all others at the convention. That is that the brick dealers of the country are realizing that through co-operation they can secure greater benefits than through competition. The spirit manifested was so entirely different from that of a decade ago that some men who had not hitherto attended conventions were astonished at the feeling of friendliness and good fellowship which was manifested by men who were hitherto the keenest rivals.

This new spirit can not but help the business of selling building brick throughout the United States. Dealers are beginning to realize that they can accomplish much more through working together than through bitter competition, which ultimately means the wiping out of many concerns.

At the publicity meeting of the B. B. A. many of our members came to a realization that the work which is being done in publishing abroad the merits of a face brick is one of the most important things ever attempted in the history of the business. Speakers at that meeting indicated very clearly that the cement and lumber industries were hot after business and were using up-to-date methods in trying to secure it. We brick dealers have been slow to comprehend that new methods are abroad in the land; that great public sentiment can be created through the public prints of the United States, and that we must constantly keep hammering away at the merits of brick as contrasted with those of cement and wood.

I believe that the directors of the Building Brick Association enter upon the new year with a feeling that the brick dealers of the United States are going to stand more loyally behind them in efforts to organize the industry and to bring about proper conditions for the promoting of a great publicity campaign. I believe that more attention should be given during the coming year to the furnishing of publicity matter to newspapers and periodicals, which they would publish free if contributed in the right way. Such publicity is invaluable and is an element that the cement manufacturers have long taken advantage of.

To do this work, however, a definite revenue must be obtained. Individual dealers can be made to feel that they are being benefited by outlining to them plans whereby they may receive publicity in their local papers. Through the maintaining of a properly conducted publicity bureau in connection with the B. B. A., much material could be furnished to members which they would probably find little difficulty in having inserted in their home publications. Such publicity matter would benefit them directly because it would associate their names with the brick industry in a way that advertising promoted by a national association can not do.

The B. B. A. should not, in my opinion, discontinue its paid advertising department. It should, however, be directed by one who realizes the elements that appeal to the public

and one who could furnish readable news matter which will fill that want.

It is, however, unreasonable for brickmakers generally, and especially the members of these organizations, to ask the officers and the active members to spend their time and money in a publicity campaign of this kind without giving it both their monetary and moral support, and if such proper support were forthcoming it would be easy to secure a publicity promoter who could handle our advertising in a far better manner than the officers themselves can do.

Our recent meeting and the exposition have apparently awakened a mighty force that has pushed the brick business ahead at least ten years. The whole country seems to have been awakened. Editorials are appearing in the columns of the very best papers everywhere calling attention to the necessity of the use of fireproof material. The papers and civic bodies are calling upon the city officials insisting on the enforcement of the present laws regarding the use of fireproof material within the fire limits, and are suggesting the extension of the present limits everywhere.

Bricks are here to stay. From every point of view—whether artistic, economical, durable or fire resisting—they are the ideal building material.

Cleveland, Ohio.

R. L. QUEISSER.

Interesting Suggestions for the Government of the National Association.

Secretary Randall:

I wish to offer a few suggestions that I believe will prove beneficial to the National Brick Manufacturers' Association, and make these suggestions through you as secretary and active officer of the association.

I believe that an improvement could be made in the form of your roster by adding to what has already been given the hotel address of the member registering while he is in attendance at the convention. I know from personal experience that I made unsuccessful attempts to locate a number of parties whose names appeared on the roster, but I was unable to locate them, and I have letters also from other parties since my return from the convention that had similar experience in trying to locate me. I certainly think that such a change as above suggested would prove quite an advantage to all parties who are desirous of meeting any one at the convention.

I also believe that there should be a change in the make-up of your executive committee. The old rule of having all the ex-presidents and active officers of the association constitute the executive committee was probably all right when this was established, but it is cumbersome, works automatically, is repugnant to the ideas of a republican form of government, contains too many inactive members, is not in line with the spirit of the times and is totally unsatisfactory to the membership generally at the present time.

I would suggest that instead of the present method that the following would be a great improvement: That the executive committee shall consist of the retiring president, all the officers of the association and an equal number elected from the membership of the association at large by the convention in annual meeting assembled. This will eliminate the necessity of carrying a number of ex-presidents who may not be active, and it will bring this executive committee closer to the association and more responsive to its will. If any of the ex-presidents of the association are active and in attendance they can be elected by the convention in its annual meeting, but the convention itself should have some voice in the election of its committee from year to year. Having elected all of the officers in its annual meeting, it is assumed that such officers are the choice of the convention and they are proper parties, because of their knowledge of conditions, to get on this executive committee, but the convention itself should be permitted to name the balance of this committee from the ranks of its membership, and this will remove one of the serious objections that has been raised by so many people to the old system of creating committees, nominating and electing officers, and continuing the organization entirely in the same hands with practically no possibility of repre-

senting the real sentiment of the association through its convention.

I also believe that the constitution or by-laws should be so amended that there should be two classes of membership, namely, active and associate. I believe that active membership should be confined to the manufacturers and sales agencies of all classes of clay products, and to the publishers of trade journals or papers devoting special attention to the advancement of the clayworking industry. Such members should have all the benefits and privileges and be eligible to all the offices and responsibilities of the association.

In addition to this I believe that a provision should be made for associate memberships, to which all machinery and supply people, patentees and others interested in any way in the welfare of the clayworking industry should be eligible, and that such memberships should have the privilege of a seat in the convention, should have the privilege of the floor in the convention to engage in any discussions before the convention or to appear before any of its committees and advocate any cause that may be under consideration, but that such membership should not be eligible to a vote.

I further believe that any member to be eligible to a vote at any convention should make application, pay his membership fee at least three months before the meeting of the convention, and that the executive committee would then have an opportunity to pass upon these applications when it meets to decide upon the time and place of holding the annual convention, with any other questions that may come under its notice for consideration before the association.

I believe that all these changes, or changes similar to what have been suggested, would prove highly beneficial to the National Brick Manufacturers' Association; that it would give us a more democratic form of government than we have heretofore enjoyed; that it would make the organization thoroughly representative, responding freely to the will of the convention, and it would eliminate the danger of manufacturing memberships with selfish motives for the purpose of carrying elections or determining questions in the interests of some particular crowd of people or locality; and these amendments to the constitution, by-laws and rules are such as I believe should bring forth no objection from any reasonable man interested in the welfare of the clayworking industry.

Personally I am very glad to see the manufacturers of machinery, supplies and equipment, and any others who may desire, become members of the association and contribute the small fee that is required, if they feel so disposed, and in most cases where such people do join the association they receive either direct or indirect benefits that fully compensate them for their outlay and effort. At the same time I do not believe that people not engaged in the manufacture of clay products have any right to dominate or attempt to dominate the convention, or to shape the policies of an organization created and continued as it should be—for the benefits of the clayworking industry rather than for the benefits of those who profit from the patronage of the clayworking industry.

I am saying this without any personal or factional feeling, but in the recent convention held at Chicago it was evident that there is a growing factionalism that, if continued, is bound to work injury.

I am glad we had the convention at Chicago, and if the Chicago people desire it there again I would be very glad to see it go to Chicago, and I hope that those who may decide upon the time and place of holding the next convention will not be governed by any feelings that may in any way be construed as antagonistic to Chicago, either from a geographical, factional or personal standpoint.

If the changes above suggested should be made in the constitution, by-laws and rules, there would be no foundation for fear at any time that any attempt would be made to pack a convention to carry an election, and we should have our rules and regulations so well defined that no one would have an opportunity of doing such a thing at any time; and we should so conduct the affairs on broad lines as to remove the cause for any suspicion that any attempt should at any time be made, either because of dissatisfaction with the organization as at present constituted, or for the pur-

pose of new people securing control of that organization, whether such an idea would be prompted by selfish motives or prompted only with a view to the best interests of the industry.

I will be very glad to have an expression of opinion from you on this subject, as I believe that many members of the association share in the same ideas, and if you feel disposed to give this communication room in your columns, I believe it would be a good thing to publish it, and to ask the members of the association and your readers generally to express their opinion and to write you frankly, giving their ideas as to what might be done to advance the best interests of the cause. Let us in these matters get away as far as possible from strictly selfish motives and the ideas as to what personal gain may result to us, and let us stand shoulder to shoulder for the advancement of the best interests of all clayworkers to the end that our efforts may advance the cause most and bring to all the best possible returns through active co-operation for mutual benefit.

Yours truly,

J. B. HAMMOND.

Bolivar, Pa.

OBITUARY.

Death of Charles H. Doan, Columbus, Ohio.

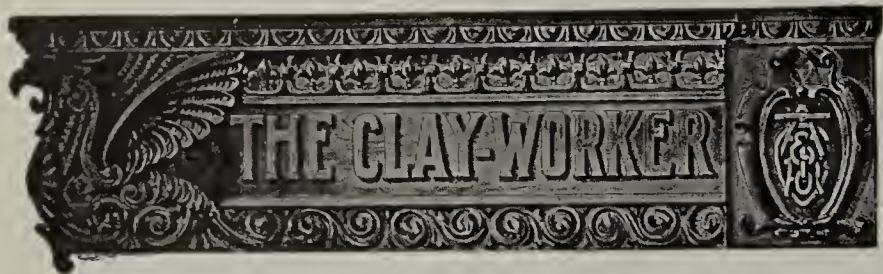
The many friends of Charles H. Doan will be shocked to learn that he was stricken with paralysis April 8th and died April 13th at his home in Columbus, Ohio. The attack was wholly unexpected. Mr. Doan had been in apparent good health up to the former date. Mr. Doan was president of the Nelsonville (Ohio) Brick Company and secretary-treasurer of the Athens (Ohio) Brick Company. He had been in the brick business for a quarter of a century—was one of the first to engage in the paving brick business—and was one of the best known and most popular men in that branch of the business. He was a man of great energy and of pleasing personality and was always ready to lend aid and encouragement to every progressive movement. He had been an active member of the National Brick Manufacturers' Association for many years and was identified with the National Paving Brick Manufacturers' Association from its inception. He was born in 1852 and is survived by a widow and two sons, one of whom, R. A. Doan, has been associated with him in the paving brick business and has been elected to succeed his father as president of the Nelsonville Brick Company.

Death of a Wilkesbarre Pioneer.

William Dickover, the oldest native citizen of Wilkesbarre, Pa., died May 7th at his home in that city at the age of ninety-one. Mr. Dickover was identified with the building interests of Wilkesbarre for the greater part of his life. He built and operated one of the first brick plants in that section of Pennsylvania. In 1883 his son, George T. Dickover, became associated with him in the brick business under the firm name of Wm. Dickover & Son. In 1898 Wm. Dickover, Sr., retired from active business and the brick company was continued by George T. Dickover and his son William, under the firm name of George T. Dickover & Son. It falls to the lot of few mortals to lead so long and so useful a life as did Mr. Dickover. He and his sons have built most of the principal buildings of Wilkesbarre and vicinity. Indeed, nearly all of the school buildings, churches and other public buildings are monuments to his skill as a brick manufacturer and builder.

Ohio Clay Man Dies in the Far West.

Mark Ogan, ceramic chemist for the Northern Clay Company, at Auburn, Wash., died in that city Saturday, May 11th, as the result of a complicated case of appendicitis and peritonitis. The funeral occurred Friday morning, the 17th, at his former home in McArthur, Ohio. Mr. Ogan was a young man of unusual promise, and his untimely demise will be regretted by his many friends all over the country. He is survived by a widow, father, brother and two half brothers.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-NINTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis

LVII.

MAY, 1912.

No. 4.

CURRENT COMMENT.

There has been enough rain in some sections of the country this spring to encourage tile drainage. Has it?

* * *

The woodworkers are not the only people that can do high class veneering. We are getting some of it in the brick business.

* * *

There is more than one good place in the country to have a clay show, and one of the good places is at your own county or State fair.

* * *

Putting a poorly formed or cracked brick into the kiln is one of the most expensive forms of waste. Send it back while it is mud and work it over.

* * *

The salaried man will now have to stop kicking his boss's dog around, for the census figures show that salaries and wages have advanced more than anything else.

* * *

Do not forget that modern machinery in the clay bank, and improved equipment for transmission, count for good just the same as the up-to-the-minute machines in the plant.

* * *

There are lots of country towns that need paving, and once they get the brick paving habit it will help a lot with the idea of paving roadways with brick. So, if you live in a country town, boost it along.

* * *

The latest addition to the baby industries of the Hawaiian Islands is the lava brick manufacturing plant recently put into operation at Kaimaki. The quarry from which the brick is made is directly at the rear of the factory. The peculiar blue stone of Kaimauki, a beautiful material, is used for making the brick. The finished product is attracting wide atten-

tion, it is said, and promises to have a wide market. Chester H. Carmichael is superintendent of the works.

* * *

The sad fate of the Titanic is another illustration of the fact that it is not the size of a thing or an institution that makes it impregnable.

* * *

Competition is unquestionably a stimulant to trade. The trouble with it is that too many people are too fond of stimulants.

* * *

If the hollow block people could just veneer an attractive fact on part of their product, they might soon be getting into the building game with both feet.

* * *

Our exports of manufacturers' products has now reached the billion-dollar mark per year, and we are not yet able to figure the export in gold carried abroad annually by our tourists.

* * *

It is the man with a reputation for a good product, not the fellow with the name of selling cheap, that has the easiest time of it getting business. Also, it is the same man that generally gets the most out of his business.

* * *

When a fellow takes these new fangled ideas of efficiency in business management to pieces and analyzes them carefully, it is found that the main ingredient is that same old-fashioned hard work that we were told about in our boyhood days as being the main factor in success.

THE WEATHER AND THE BRICKYARD.

You can figure on how much clay you have got in a given space, how it burns, what machinery is required to handle a given amount of it, the best temperature for burning, and a number of other points you can settle to a reasonable degree of certainty, but no man can tell what the weather is going to be, nor how it is going to effect the cost of making brick. That is perhaps the reason why many a man's cost figures go wrong and he comes out at the end of the season with a balance on the wrong side in spite of the fact that by his careful reckoning he should have come out ahead of the game. If one will keep a weather record, together with the amount of cost and damage each season, he may, in the course of a few years, have data that will be a fairly reliable guide to figuring allowances for the weather. There is some guess work in it even at that, but it is a whole lot better than leaving the weather entirely out of consideration when figuring out what it should cost to make brick. So make part of your yard records cover the subject of the weather and the exact effect it has on the work from day to day.

REFRIGERATOR WARE.

The household refrigerator is a great article of commerce and convenience. There is no need to dwell on that point, but there is a point about the modern refrigerator that the clayworker may well think about more than a little, and that is the use of porcelain ware for the inner compartments. Burned clay is used not only in the form of glazed tile for inner linings, but compartment linings are made of solid pieces of porcelain in some of the highest grade offerings. This is not only fitting as a sanitary measure, but the whole connection of clay work with coolers for water and food is particularly fitting with the traditions of time. Back before the days of icemaking it was big earthen jars that served to cool drinking water, and was thus the very beginning of artificial refrigeration. It is pleasing sentimentally, therefore, to see clay products coming back into the work again.

And it has commercial possibilities that may be extended and developed considerably by proper study and promotion.

BRICK FOUNDATIONS.

If there is any place that cement and concrete has advantages, and it is peculiarly fitting to use, it is in the ground in the making of foundations. Brick manufacturers have often conceded this, and sometimes in doing so have taken it for granted that it is a cheaper material to build ordinary house foundations with than brick, consequently they have not made much of a fight for this trade.

Talks with some contractors recently, however, developed the fact that while concrete may be cheaper than brick for foundation work in some instances, it is not always so by any means. Where the conditions are peculiarly favorable for concrete, and the brick production is light and the price of brick is high, the balance is in favor of concrete, but in some of our leading cities it is found that brick is really cheaper for ordinary house foundation work. The balance is nearly even between the higher grade new brick and concrete, but by using some of the second-hand hard brick from other buildings one can reduce the cost of brick foundations below that of concrete, and often get a better job out of it, too. This point is worth keeping in mind and going over now and then with the building contractors, because the brick men may be letting part of their trade get away from them that they could hold by proper investigation and effort.

FLOODS AND FIRES.

It is a peculiar fact that the two elements, fire and water, that do the most startling damage to mankind, are also the two most useful and valuable elements. Not only are they essential in the fundamentals of life and health, but they are the greatest mechanical agents we have. It is only when they go uncontrolled that they do great damage. And it is, or should be, the business of man to control them, that he may get the benefits the Creator intended and yet be reasonably free from harm through them.

The great fire loss and the need for fireproof construction for the safety of both life and property, has been the subject of much discussion, and the way there is plain. Floods and flood damages are discussed, too, but too often without the purpose or object in view of preventing them and profiting by it. For with flood safeguards, as with fire safeguards, to seek prevention in the right way is to profit from the effort.

Flood waters properly controlled are great producing agents. The ancient Egyptians discovered this fact, and profited by it more than we are doing today, notwithstanding our great commercial acumen. They went to work at systematically harnessing and using the flood waters of the Nile, and always rejoiced when the flood was great, because it meant greater crops. Floods in our big streams should mean the same thing, instead of a loss and a sort of national calamity.

The real calamity is in letting these floods get beyond control. We are a wonderfully resourceful people, and are great at developing great projects, and yet here is one of the greatest projects of the country going a begging, running wild and doing damage, with but little attention given to it—the project of catching and holding in reserve basins the rainfall of the springtime to irrigate with during the summer.

It is a case where nature is giving us signs and striving to make us understand them, and we continue to heed not. Nature never intended that all our good things should come to us in perfect shape and require no effort on our part. This fact was made plain to the Children of Israel on a certain memorable occasion, and it is being made just as plain

to us today in connection with our floods, but we continue to grumble and to misunderstand. If we can successfully carry out such a project as the digging of the Panama canal, surely we can handle the project of catching and holding for summer use the waters that cause our great spring floods. It is time we were about it, too, for it not only means protection from floods, but also material benefits from the preventative measures themselves if they are properly handled.

FIRES ENDANGER BUSINESS INTERESTS.

Business men should be especially careful as regards fire, for the reason that fire insurance will merely indemnify them for their property loss, but will not provide for the loss of trade and good-will which follows the burning out of an establishment. Enoch Raugh, president of the Pittsburg Association of Credit Men, discussing this question in an address to Pittsburg business men, gave the following good advice:

Of course, the losses which run into the largest figures are sustained in the larger cities and towns, because it is there that the biggest values are concentrated, but the fire hazard all the time hovers over every business community, no matter how small, and there is no doubt that given favorable conditions, a fire starting in any community in which any merchant had his business might wipe out practically the entire business community in which his business is. Few are the American communities which are built with any idea of preventing a fire well started from going along the business streets or avenues, spreading from one building to another, thus resulting in throwing the business of that community into convulsions from which it would take a long time to recover. This sort of thing is happening all the time, and just because the present generation of business men in a particular place have been more or less immune from serious fire disasters, they should not be too confident that some special spirit protects them in some mysterious way from the ever present possibility of fire.

"We can not lay too much emphasis upon the constant danger threatening every business. Your dry goods merchant may be ever so careful as to fire on his own premises, but his next door neighbor may not be conducting his business in the same careful fashion, allowing litter to accumulate, matches to be thrown around oily floors, allowing smoking where it should be absolutely prohibited, storing combustibles in unsafe places, using friction matches which need but to be stepped on to start a fire which will run into thousands of dollars, and doing or omitting to do a hundred and one things which not only hazard his own property, but the dry goods merchant's as well. This is a difficult proposition, but it always seemed to me that in a self-respecting community of business men it would be possible to get together and frankly discuss the fire hazard question in all its bearings, endeavoring through organization to arouse the proper sentiment against careless methods and shaming the man who is known to be conducting his business in a dangerous fashion into taking proper precautions. Such an organization can go further than this; they can do something in the way of establishing fire fighting apparatus, both within individual stores and in a more general way, such as having ladders, hose, chemicals, etc., at a general point ready for instant use, and right here let us suggest that if it be feasible to install sprinkler systems, nothing could be more effective in putting out incipient fires or in acting as a wall against the progress of flames from one building to another.

"There is another thing which such an organization would do as a protection against conflagration, namely, co-operatively or otherwise, erect heavy fire walls, so that a fire starting in one quarter of the town certainly can not precede beyond the fire wall, though it may burn all the buildings in the

quarter in which it starts. Fire walls over and over again have been found the greatest possible help in stopping the spread of flames."

ASK THOSE WHO USE THEM.

The fame of the Bonnot line of brick and tile machinery is world wide and has been well earned, the manufacturers declare. In their ads on pages 735 and 847 the Bonnot Company ask our readers who may want confirmatory evidence on this score to "Ask those who use them." It is a good suggestion and any reader desiring to act on it will be given a list of users in his neighborhood on application to The Bonnot Co., Canton, Ohio.

A CORRECTION.

In the April issue there appeared in the roofing tile article by Mr. W. G. Worcester, a statement that the design of the auger made Spanish Tile in which the curve or shape of the under face is the exact counterpart of the upper face thus allowing the tiles to fit one above another indefinitely, was first made use of by an American citizen Mr. Jas. Repp, of Akron, Ohio. This was a typographical error as the gentleman's name is Joseph Rapp, Jr. In 1905 Mr. Rapp patented a block form for forming tile which is being successfully used on the Akron plant today. This patented block form gives them two tile on one machine where in the old method they could get only one.

A RUST-RESISTING METAL FOR CLAYWORKERS.

The Manufacturers Equipment Company, of Dayton, Ohio, although, comparatively speaking, a new corporation in the field, but with many years of experience in the clay industry and clay equipment game, is certainly making long strides towards success, not alone of personal interest but especially that of the clayworker, having, as we understand, secured exclusive sale for American Ingot Iron, a rust-resisting metal for the clayworking field to be used in pallets for soft mud brick manufacture, hand-made brick, fire brick, roofing tile, sewer pipe, etc., also for boiler stacks, tanks, roofing, siding, and other special purposes. The Manufacturers' Equipment Company is composed of a bunch of hustlers and seem at all times to have in mind the interests of the clayworker towards a complete betterment of his conditions. It is such principles that make them and their products worthy of consideration.

KENTUCKY CLAY DEPOSITS.

Investigations of the clay deposits of Kentucky has been continued, and much matter for an additional bulletin on clays has been gathered. The excellent plastic fireclay of Rockcastle county occurs at the horizon of the New Livingston coal, in beds four feet to six feet in thickness above and below the coal where the latter is thin. The more notable occurrences are in the region between Mt. Vernon and Pine Hill, and south and southeast of the latter place. In his report on the county, F. Julius Fohs, mining geologist of Lexington, Ky., estimates that in the region indicated there are about 3,800 acres of the clay, and that if the average thickness, exclusive of the eight to ten-inch coal, be taken as six feet, there are over 11,000,000 tons of the clay. Technologic tests of very many carefully collected samples of clay, from various parts of the State, have been made by H. D. Easton, and a report of the work that has been done is nearing completion.

The visionary is the man who has no present. The drudge is the man who has no future. To be saved from being either—that can come only by joining a clear, sharp, solid work to large hopes and great ambitions.—Phillips Brooks.

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"GETTING THE MOST FOR A DOLLAR"
has been given as a definition of good engineering such as is done by

**The Richardson-Lovejoy
Engineering Company.**

[See page 822.]

FOR SALE, WANTED, ETC.

FOR SALE.

Will sell part or controlling interest in modern 40,000 stiff mud brick plant, located in city of 10,000 in the central west. Up-to-date oil burning system, new Raymond dryer and American machinery, with Eagle repress. Plant on main line of railroad running north, south, east and west. Ten acres of No. 1 shale. Within 30 miles of city of 75,000. No trouble to sell brick. Will bear investigation. Can show a good profit. Address
K. C. A.,
3 2 cm Care Clay-Worker.

For Sale, Wanted, Etc., Ads Continued on
pages 813, 814 and 815.

A QUALITY OF MACHINERY ABOVE ALL OTHERS.

Haigh's Improved New System of CONTINUOUS KILN

*Owned and Controlled by The American Clay
Machinery Co., Bucyrus, Ohio.*

**Arranged to Suit All Locations, Capacities and
Conditions.**

These kilns can be seen burning Roofing Tile, Drain Tile, Dry Press Facing, Fire, Paving and Common Building Brick, and burning from 5,000 to 200,000 brick per day.

Points of Superiority:

Cheapness in construction. Easy to understand and operate. Perfectly free from any nuisance. We save more than one-half the fuel and half the labor used on other kilns.

With our new draft flue arrangement we get absolutely the highest economy. Our new waste heat arrangement, both for water-smoking in the kiln, and for drying the brick in the dryer, has no equal.

We claim the nearest to 100% No. 1 product, and want you to see them.

Read the Following Letter from the Wise County Brick Company:

BRIDGEPORT, TEXAS, August 5, 1911.

Mr. H. Haigh, Catskill, N. Y.:

Dear Sir—We have your favor of 1st inst., and are handing you herewith check to balance our account, for drawings, specifications and rights for your system of continuous kiln. In this connection we desire to thank you for the many courtesies extended. Our relations with you have been very pleasant, indeed, and the kiln is a fuel saver.

Business conditions have been such here that we have not been crowded with orders this year, but even under these conditions we are now adding four additional chambers to the kiln, which will then give us twenty-four chambers.

With best wishes for your continued success, we are

Very respectfully yours,

WISE COUNTY BRICK CO.

J. V. Montrief, Sec'y.

(This kiln was constructed from plans and written instructions wholly; neither myself nor any of my men have ever seen it, yet the company has operated it successfully for two years, which is ample proof of the simplicity of the construction and operation of my kiln.—Hervey Haigh.)

**This Kiln can be fired with Coal, Oil, Wood, Natural
or Producer Gas.**

For further particulars and information address

The American Clay Machinery Co.
Bucyrus, Ohio, U. S. A.

H. HAIGH, Consulting Engineer.

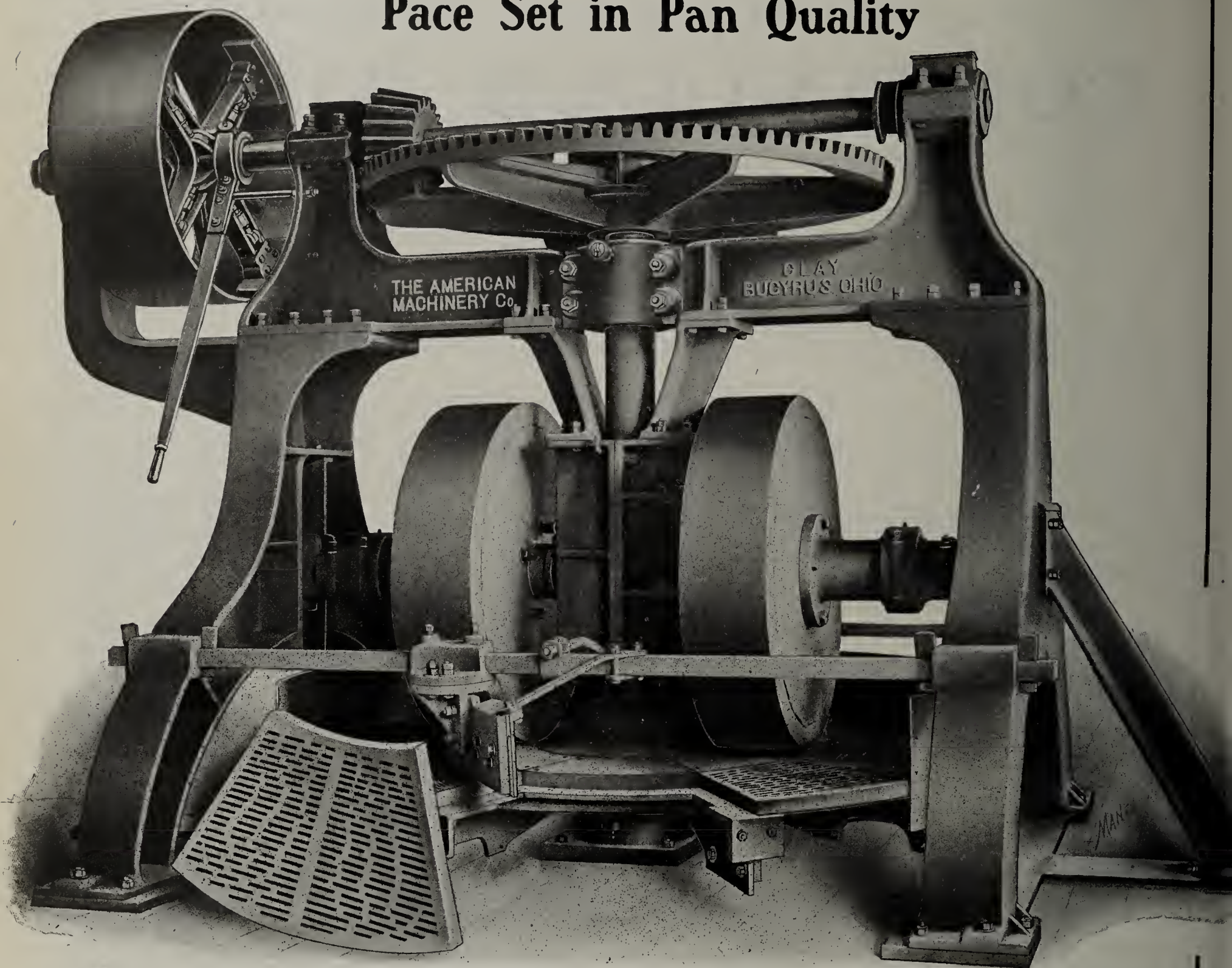
L. HAIGH, Manager Kiln Dept.

Much the largest manufacturers of Clayworking Machinery in the world. And much the best.



A QUALITY OF MACHINERY ABOVE ALL OTHERS.

Pace Set in Pan Quality



No line of Dry and Wet Pans on the market will measure up to the quality of the "Built Right Run Right" line.

There is no skimping in proportions to save metal, no saving in machine work to cut the cost, or shoddy work to save time. Every pan is correctly built and goes into the field with that promise of success back of it which is founded on proper design, flawless material and faultless workmanship. With these attributes of success built into these pans there is a quality value away beyond the price and a sure satisfaction to the purchaser.

Write for full information on any pan you may want or any machinery or appliances for making clay products by any process.

The American Clay Machinery Co.

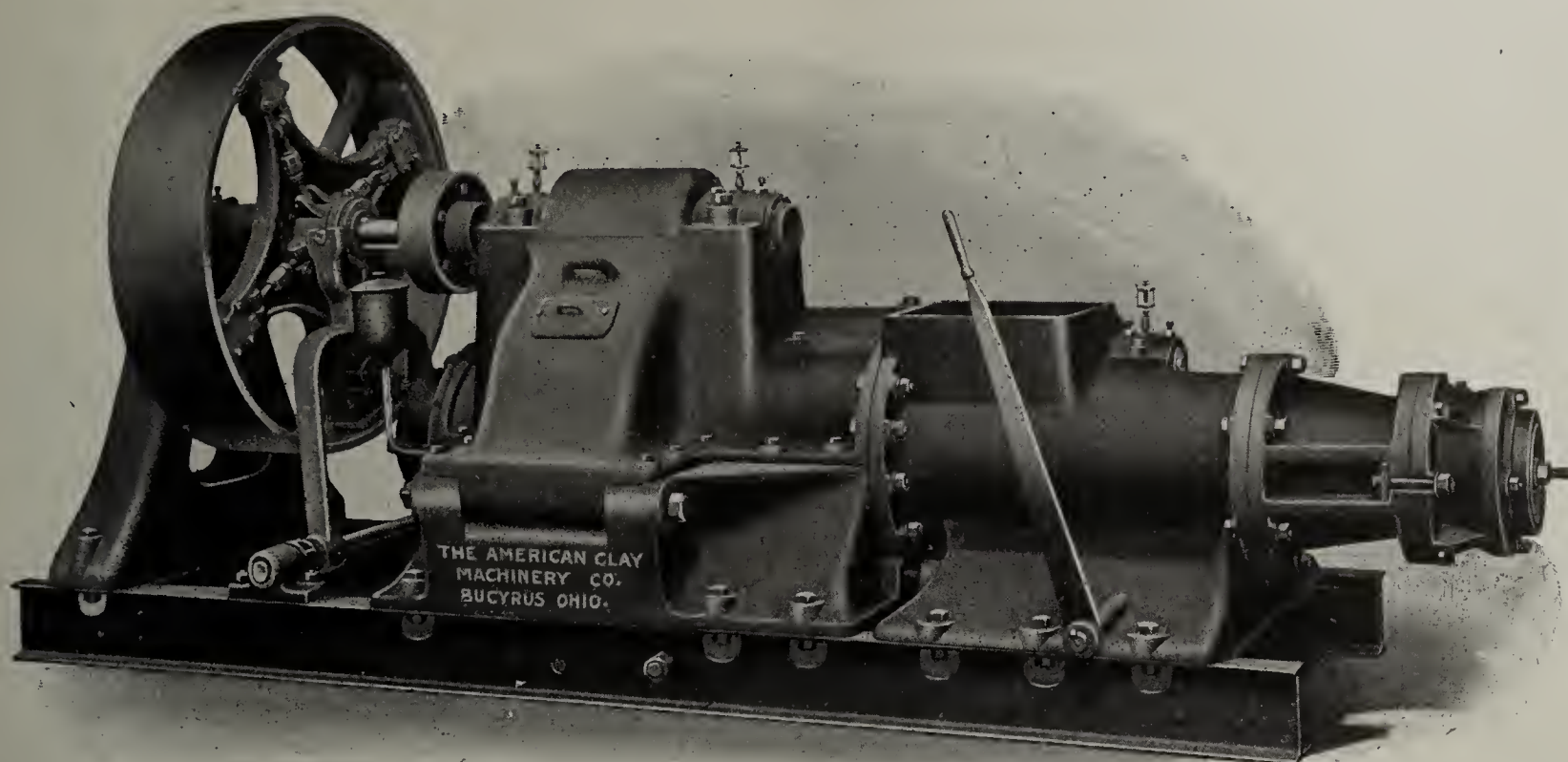
Bucyrus, Ohio, U. S. A.



Much the largest manufacturers of Clayworking Machinery in the world. And much the best.

A QUALITY OF MACHINERY ABOVE ALL OTHERS.

World's Greatest Tile Machinery



No. 218 Tile Machine

The World's Greatest Line of Tile Machinery is the absolutely new line just put upon the market by the American Clay Machinery Company. It is making good everywhere and has been installed by the largest manufacturers of Drain Tile and Fire Proofing in the country.

The first of this line was the No. 218, which was a record-breaker from the start. It makes tile up to the capacity of the plant, and that, too, without noise, fuss or waste of power.

The No. 231 and 233 are brothers of the 218, with the same racy quality lines which have won them pedigrees. The one is for those who consider economy in first cost, the other is the big brother of the 218, with a correspondingly wider range of sizes and capacities.

For those who want less capacity our Centennial and Acme, with newly designed augers, will prove satisfactory. These new augers can be installed in your present machine if you have a Centennial or Acme.

Our line of cutting tables, elevators, trucks, cars and other equipment for hollow ware is complete. Write for cuts and descriptions of these machines. We build everything in clayworking machinery and appliances.

The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.

Much the largest manufacturers of Clayworking Machinery in the world. And much the best.

THE KEYSTONE OF SUCCESS IN Steam Pipe Rack Dryers

We have a number of vital patents on the Steam Pipe Rack Dryer which are the Keystones of Success in the operation of this type of dryer so far as efficiency and economy are concerned. Those who are using our improved dryer are loud in its praise. It is at once a model of neatness, comfort, light and convenience and in its operation will distribute the heat to a better advantage

and at less cost than any other dryer of the kind on the market. This dryer has been selected by those careful to investigate and has won out in competition with all others. One user says: "We have used your dryer long enough to convince us that its success is complete and its operation will be a decided economy. Brick made one day



are set in the kiln next day uniformly dry throughout entire holding capacity of dryer, which means a considerable saving in burning. We dry with exhaust steam during day and finish with 5 to 10 lbs. live steam during night. Cost of drying with our hot air dryer was 65 cents per thousand. With your dryer it is 25 cents. We believe you have the best dryer on the market."

Let us figure with you on one of these dryers or any other Clayworking Machinery or appliances.

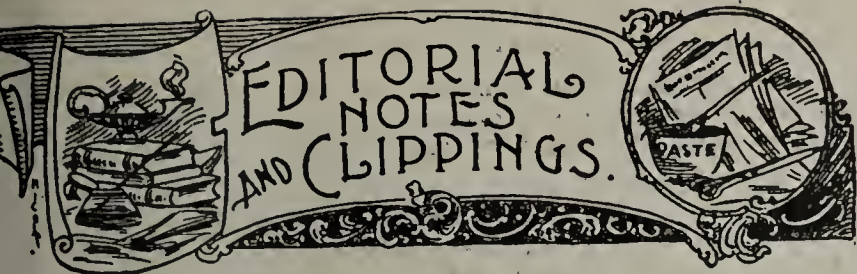
Send for Pipe Rack Dryer Catalogue Just Out.

The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.



Much the largest manufacturers of Clayworking Machinery in the world. And much the best.



E. Bradford and F. Harkley will build a small brick plant at Elmira, Ore.

Z. T. Norwood, of Wildorado, Texas, will establish a plant at Plain View for the manufacture of drain tile.

The plant of the New England Brick Company, located at Epping, near Fremont, N. H., was damaged to the extent of \$3,000 by fire recently.

Oren D. Person, a brick contractor and dealer of New York City, recently filed a voluntary petition in bankruptcy, alleging liabilities amounting to over \$151,000.

Walter Bragg, forty-five years old, foreman of the Pea Ridge Brick and Tile Company, at Richmond, Mo., was caught in the machinery at the plant and killed almost instantly.

The stable of the Independent Brick Company at Baltimore, Md., was burned to the ground recently and thirteen horses were burned to death. The loss is estimated at between \$6,000 and \$10,000.

The Silica Brick and Tile Company, of Watertown, N. Y., has been incorporated with \$75,000 capital stock. The incorporators are W. H. Gardner and J. F. LaRue, of Philadelphia, and O. Watson, of Watertown.

Sherman Carnahan, an employe of the Ohio Valley Clay Company, at Empire, had his right hand taken off at the wrist while preparing dynamite for use in the clay mine. He sustained other minor injuries, none of which proved serious.

Donely Brothers, of Washington, Pa., have purchased the Shepherd brick plant at Hammondsburg, Pa., owned and operated by Michael Shepherd for nearly twenty years. The new owners will install additional machinery and operate the plant on a large scale.

The R. G. Eisenhart Brick Company, of Horseheads, N. Y., is making plans for the construction of a tramway from its clay beds to its works. It will be a large and expensive piece of construction work but it will make easy and reduce the cost of transporting the shale from banks to works.

G. M. Boyd & Sons, of Knob Noster, Mo., who have been conducting a brick and tile works at that place for a quarter of a century, have formed a stock company capitalized at \$175,000 and will enlarge their plant by adding a gas fired continuous kiln and installing new dry press brick machinery.

Gus T. Smith has purchased the interest of Frank B. Hill in the brick plant of Hill & Smith, at Paducah, Ky., and will in the future be general manager of the concern. The company has been reorganized and the officers are W. E. Smith, president; B. Smith, vice-president, and Gus T. Smith, secretary and treasurer.

The Ostrander Fire Brick Company, of Troy, N. Y., which started business in 1848, will close its plant in June and remove from that city. The company will retain an office in Troy, but the manufacturing end of the business will be carried on at Ostrander, N. J., where the firm operates a large plant. Keen competition and heavy cost of transporting raw material from New Jersey is given as the reason for the removal.

Suit has been filed against the W. S. Dickey Clay Manufacturing Company, Kansas City, Mo., by Mrs. Louise Moudon. She asks \$3,000 damages alleging that the death of a son, aged fourteen, was due to the carelessness on the part of the company in that they allowed her son, in company with other boys, to loaf around the plant, and that during one of these visits the boy had his head crushed in the machinery and was fatally injured.

The Findlay Brick Company, of Findlay, Ohio, has been organized with a capital stock of \$30,000 to take over the plant of the Findlay Hydraulic Press Brick Company. The land of the latter contains about forty acres. A new plant of 50,000 daily capacity will be erected and work on same will be begun at once. The incorporators are E. C. Edwards,

E. E. Jackson, M. E. Beardsley, David Kirk, Jr., and P. W. Ewing.

Arthur Pratt is making preparation to start a drain tile factory at North Athens, Tenn.

S. C. Beck, of Alliance, S. D., contemplates establishing a brick plant at Edgemont, S. D.

Spaulding & Sons is the name of a new firm which will establish a brickmaking plant at Paris, Tenn.

The Marion Allen Supply Company has taken over all the property and business of the Newport Brick, Coal and Supply Company, of Newport, Ky.

The National Clay Company, of Wilmington, Del., has been incorporated with \$100,000 capital stock. The object of the company is to deal in potters' clays.

George D. Widener, one of the unfortunates who went down with the illfated Titanic, was an active director of the Jarden Brick Company, of Philadelphia, Pa.

The Purington Paving Brick Company of Galesburg, Ill., resumed operations April 29th after having been closed down for a week on account of scarcity in coal supply.

B. W. Bennett & Co., Muncie, Ind., has been incorporated with \$10,000 capital stock to manufacture brick and clay products. The directors are B. W. Bennett, P. K. Morrison and A. D. Paden.

A new Arkansas company recently incorporated is the Lockesburg Brick Company, of Lockesburg, Ark. The officers are R. A. Gilliam, president; J. E. Leiper, vice-president, and R. S. Hunsicker, secretary and treasurer.

C. T. Marshall has been appointed receiver for the Fultonham Brick Company, of Fultonham, Ohio. The liabilities are \$66,000. The receiver is not authorized to operate the plant, so it is presumed that it will be sold at an early date.

The Sidney Island Brick and Tile Company, at Sydney Island, B. C., will make a number of improvements in its plant, including the erection of a large continuous kiln of 40,000 capacity. In addition to this they will also build two down draft kilns.

Hoge Mason, of Bloomfield, W. Va., has purchased the Bradford Brick and Tile Company, of Tip Top, W. Va. The company will be known in the future as the Tip Top Brick Company and the capacity of the plant, which is now about 8,000,000 brick per annum, will be greatly increased.

Allen Butler, the general manager of the Fuller Brick and Slate Company, Pine Grove Furnace, Pa., writes that his company has discontinued the manufacture of brick and would like to correspond with parties in the market for good second hand machinery, including engines and boilers, pans, dry presses, etc.

The Black Hawk Clay Manufacturing Company, of Davenport, Iowa, has purchased the clay lands and plant of the Lehigh Clay Manufacturing Company at Lehigh, Iowa. One of the Lehigh plants will be operated exclusively in the manufacture of ornamental press brick, while fireproofing will be made at the other plant.

The Mansfield Clay Products Company has been organized at Mansfield, La. The officers of the company are Jos. R. Brown, president; T. A. Snell, vice-president and manager, and J. F. McFarland, secretary and treasurer. The authorized capital stock will be \$100,000, \$40,000 of which is to be put in before the company begins operation. A tract of land with unlimited deposits of very fine clay has been procured. The company will manufacture hollow tile as well as brick.

The Nova Scotia Clay Works, Ltd., with head offices at Halifax, Nova Scotia, has recently been organized for the purpose of taking over, enlarging and extending a half dozen or more brick yards in that province. A majority of the company's plants are situated on tide water and can ship both by water and rail. The production of the company's plant at Pugwash, Nova Scotia, is being greatly enlarged and a new plant with every modern facility is being erected at Annapolis, N. S. All the yards are supposed to be strategically situated for economy of manufacture and the minimizing of freight rates in reaching the large consuming markets. The company is in good hands. The management is active, experienced and competent. R. L. McDonald, formerly president of the Maritime Clay Works, Ltd., is the vice-president and managing director of the new company. Mr. F. S. Coombs, with offices at 98 Granville

(Continued on next page.)

EDITORIAL NOTES AND CLIPPINGS—Continued.

street, Halifax, Nova Scotia, has been appointed secretary and sales manager.

The Michigan Roofing Tile Company of Detroit, Mich., has been incorporated with \$25,000 capital stock. Frank A. Hesse is the chief stockholder.

The South Side Brick Company, of Chicago, Ill., has been incorporated with \$110,000 capital stock. The incorporators are N. Goldzier, L. G. Costello and E. W. Froelich.

A charter has been granted the Shute Brick Company, of Monroe, N. C., to manufacture, sell and deal in brick. The incorporators are J. T., C. W. and J. E. Shute.

Herman C. Mueller, president of the Mueller Mosaic Tile Company, of Trenton, N. Y., was recently elected a member of the board of school commissioners of that city.

Julius A. Rothan has been appointed receiver of the Fischer Veneer Tile and Manufacturing Company of Zanesville, Ohio. Mr. Rothan will continue the operation of the plant.

Austin Comer has taken over a large interest in the Athens (Ga.) Pottery Company, and will in the future devote his entire time to the business. His associates are W. A. and T. R. Harsha.

Morgan T. Smith, of the Elgin (Texas) Brick Company, has recently purchased two hundred acres of land near Hoyt, Texas, and will organize a company for the purpose of erecting a brick plant at that place.

L. V. Halverstadt, of the Reading Shale Brick Company, of Reading, Pa., has under contemplation the purchase of the Royalton shale brick plant. New kilns will be built at the plant and a number of other important changes will be made in the plant.

Plant No. 3 of the Baltimore Brick Company, of Baltimore, Md., was destroyed by fire May 6th. The flames started in the machine house and before they could be controlled had damaged the plant to the extent of \$8,000. The loss is fully covered by insurance.

A new company under consideration at East Liverpool, Ohio, is the Pittsburg Tile and Manufacturing Company, which is to be incorporated with \$50,000 capital stock. E. P. Lippincott, a brick manufacturer of Greensburg, Pa., Wallace Miller and Robert Thompson, of Pittsburg, Pa., are interested.

Otto G. Raymond announces the severing of his connection with the sales office of the Hydraulic Press Brick Company at Baltimore, Md. Mr. Raymond assumed the management of the face brick and architectural terra cotta department of the Buffalo Builders' Supply Company, Ellicott Square, Buffalo, May 1st.

S. T. Bruce writes that together with a number of others he has organized a company at Wahoo, Neb., to be known as the Mid West Clay Manufacturing Company, which is capitalized at \$25,000. The company has ordered machinery for their plant from the American Clay Machinery Company and expect to be in operation in the near future.

H. S. White, of New Kensington, Pa., has purchased a tract of land containing a fine deposit of clays from H. Frank Boyd, of Tarentum, Pa., on which he will erect an immense brick plant. The site fronts on the river and in addition to that the railroad shipping facilities are unexcelled. Work will be started on the plant in the very near future.

The big brick plant of the Indiana Brick Company, at Anderson, Ind., was practically destroyed by fire early in the morning of May 3, causing a loss of about \$100,000. In addition to the plant about twenty-five freight cars which were standing on a siding near by were also injured. The plant, which employs about 200 men, was insured for fifty thousand dollars. Mr. Stillwell, president of the company, has announced that the plant will be rebuilt at once.

A valuable and inexhaustible supply of shale has been discovered on the property of W. J. Tregillis, of Calgary, Alberta, Can. Mr. Tregillis spent several months in investigating and studying the modern clayworking plants of Canada and the United States and will erect one of the largest and most modern clayworking plants in Canada. It is the intention of the company which has been formed to manufacture a wide line of clay products including common, face and paving brick, roofing tile and terra cotta. W. G. Wor-

cester, of Columbus, Ohio, will have charge of the construction and management of the plant.

A charter has been granted to the Herman Brick Company, of Pendleton, Ga. Those interested in the company are J. T. Harmon, S. T. Buchanan and J. A. Hudgens.

The Detroit Roofing Tile Company of Detroit, Mich., has issued \$50,000 in bonds, the proceeds of which will be used for extension and betterment of the plant and to provide additional working capital.

The Vancouver Island Clay Products Company, Ltd., of Vancouver, B. C., has been organized and will erect a \$40,000 plant for the manufacture of common and face brick, sewer and drain pipe, roof and floor tiles.

J. M. Russell, who has operated the Storm Lake Brick and Tile Works at Storm Lake, Iowa, for more than twenty years, has sold the plant to C. S. Skewis and E. W. Oates. The new owners will make a number of improvements in the plant, namely, enlarging the capacity of same.

Paul Pfotenhauer, for many years the head of the Pfotenhauer-Nesbit Brick Company, of New York City, died May 9th in Berlin, Germany, where he was born and where he had made his home for the last three years. Mr. Pfotenhauer was sixty-two years old and had spent forty years of his life in America.

The Richards Brick Company of Edwardsville, Ill., report that they have under way extensive improvements at their plant which when completed will make it one of the best in that part of the country. They are erecting a continuous kiln and building a narrow gauge railroad for the purpose of transporting their clay.

Wm. H. Grothe, who has operated the plant at York, Pa., for many years, will erect a new plant which will be one of the largest and best equipped in the city. While he will use as much of the material from the old plant as possible, new machinery will be installed wherever it is found necessary. Three kilns are now under course of construction.

A novel scheme of advertising was recently employed by the National Brick Company of LaPrairie, Quebec, Can., when they gave a parade consisting of eighteen new teams for the purpose of demonstrating to the public that they are well equipped with powerful horses and modern dumping and carting apparatus and entirely competent to deliver all brick orders promptly.

Frank W. Butterworth, general manager of the Western Brick Company, of Danville, Ill., advises us that a notice printed last month to the effect that the Western Brick Company had purchased the plant of the Burlington Brick Company, at Aledo, Ill., is in error, as they have no connection whatever with the new plant. Mr. J. L. Buckley, who will have charge of the plant at Aledo, was formerly associated with the Western Brick Company.

The Curtis Brick Company, of Chicago, has been organized with a capitalization of \$200,000 cumulative seven per cent preferred stock and \$300,000 common stock, and has taken over the plant of the Beecher Brick Company, at Beecher, Ill., assumed the controlling interest in the Manteno Brick Company's plant at Manteno, Ill., and the brick plant at Archer and California avenues, Chicago. All three of these plants are really in the Chicago district and are using the Penfield patent brick handling machine, and have a combined annual output of about 80,000,000 brick.

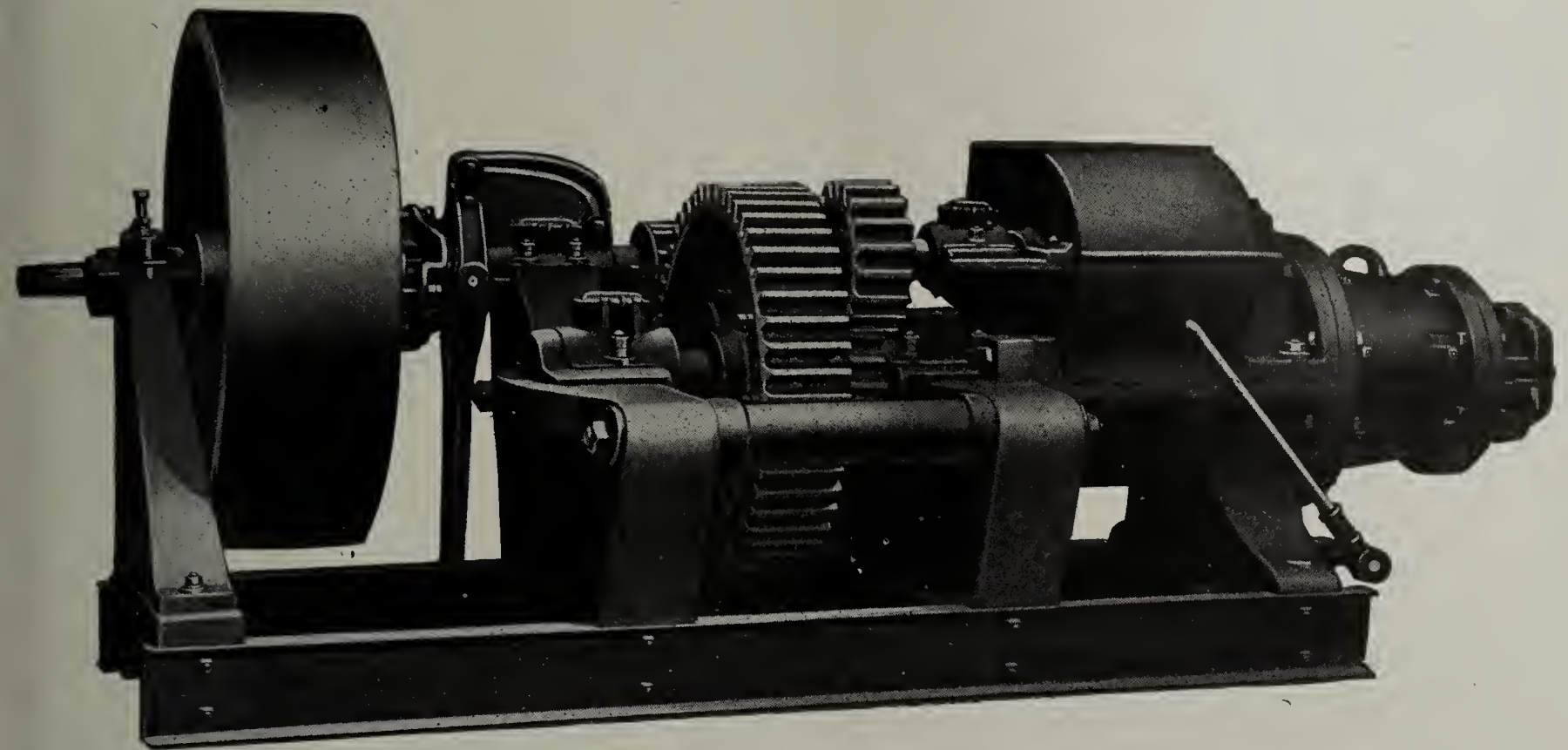
The Chestnut Ridge White Brick Company of New York, has converted \$50,000 of its \$100,000 capital stock into seven per cent cumulative preferred stock with which to retire \$50,000 of bonds on its plant and property at Kunkletown, Pa. As the stockholders hold nearly all the bonds, this is an easy matter. The Company owns the plant, which is well known for its high grade of light colored brick, together with over 900 acres of land, a hotel and a number of high class dwelling houses on the main street, a large ice dam and other valuable property.

F. JULIUS FOHS

Mining Geologist and Engineer

EXAMINATIONS of CLAY PROPERTIES

LEXINGTON, KY.



Model "G A" Auger Brick Machine

In general design, this machine is similar to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and avoiding the use of high speed gears. The result is less wear and tear on gearing, less noise, less power lost through gear friction and consequently less expense for maintenance. Owing to the slow speed, the operation is unusually smooth and quiet. There is very little vibration to work loose nuts and keys. It is a reasonable conclusion that an almost noiseless machine will require less care and last longer than one which is continually shaking itself to pieces.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled for the foundation bolts, thus providing a very rigid construction. The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

This type of machine is built in several sizes—further particulars on request.

E. M. FREESE & COMPANY, Galion, Ohio

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



FROM ALL OVER the State of California come reports of a great deal of new public improvement work, especially in connection with roads, sewer and water systems. It is safe to say, though no complete estimates are yet available, that there is more work of this character now in contemplation on the coast than in any previous year. The sewer pipe factories are running full force in most cases and there seems to be little difficulty in finding a market for all high class vitrified pipe, especially in the sizes under thirty-six inches in diameter. Prices for vitrified pipe are very conservative, really too low for comfort, but it is expected that conditions will improve in this respect before a great while. Contractors are figuring close and all new work is being sought under conditions of keen competition.

The Pacific Clay Products Publicity Bureau, under the management of Frederick C. Davis, an experienced civil engineer as well as an expert on clay products, is gradually extending its educational work all over the coast territory. This bureau is always ready to supply towns and cities with expert information regarding the cost and merits of different materials for sewerage systems, as well as information on advanced methods of sanitation and municipal engineering. Mr. Davis makes frequent trips over the coast country to study local conditions and confer with officials of municipalities in regard to public improvement work, etc. Since the bureau was started, less than two years ago, the merits of clay products have been widely exploited and the interests of the industry materially advanced. The office of the bureau is 312 Crocker building, San Francisco.

Fire brick is commanding most satisfactory prices. Prices on this product are holding firm at from \$28 to \$30 per thousand. Common brick are still selling at the usual figure and the market has naturally expanded with the advance of the spring building season. Practically all the prominent brick yards are operating large forces, and numerous small yards are turning out brick for purely local markets. The demand for face brick is about as usual, none too brisk, but promising to pick up. The situation in terra cotta is still rather discouraging, though in the specifications of several large buildings to be erected this season, there is a large quantity of terra cotta mentioned.

San Francisco this month shows great activity in the building trades, but there is not a great deal of money being made on account of the close figuring on contracts. New flat and apartment buildings are being erected in all quarters of the city, and in the downtown district about a dozen large structures are in the course of construction. No new work of exceptional importance has yet been announced. A rather large percentage of all new buildings, except those of the smaller type, are being built of reinforced concrete. The ground plans for the world's fair have now been definitely decided upon and the architects are busy preparing plans for the various buildings. Architects are also engaged upon plans for the new city hall and civic center group. Labor conditions here have eased up somewhat, but there are still too many idle mechanics in most trades.

Among the different California cities that have taken into consideration plans for sewer improvement recently are the following: Maricopa, Cal., has voted, by a large majority, to issue bonds to the amount of \$16,000 to pay for a new sewer system in which vitrified sewer pipe will be used. C. P. Jensen, city engineer of Fresno, has planned the system and is to have charge of the construction work. Colfax, Cal., is considering plans for a new sewer system and the matter is being investigated by U. S. Marshall, a civil engineer of Colfax. Sisson, Cal., has just voted \$15,500 to be expended in sewer improvements in which vitrified pipe will be employed. In Oakland, work has been commenced on a sewer system for the annexed district. In all about seventy miles of vitrified pipe in 18, 21 and 24-inch sizes will be used before the work is completed. The only con-

crete being used is for some of the large outfalls of 36-inch diameter and up. These are of plain concrete built on forms in the bottom of the trenches and have walls six inches thick of a very wet, dense mixture. The principal contractors now at work on this system are Chambers & Heafey and Dahnke & Smith. The system will cost, when complete, in the neighborhood of half a million dollars. The contracts for supplying the vitrified pipe were divided between three San Francisco concerns, the Steiger Terra Cotta and Pottery Works, N. Clark & Sons and Gladding, McBean & Co. Taft, Cal., is preparing for a bond election in which it is almost a foregone conclusion that \$25,000 will be provided for to construct a modern sewer system.

The name of the Old Windsor Pottery Works, of Oakland, has now been changed to the California Pottery Company, and the affairs of the concern have been placed on a firm basis through a recent reorganization. The company has its main office at 836 Phelan building, San Francisco, and the manufacturing plant at East Twelfth street and Park avenue, Oakland, has been remodeled and its efficiency enhanced by the installation of much new machinery. F. L. Pritchard continues as manager of the company. P. Mehan, the sewer pipe expert, who is well known to the trade as the former manager of the sewer pipe plant of the Carnegie Brick and Pottery Company, is in charge of the sewer pipe works and is turning out a product strictly high class.

The California Pressed Brick Company, whose plant is at Niles, Cal., started up on April 22. Louis H. Mueller, formerly with the Denny-Renton Clay and Coal Company, of Seattle, Wash., is in charge.

The property of the Silica Brick Company, of Sacramento, Cal., which has been taken over by the Sacramento Clay Products Company, is soon to be put in running order, says George H. Emery, the manager, who is now engaged in raising a fund of \$20,000 for that purpose. The Silica plant is only two-thirds completed at present, but with the company completely reorganized and more money available, it is expected that not only will the works be finished up, but producing, before the season is over. The new directors of the company are B. F. Walton, of Yuba City, Cal., president; J. P. Dargitz, of Sacramento, vice-president; T. C. Tucker, of Sacramento, secretary, and H. R. Thompson, of Sacramento, and R. Lauppe, of Antelope, Cal.

Two companies recently incorporated at San Diego, Cal., are the Tracy Ornamental Brick and Tile Company and the Reinforced Hollow Tile and Concrete Construction Company.

Hegardt Brothers & Elliott are looking into the machinery question with the view of manufacturing brick at Terrebonne, Ore.

The Jacksonville Brick and Tile Company has been incorporated at Jacksonville, Ore.

An after-luncheon talk on the advantages of vitrified brick as a paving material for streets was the feature of the luncheon of the San Francisco Chamber of Commerce, held April 24 in the red room of the St. Francis hotel. The Chamber of Commerce is the leading business men's organization, and its opinion will have great weight with the city authorities. George W. Kummer, representing a paving brick firm of Seattle, Wash., was the principal speaker, and at the conclusion of his remarks the downtown committee of the organization was unanimous in recommending that his offer of enough brick to pave one city block be accepted and acted upon by the board of public works. F. E. Carroll, chairman of the street committee, was delegated to take the matter up at once with the board. The block which was recommended to be paved is on Powell street, between Ellis and O'Farrell streets. Mr. Kummer declared that brick paving has been a pronounced success in Seattle, and that many blocks there have stood the test for a score of years. He also said that in 1911 more than 340 square miles of such paving was laid in 460 cities of the United States, and that in every instance it received the hearty approval of the business men and the fire departments. SUNSET.

San Francisco, May 5, 1912.

ALTON BRICK COMPANY

Makers of High Quality Brick for

Roadways and Permanent Buildings.

Repressed and Dunn Wire-Cut-Lug Block.

ALTON, ILLINOIS.



Barrett's PAVING PITCH



Wentworth Ave., at 55th St., Chicago, Ill., Filled With Barrett's Paving Pitch in 1897.

Monolithic Strength is False Strength

A monolith is the last thing that is desirable as a street pavement. Using cement as a filler for brick is to attempt to prohibit the expansion of the brick except at the same rate as the cement. Expansion joints are rarely adequate or completely effective. Accordingly, cement-filled pavements explode by expansion and tear by contraction.

Such a pavement, moreover, makes no allowance for settling of the foundation, a certain amount of which is inevitable. When the earth foundation settles, the brick stays up and arches over the depression and then breaks, making dangerous, troublesome and unsightly cracks.

The right way to use brick for a city pavement is to lay it in a matrix of pitch—"Barrett's Paving Pitch." Pitch is plastic—not too much so—but just enough. It will stay in position for 20 years or more, maintaining a waterproof protective seal throughout the whole pavement. It supports the brick sufficiently to keep it to its work and prevents shifting and grinding.

The best pitch filler, the only kind of pitch in fact especially made for paving purposes, is Barrett's Paving Pitch.

Booklet showing the record of Barrett's Paving Pitch in various cities will be forwarded free on request.

BARRETT MANUFACTURING COMPANY

New York	Chicago	Philadelphia	Boston	St. Louis	Cincinnati	Cleveland
Pittsburgh	Minneapolis	Kansas City	New Orleans	Seattle	London, England	

Editor CLAY-WORKER:

PITTSBURG NEWS NOTES.



IMPROVEMENTS aggregating more than \$15,000,000 which will be made in Pittsburgh during the coming year, will mean a boom in the brickmaking industry and allied construction interests. Bids will be asked for shortly on the reconstruction of the "Hump," a work in reducing the grades of certain streets in the downtown business district, on which the city will spend more than \$600,000, and which will necessitate alterations, repairs and improvements to abutting private property which is estimated by engineers at \$10,000,000. The contract has been awarded to the Thompson-Starrett Company, of New York, for the erection of a new \$3,500,000 hotel on the site of the old Monongahela House, and the Pittsburgh Railways Company has just announced improvements which call for the expenditure of several millions.

Brick and fireproof material will be called for in practically all the buildings which necessarily must be altered or rebuilt as a result of the change in the grade following the cutting of the "Hump." Sewer pipe in immense quantities will be required. The amount estimated by the Pittsburgh Department of Public Works for the re-establishment of the sewer system is \$111,330, besides the additional cost of private connecting lines.

The new hotel will be a twelve-story structure of brick and terra cotta. It must be completed February 1, 1913, according to the contract. It will have 650 rooms, a roof garden and a banquet hall and ball room capable of accommodating 2,000 persons, and will be suitable for conventions. The old Monongahela House, a landmark in Pittsburgh for more than three-quarters of a century, will be razed at once to make way for the new structure. Many of the world's most famous men have spoken from the old hotel's balcony, including King Edward VII, when he was Prince of Wales, Henry Clay, Abraham Lincoln, Gen. U. S. Grant, William McKinley and Theodore Roosevelt.

Under the auspices of the Art Society of Pittsburgh, an exhibition of artistic industries is being held in the art galleries of the Carnegie Institute. Among the displays are exquisite samples of ornamental brick work and mosaics, ceramics and clay modeling. From the Vase-Kraft studio the Fulper Pottery Company, of Flemington, N. J., shows more than thirty articles which add to the attractiveness of the gallery of clay work. Among these are three lamps of mushroom shape, one of Alice blue, one of leopard skin crystal and another of cucumber green. Exhibits of no less interest are those of the following: L. Waring, Penman & Hardenburgh, Walrath pottery, Marblehead pottery, Glentor pottery, and Volkmar pottery.

The twentieth annual exhibition of the Duquesne Ceramic Club, of Pittsburgh, will be held in the Carnegie Institute next November. At the annual meeting of the club, March 4, Miss Myra L. Boyd was re-elected president. The other officers elected were: Mrs. J. Fisher Motz and Miss Mabel C. Farren, vice-presidents; Mrs. L. F. Price, secretary, and Miss Marian Cowen, treasurer.

John H. Brooks, of Beaver Falls, Pa., has ordered machinery for the brick plant he has erected at Eastvale, near Beaver Falls. He will develop a large tract of land on the banks of the Beaver river. It is underlaid with clay from which high grade vitrified brick are being made.

Plans will be completed shortly by Architects Palmer & Hornbostle for a large brick and terra cotta building to be added to the Carnegie Technical Schools group in Pittsburgh. The structure will be of irregular shape about 200 by 240 feet, and four stories in height. It will be known as Mechanical Hall and will accommodate the power plant and the departments of electrical and mechanical engineering in the School of Applied Science.

A loss of from \$125,000 to \$150,000 was suffered by the East Palestine Pottery Company, of East Palestine, Ohio,

when fire broke out early on the morning of May 6. The loss is partly covered by insurance. The plant was almost entirely destroyed. The origin of the blaze is not known. At a meeting of the stockholders, to be held soon, it will be decided whether the plant will be rebuilt or not. This is made necessary because of the large loss.

At the annual meeting of the National Fireproofing Company, held in this city last month, President W. D. Henry stated that the business for February was the largest in any one month in the history of the company. During that month 2,000 tons of material was shipped to Panama. The government has also ordered extra work from this concern. The company has also secured the contracts for New York conduits. From 1906 to 1911 the earnings of the company have been \$2,921,000, of which \$1,343,000 have been paid to stockholders as dividends. J. B. Finley presided at the meeting. These directors were elected to serve for the ensuing year: D. F. Henry, J. B. Finley, John R. Gregg, James J. Booth, W. A. Dinker, E. H. Straub, John H. Jones, T. Hart Given, Hay Walker, Jr., W. D. Henry, Henry M. Keasbey, E. V. Johnson and R. W. Alison. These constitute the old board, with the exception of W. A. Stone, who asked to be relieved.

W. A. Shaw, for many years manager of the East Liverpool, Ohio, office of Robert Gaertner, tendered his resignation recently to accept the position of assistant general manager of the Canonsburg Pottery, at Canonsburg, Pa. Mr. Shaw's resignation caused City Auditor R. L. E. Chambers, of East Liverpool, to hand in his resignation to take the position. James Kinney was sworn in to take the place of Mr. Chambers for the unexpired term.

The Pittsburgh Tile and Manufacturing Company, of which E. T. Lippencott, of this city, is head, has broken ground for its new factory in East Liverpool. The site, which overlooks the Ohio river, is near the Ohio-Pennsylvania State line. The building will be completed by July 1. Almost 100 men will be given employment.

The Bickford Firebrick Company has moved its general offices from Curwensville, Pa., to the First National Bank building, Pittsburgh. The establishment of headquarters in Pittsburgh was made necessary by the growth of business in the Pittsburgh industrial district. J. A. Bickford, general manager and treasurer, will remain in immediate charge of the plant at Curwensville, while S. M. Bickford, secretary and assistant manager, and J. M. McKinley, sales manager, will have charge of the Pittsburgh offices. This firm has just completed extensions to its plant and now enjoys the distinction of possessing the largest fire brick works under one roof in the United States. The daily capacity is 110,000, and 450 men are employed.

Mr. Henry Leighton has been promoted from instructor to assistant professor of economic geology at the University of Pittsburgh. He will also have charge of the department of ceramics. The courses in ceramics have been rearranged and new laboratory equipment is being obtained.

H. Bailey has been appointed assistant manager of the east end plant of the Homer Laughlin China Company, of East Liverpool, Ohio.

A. SMOKER.

Fred E. Dukes writes that he is organizing a company for the purpose of erecting a large common brick plant to be erected in the vicinity of Dallas, Texas. They will manufacture by the stiff mud process and will be glad to receive catalogues and price lists from stiff mud brick machine manufacturers.



PULSOMETERS

costs less to purchase, install and operate than any other type of brickyard pump. They handle gritty water and never need lubrication. Over 26,000 in use for pumping out trenches, caissons, cofferdams, clay banks, sand pits, etc. Write today for our "Pulsometer Handbook. It shows many novel installations and contains data on pumping problems.

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Chicago Office: 223-231 North Jefferson Street

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DRYING

The BOSS TEN HOUR DRYER

is completed and has proven to be what every brick-maker is striving for:

A DRYER THAT WILL DRY BRICK IN TEN HOURS.

Your brick are dried exclusively with the exhaust from the engine that makes the brick. No extra fuel and no extra power required.

A dryer that does not have to be operated at night time.

Requires no expensive dry kiln, and no iron cars.

Cost of drying reduced to less than 4 cents per thousand.

TRIAL TESTS CAN BE MADE ON APPLICATION.



JOHN C. BOSS COMPANY
Write for catalog.

ELKHART, IND.



BURNING

Do you want to burn hard coal, culm, lignite, slack or screenings? There is just one way to do it, and that is by using air under pressure, which is

The BOSS System of Burning Brick

Burns all kinds of Brick and Clay Wares.

Applies to both Up-draft and Down-draft Kilns and

Will reduce your fuel cost fully 40% over the old way of burning.

Kilns last longer and give better service when equipped with the BOSS SYSTEM.
Try it.



Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.



BUILDING is still going a trifle more slowly than some would like to see, but improvement is to be noted right along. Large enterprises are characteristic of current development.

A huge administration building for the growing firm of Butler Brothers is one of the largest projects, construction work on which will be set under way immediately. It will fill the entire block along Canal street between Randolph and Lake streets and will cost in the neighborhood of \$1,750,000. It is to be fourteen stories in height, with an exterior of rough red brick, granite and terra cotta. As a precaution against fire a massive fire wall will divide the building into two sections, each of which will be provided with a sprinkler system. A portion of the structure will be devoted to the manufacture of packing boxes. The building will be equipped with a ventilating system. One feature will be an attractive restaurant divided up for the use of the administration heads and the employes. Warm red tiling and rough brick walls will give an effect of warmth and homelikeness. This restaurant will be built on the roof, under cover, with grill room, cafeteria and lunch room accommodations and with separate lunch rooms for women. A covered passage, screened in summer and enclosed and heated in winter, will be built along the sides of the restaurant, affording an outlook far over the city. A smoking room for men, a rest room for women, a reading

room, locker rooms, toilet rooms and indoor courts and playgrounds, all of sanitary construction, made possible by the use of vitrified and glazed clay products, also will be a part of the building, which has been planned by D. H. Burnham & Company.

Hopes are beginning to be entertained that the building world will get through the season fairly free from labor troubles. Just at present the daily press is having its share of this kind of disagreeable experiences and, strangely enough, the general public is not shedding many tears, even though being obliged for several days to go to the inconvenience of not having their accustomed supply of news or gossip. Apparently there is no shadow of legitimacy on the side of the striking pressmen, stereotypers and newsboys and drivers, but to a responsible public and most of the reading and thinking public is responsible and substantial, it is one of life's little compensations that the big newspapers should have "handed to them" that which, by direction or indirection, they have been handing to many others in days gone by. Most of the newspapers have been always prone to give the employer the raw end of the stick in every strike. Many of them, making a practice of being for everything that comes along, in the frantic hope of striking popular chords, have been clamoring for the initiative. Everybody knows that the vital forces behind the demand for this brand of direct legislation have been the labor agitators, who openly admit that they would use it to wipe out the injunction laws. Now, some of these same newspapers have been obliged to run to the injunction for cover within the last few days.

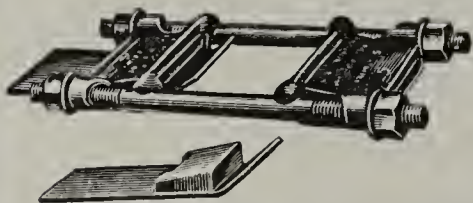
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SEE WHERE THE ARROW POINTS—

It Shows the Simple, Effective Door Frame Connection of the

TECKTONIUS LUG

It is "penny wise and pound foolish" to try and adapt someone made, troublesome, unsafe, makeshift for banding your kilns. The Tecktonius Lug is

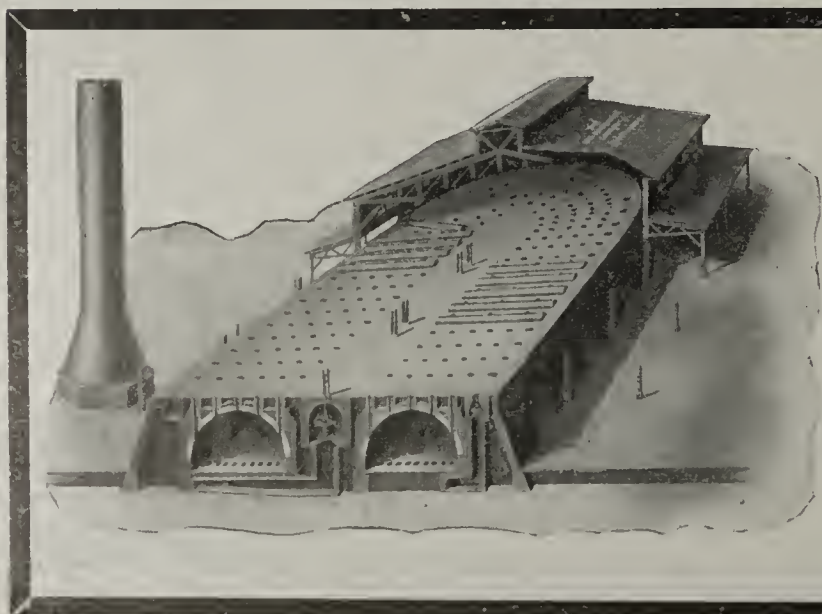


**Cheaper, Stronger,
Safer, Neater,
Easier Attached and
Lasts as Long as the Bands**

Write for our booklet "Lug Facts"

E. C. TECKTONIUS MFG. CO.

Racine Junction, Wis.



**REGENERATIVE
CONTINUOUS TUNNEL KILN**
for
CLAY PRODUCTS.

The Gas Machinery Company
Cleveland, Ohio

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Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

FOR SALE

FOR SALE—Cheap, iron Quaker brick machine, perfect order. Make offer. Address BOX 4—HERMAN, Care Clay-Worker.

FOR SALE.

Four-mold Fernholtz dry press in first-class condition. For particulars address

W. G. BUSH & CO.,
Nashville, Tenn.

FOR SALE.

Twelve dry clay gatherers, somewhat used. In good condition.

PROGRESS PRESS BRICK & MACHINE CO.

St. Louis, Mo.

FOR SALE OR RENT.

Brick yard thirty miles from Philadelphia; equipped with horsepower machine. Plenty of good clay to make common and fire brick.

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BRICK MACHINERY FOR SALE.

One stiff mud brick machine, 20 to 30 thousand capacity. One cutting table (automatic). Disintegrator and pug mill. All Steele's make. Address,

COLUMBIA BRICK CO.,
Box 208, Lake City, Fla.

FOR SALE.

One 60 h. p. slide valve engine.
One American Clay Machinery Company's pug mill and brick machine.
One Brewer automatic cutting table.
Write for full information.

PORTSMOUTH PAVING BRICK CO.,
Portsmouth, Ohio.

FOR SALE.

Bargain for quick cash buyer. Potts iron soft mud machine, disintegrator, sander, boiler and engine, water tank, steam pump, shafting, belting, rack and pallet drying system, 165,000; trucks, wheelbarrows, etc.

W. W. PARRY,
Rome, N. Y.

FOR SALE—CHEAP.

Two new, up-to-date Patterson throwing wheels. For full information, address, 39 N. Bennet Street, Boston, Mass.

FOR SALE—40 acres of shale land near Aberdeen, So. Dak. Milwaukee Coast Line runs through land. Material for pressed brick and tile manufacturing purposes. For sample of shale and particulars, write

H. W. ERICKSON,
Box 86, Albee, So. Dak.

A GOOD INVESTMENT.

We are offering a small amount of stock in a modern brick plant in successful operation. This is your opportunity to secure stock in a paying enterprise. Full particulars on request. Address BOX 699, Oklahoma City, Okla.

FOR SALE.

Because of other business interests I offer for sale, very cheap, my brick and tile plant, located in a good farming district of southwestern Michigan. Fine home market for tile; 17 acres of land, plenty of clay, good buildings, machinery and dwelling house. A bargain for the right man.

L. P. WALKER,
Hartford, Mich.

FOR SALE.

1 Turner, Vaughn & Taylor nozzle machine.

1 Newell disintegrator, 19 inch C, No. 123 with cutters No. 54.

1 Adams brick machine.

1 Jeffrey Columbian separator, 6x7 ft.
10 Carnell type hand represses with an assortment of dies, etc.

4 vertical pug mills.

Address,

WRECKER,
Care Clay-Worker.

BRICK AND TILE MAKERS.

The demand for brick, fireproofing and tiling is far greater in the Canadian West than the supply, and with the tremendous expansion of Manitoba and the west, the demand for all brick products is enormous. Rapid City, Manitoba, has an abundant supply of raw material and good railway facilities. A great opportunity for some one. For particulars write to

G. GORDON MURRAY,
Sec.-Treas. Town of Rapid City,
Box 146 Manitoba.

FOR SALE.

One Berg four-mold side draft brick press. Going out of business and will sell cheap.

GREENVILLE LUMBER CO.,
Greenville, Ill.

FOR SALE.

One American Cay Machinery Company's No. 1 Giant brick machine, with capacity of 60,000 brick per day, in excellent condition. For particulars, address

THE MOBERLY PAVING BRICK CO.,
Moberly, Mo.

FOR SALE OR LEASE—Drain tile and hollow ware factory in Iowa drainage district; 10,000 5-inch tile capacity daily; 5 down-draft 24-inch kilns. Permanent buildings. Modern dryer and equipment throughout.

BOX 2—BROWN,
Care Clay-Worker.

COMPLETE BRICK PLANT FOR SALE.

No. 4 Steele brick machine with automatic end cutter, pug mill, disintegrator, 150 horsepower boiler, 120 horsepower twin engine, 2,000 feet of track, turntables, transfer cars, heater, etc., etc. Was operated only short time. All in good condition. Address

BRICK PLANT,
Box 601, Mobile, Ala.

Brick Plant and Property For Sale.

By direction of the Court tenders will be received by the undersigned up to June 12th, 1912, for the purchase of

A NEW UP-TO-DATE PRESSED BRICK PLANT IN BRITISH COLUMBIA.

Situated on the west side of Pitt Lake, with water transportation to New Westminster, Vancouver, Victoria and other Sound Cities.

Capacity 20,000 per day.

American Clay Mach. Co. Dryer.

Boyd Four-Mold Acme Press.

Electric light from own water power.

Gravity railway from clay pit to dryer. High class clay—sufficient for over 50 years' operation.

Faced brick is selling today in British Columbia for from \$25 to \$60 per thousand.

For full particulars apply to

The Westminster Trust & Safe Deposit Co., Ltd.

New Westminster, B. C., Can.

(Continued on next page.)

Classified Advertisements.

FOR SALE—CHEAP.

Forty thousand pine pallets, 10 in. by ½ in. by 33 in. In good condition.

BURNHAM BROS. BRICK CO.,
3 3 c Milwaukee, Wis.

FOR SALE—Good red pressed brick plant, built in 1905. Paid up capital, \$100,000. In active operation. Majority of stock will be sold at bargain. Reason for selling given on application.

SPHAR PRESSED BRICK WORKS,
3 3 cm Maysville, Ky.

FOR SALE.

Hercules (senior) soft mud brick machine in splendid condition. Also Wellington sander, turntable and 10,000 pallets. Have changed system.

A. C. OCHS BRICK & TILE CO.,
3 3 cm Springfield, Minn.

FOR SALE.

REBUILT ENGINES AND BOILERS.

Engines—Corliss.

18x42 Lane & Bodley, 18x36 Ohio Heavy Duty, 16x42 Allis, 14x36 Sioux City, 12x30 Lane & Bodley, 12x30 Hamilton.

Engines—Automatic.

14¼x24 Buckeye, 11x16x12 Buffalo compound, 13½x15 Taylor, 13x16 Atlas, 13x12 Harrisburg-Ideal, 13x12 Phoenix, 12x14 Green, 12x12 Armington & Sims, 11x16 Atlas, 8x14 Noyes.

Engines—Throttling.

18x24 Atlas, 14x18 Sinker-Davis, 14x14 Lewis vertical, 12x16 Reed, 12x14 Brownell, 10x16 Bass, 10x12 Atlas, 9x14 Lane & Bodley, 8x10 Erie, 6x8 Industrial.

Boilers—Stationary.

72x18, 66x16 high pressure, 72x18 standard, 72x16, 66x18, 60x16, 60x14, 54x14, 48x14, 44x14, 44x12, 42x12, 36x16, etc.

Boilers—Fire Box.

100, 80, 60, 50, 40, 35, 25, 20, 16, 12, 10 and 8 horsepower, etc.

Boilers—Vertical.

50, 40, 35, 30, 25, 20, 16, 12, 10, 8, 5 and 3 horsepower, etc.

Heaters.

All sizes, open and closed.

Pumps.

All sizes, single and duplex.

Electrical.

30 k. w. generator, direct connected to 8x10 Skinner engine; 20 k. w. generator, direct connected to 8x10 Economic engine; 18 k. w. belted generator.

Miscellaneous.

Saw mills, lath mills, edgers, cut-off saws, resaws, blowers, exhaust fans, tanks, etc. Write for list. Also a full assortment of new machinery. Sole manufacturers of the celebrated "Leader" injectors and jet pumps. Send for circular.

THE RANDLE MACHINERY CO.,
1733 Powers St. Cincinnati, Ohio.

FOR SALE.

A two-kiln brick and tile plant in eastern Iowa.

DE WITT BRICK & TILE CO.,
11 8 c DeWitt, Ia.

FOR SALE.

One 40-43 heavy duty brick and tile machine, complete with brick nozzle and die.

One board delivery cutting table. Also barrel attachment and dies for making 3, 4 and 6-inch partition tile and drain tile. Dies have never been used.

One Bensing tile cutting table, new.
One 84-inch disk fan, used only three months.

American Clay Machinery Company's make.

STANDARD BRICK & TILE CO.,
309 Henry Building.
5 1 d Portland, Oregon.

FOR SALE.

At a great bargain. The entire machinery, boilers and complete plant of the Mobile Brick Company, at Mobile, Ala., consisting of one 150 horsepower tubular boiler, one 150 horsepower horizontal engine, complete Success outfit, 50,000 daily capacity; including belting, team, cars, rails and the entire outfit. In use about three years. This plant must be disposed of within the next 60 days so that the affairs of the company can be wound up. Information can be obtained by addressing

JOHN T. McDONALD,
President Mobile Brick Co.,
65 St. Francis St.,
5 1 d Mobile, Ala.

WANTED, ETC.

WANTED.

A competent foreman or superintendent to take charge of small plant making pottery, flower pots, common brick. Must understand glazing, burning and how to handle men. A good place for right man. Address

BOX 5—FOREMAN,
5 1 c Care Clay-Worker.

WANTED—Position as superintendent or manager with an up-to-date brick concern. Am a German, 48 years old, and been in the business most of my life. Understand the business thoroughly from clay pit to office. Twenty years' experience in firing continuous kiln. Am strictly sober and know how to handle men. References from Germany and from employers here. Address
BOX 5—JOHN,
5 1 d Care Clay-Worker.

WANTED—A good second-hand cutting table. State condition, make and price. Address
BOX 5—F. A.,
5 1 d Care Clay-Worker.

WANTED.

Superintendent at present in charge of a large paving and face brick company desires change, and would like to connect with a large, progressive concern where services of a live wire as manager will be appreciated. Only those needing services of high-grade man need answer. Would invest small amount as guarantee of good faith. Gilt edge references. Address

BOX 4, ST. LOUIS.
4 tf d Care Clay-Worker.

WANTED.

A competent brickmaker with enough money to run a plant. Brickyard is located three miles from court house, Mobile, Ala. It is well equipped and in running order, making building brick. Capacity from thirty to forty thousand per day. Steele No. 4 auger machine. Will take output at agreed price, paying for them each week. If interested write

BOX 5—F. K.,
5 1 d Care Clay-Worker.

CASH FOR YOUR PLANT OR BUSINESS.

No matter where located. If you want to buy, sell or exchange any kind of real estate or business anywhere, at any price, address

FRANK P. CLEVELAND,
965 Adams Express Bldg.,
4 tf d Chicago, Ill.

We desire to call the attention of Clay Products Manufacturers and others to our

FOUNDRY AND MACHINE SHOP

which is in position to make up

Iron Castings to Replace Broken or Worn Out Parts of Machinery, Dies, Drier Cars, Screen Plates, Etc.

We also manufacture a complete line of

Sewer Covers and Sanitary Castings

Wm. E. Dee Company,
Suite 1026 Stock Exchange Bldg.
CHICAGO, ILL.

Write us for particulars of our plan.

Classified Advertisements—Continued.

WANTED.

Position as superintendent or head burner of a continuous or any periodic kiln, also understand glazing. Twenty years' experience. Address

H. K.,
20 W. Washington St.,
Norwalk, Ohio.

WANTED.

A heavy, strong auger brick machine, Chambers No. 7 preferred. Give full particulars in first letter.
MILLEDGEVILLE BRICK WKS CO.,
5 tf d Milledgeville, Ga.

See additional ads under Table of Contents.

WANTED.

Situation by man who understands the trade in all its branches. enamel brick, building brick, all colors, paving brick, pottery wares. Can mix my own glazes. Am also familiar with sanitary wares. Thorough knowledge of all kinds of kilns and machinery. Can handle men. Can build plant at small cost if necessary. Address

BOX 3—H. W. H.,
3 tf d Care Clay-Worker.

Brick and Building Tile Plant Wanted

Good opportunity for live company in new growing town, center of large irrigation project. Good brick clay close to town. Quick action necessary. Address

Metropolis Improvement Co., Metropolis, Nevada.

FOR SALE

1½ Yard Steam Shovel, End Cut Brick Machine, Large Corliss Engine, Granulator, Hoisting Drum and Steadman Disintegrator. Address

4 2 d C. CHASE, Russell, Ill.

BRICK WORKS FOR SALE.

Brick works formerly owned by the Parkersburg Brick Company. Capacity, 25,000 bricks per day. Ten round brick kilns. Type, down draft. Capacity, 570,000. Can be enlarged to suit needs of purchaser. Modern machinery equipment, made by E. M. Freese & Co. Heavy local demand for brick. Natural gas available at eight cents per thousand cubic feet. Very large supply of finest clay, also finest shale suitable for roof tile and paving brick—same quality shale used by United States Roofing Tile Company. The latter property joining the property here offered. Works located near main line Baltimore & Ohio Railway, and about one mile from Ohio river. A splendid opportunity for large company to engage in manufacture of paving or building brick, or roofing tile. Property will be sold on liberal terms, and is exceptional opportunity for right party. Address, or call on

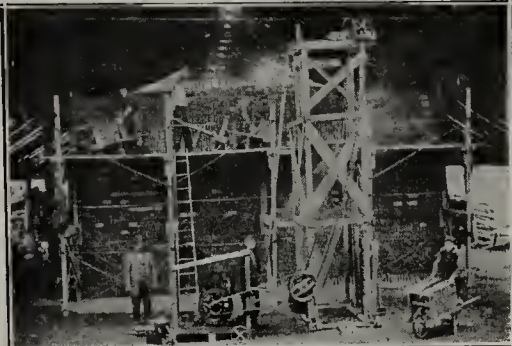
JAMES A. WADE, Agent, Parkersburg, W. Va.

A Burning Question!

HAVE YOU TROUBLE
With Hot and Cold Spots When
Burning Up Draft Kilns?

I have a very simple and inexpensive method of securing a uniform burn throughout the entire kiln. Equally good as a fuel saver. It will pay you well to write for information.

ROBERT TWELLS,
WALNUT HILLS, ILL.



Newton Portable Brick Handling System

This system gives you the advantage of three men taking the place of nine, as here shown. Above is a photograph of elevator and staging in operation, saving you six men over old way of passing and tossing brick; same advantage taking brick out of kiln. Send for circular and special information.

A. C. NEWTON,
Pat. Aug. 9, 1909. CRESCENT, N. Y.

YOU CAN'T BEAT THEM
none like them
Cement, etc. Red, Brown, Purple and Black.
for Brick, Mortar,
MILWAUKEE, WIS.

Ricketson's PURE MINERAL Colors

The "Red Brick" brand. Brilliant in tint; easy to mix, go farther than any other and



Elevator
Buckets

We carry in stock at all times a large supply of Elevator Buckets, including Caldwell, Avery, Salem, Regular Riveted and various styles of Malleable Iron.

All sizes and gauges for handling different materials.

Special Buckets made to order.
Send for Catalog No. 34.

H. W. Caldwell & Son Co.
17th St. and Western Ave.
CHICAGO, ILL.

NEW YORK: Fulton Bldg.
Hudson Terminal, 50 Church St.

The Department of Clayworking and Ceramics

Established by the Legislature
in 1902 at the

New Jersey State College,

RUTGERS COLLEGE.

NEW BRUNSWICK, N. J.

Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

C. W. PARMELEE, B. Sc., Director.
W. H. S. DEMAREST, D.D.

Kilns

Driers

Processes

JULIUS J. KOCH

Consulting Engineer

for

Clayworking Industries

3325 Caroline St. St. Louis, Mo.

If...

You Want
to Sell
or Buy...

Second hand Clayworking Machinery, Tile Mills, or anything pertaining thereto.

If...
You Want
a Man

for any position or a position in any connection with the Clayworking Trades use the

For Sale
and Want
Columns
of...

The...
Clay-Worker.

RATES

For all transient advertisements, such as "For Sale," "Wanted," etc., the rate is 25 cents a line per insertion. Average of seven words to line. Head line counts as two lines.

The Best, Quickest, Cheapest
Method of Securing Results.

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secured in the United States and foreign countries. TRADE MARKS registered. Investigations, opinions and advice in regard to patentability and infringement.

WATSON & BOYDEN

Patent Attorneys

918 F St., Washington, D. C.

Clayworkers' Supplies

Geijsbeek Engineering Co.

Blake McFall Bldg.

PORTLAND, OREGON

Write for prices and circulars.

Cutting wires, cutting tables, wheelbarrows, trucks, dryer cars, pyrometric cones, pyrometers, recorders, watchman clocks, cost system cards, clay diggers and any other supplies used on clayworking plants.

Chicago Retort & Fire Brick Co.

"AJAX"
**Fire Brick for
Building Kilns**

GENERAL OFFICE:

837-839 Commercial National Bank Bldg.

CHICAGO, ILL.

'Phone
Randolph 3601.

KILN FLOOR TILE

THE RECOGNIZED STANDARD OVER 50 YEARS.

ANY **FIRE BRICK** ANY
SIZE SHAPE

Write Us **Evens & Howard Fire Brick Co.**
Now St. Louis, Mo.

Books for Brickmakers

"CLAY GLAZES AND ENAMELS," H. R. Griffen.....	\$5.00
"BRICKMAKERS' MANUAL," Morrison and Reep.....	3.00
"CLAYWORKERS' HANDBOOK," by Author of "Chemistry of Clayworking"	2.00
"CLAYS," Heinrich Ries	5.00
"VITRIFIED PAVING BRICK," H. A. Wheeler, E. M.	2.00
"BRICKLAYING," Owen B. Maginnis.....	2.00
"KILN RECORDS," W. D. Richardson.....	1.00
"PRACTICAL FARM DRAINAGE," C. G. Elliott.....	1.50
"ENGINEERING FOR LAND DRAINAGE," C. G. Elliott..	1.50

T. A. RANDALL & CO.,

PUBLISHERS,

INDIANAPOLIS, IND.

Make Money

WITH THE ONLY SUCCESSFUL

Flower Pot Machine

(PATENTED.)

No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "

Write for Circular and prices.

The Rockwood Mfg. Co.,

INDIANAPOLIS, IND.

1801 English Ave.



Anchor Brand Colors

For Mortar Cement and Brick.

BROWN, BLACK, RED AND BUFF.

Strongest and Most Durable.

Manufactured by

C. K. WILLIAMS & CO.

EASTON, PA., U. S. A.

Correspondence solicited.

Something New in Brick Kilns and Brick Dryers

Patented April 14, 1903, and September 8, 1903.

ANY KILN OF THE MORRISON OR WINGARD TYPE CAN EASILY BE CHANGED INTO THE DENNIS DOUBLE DOWN DRAFT KILN.

County and State Rights For Sale.

The kiln walls are battered, furnaces are built "within the walls," avoiding expense of outside furnaces and the loss of heat by radiation, while the battered side walls and double arches form a perfect brace, each holding the other in position. In proportion to capacity, these kilns can be built for less money, burned with less fuel, and water-smoked and burned in less time than any other kiln upon the market, except continuous kilns, the heat throughout burning, is under perfect control, and these kilns will burn with perfectly satisfactory results, soft mud, stiff mud, dry pressed, or paving brick, burning practically all hard. I have kilns built under this patent of capacities ranging from 100,000 to 500,000 brick, and should be pleased to furnish names of users to prospective buyers.

Plans for round and square down-draft kilns. Also plans for drying off round kilns by taking the heat from a burning kiln to a green one without the use of a fan. Wood burning kilns changed into coal burners and to down-draft kilns or up-draft kilns arched over like down-draft kilns.

Write for printed booklet and testimonials.



Double Up and Down Draft Kiln.

ADDRESS

F. W. Dennis

188 Bermuda St.,
NORFOLK, VA.

Chattanooga Paint Co.,

Chattanooga, Tenn.

Manufacturers of

Red Oxides for Brick-makers' Use.

Eclipse
Mortar Colors,

Red, Brown, Buff, Black.

Clinton Hematite Red

The highest grade of
Red Oxide of Iron for

BRICK COLORING

Also all shades of
MORTAR COLORS

Get the genuine, with the
"Little Yellow Side-Label"

Clinton Metallic Paint Co.,

CLINTON, N. Y.

GABRIEL & SCHALL

P. O. Box 1712. 205 Pearl Street.
NEW YORK.

Sole Importers in the United States of the

Precipitated **G & S** Carbonate
of Barytes

The only preventative for scum and discoloration on Facing Brick and Terra Cotta, neutralizing the Sulphate of Lime in the Clay and Water.

Circulars and Particulars on Application.

Mention The Clay-Worker
When Writing to Advertisers.

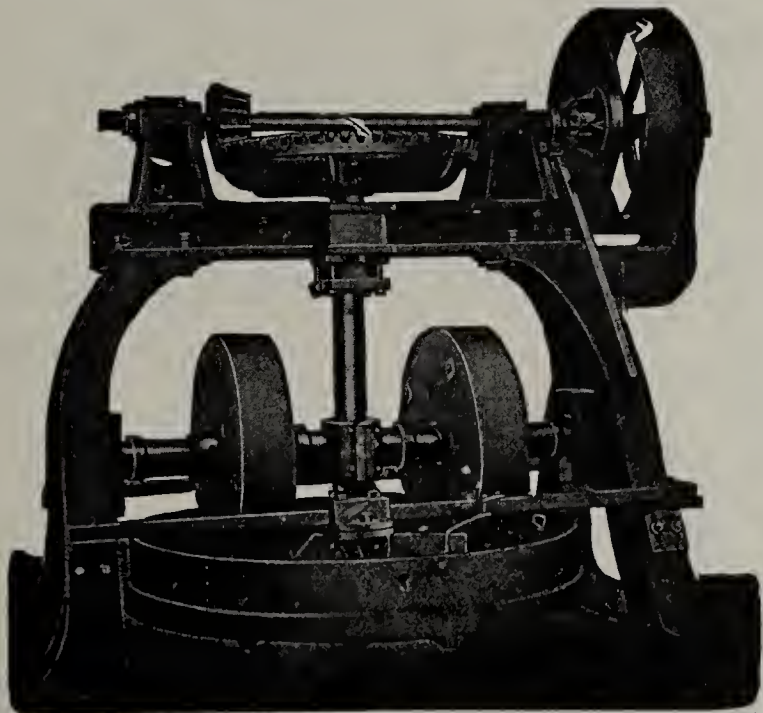
PHILLIPS & McLAREN CO.

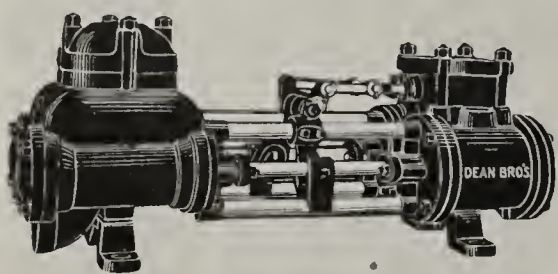
PITTSBURG, PA.

Builders of
Pittsburg Standard
Dry and Wet
Grinding Pans
for Brick, Terra Cotta,
Sand, Cement, Ore,
Refractories, etc.
Also
Rock and Ore Crushers.

When writing for Prices state
kind of Clay or Material to be
ground and capacity desired.

Eastern Office,
Stephen Girard Bldg.,
Philadelphia, Pa.





DURABLE DUPLEX PUMP.

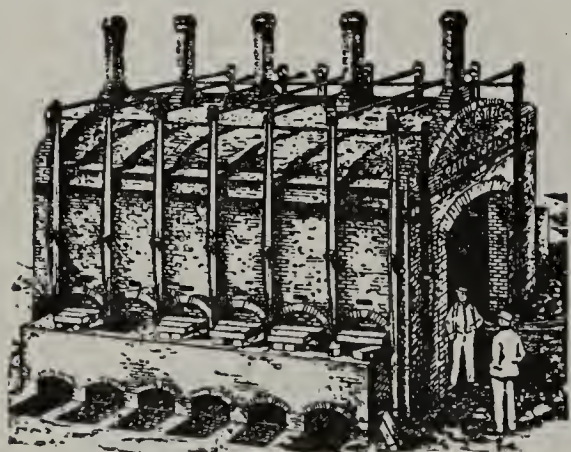
PUMPS FOR ALL SERVICES
AND ALL PRESSURES.

JET AND SURFACE CONDENSERS

Send for Catalogues.

DEAN BROS. STEAM
PUMP
WORKS.
INDIANAPOLIS.

NOT IN THE PUMP TRUST.



The Yates Patent Down-draft Kiln. Also Continuous.

If you want to pay dividends, build modern kilns as good burning is the keynote to success. Sixteen of my kilns are in operation at the Shawmut Vitrified Paving Brick Works, Shawmut, Pa. Come and examine results for yourself. Also refer you to D. W. DeRosay, General Manager Corry Brick & Tile Co., Corry, Pa. Other references given if desired.

ALFRED YATES,
SHAWMUT, PA.



Anyone sending a sketch and description may quickly ascertain our opinion free whether an invention is probably patentable. Communications strictly confidential. HANDBOOK on Patents sent free. Oldest agency for securing patents. Patents taken through Munn & Co. receive special notice, without charge, in the

Scientific American.

A handsomely illustrated weekly. Largest circulation of any scientific journal. Terms, \$3 a year; four months, \$1. Sold by all newsdealers.
MUNN & Co. 361 Broadway, New York
Branch Office, 625 F St., Washington, D. C.

MANGANESE.

BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

NATIONAL PAINT AND MANGANESE CO.,
LYNCHBURG, VA.

MINERS AND GRINDERS.

ANTON VOGT TO BRICK AND TILE MAKERS

I correct faults in burning and change old defective kilns. Twenty-seven years' experience in American practice.

I sell plans and plain details of construction, for my down-draft, 30 ft. Combination Brick, Drain Tile and Sewer-Pipe Kiln. I refer to satisfied Users.

For my special Cheap Brick kiln, I do not sell plans, but will lay it out, you build it and I will oversee the setting and burning, showing you

Satisfactory Results Before You Pay Me.

Both kilns have my Novel, Cheap and Indestructible Removable Grate, making a grateless coal-saving furnace. You can use it on any Down Draft Kiln.

Inquire about my labor-saving, patented Sewer Pipe Turner and Device, increasing capacity of press, making large pipe.

ANTON VOGT, Lewis, Iowa, U. S. A.

SEEING

Saves the beginner time when learning

Saves the learned time when beginning.

New Number Six Visible Writer



Saves time, energy, worry and money.

Gives speed, simplicity and beautiful work. Single shift. Strictly visibe writing.

Old machines of any make taken in trade.

The Williams is sold under a positive guarantee and on easy terms.

If you want the best value in a typewriter ever offered, write us.

Williams Typewriter Agency,

Indiana Agency, 221 East Ohio Street, Indianapolis, Ind.

Home Office and Factory,
Derby, Conn.

Old Machines Taken in Trade.

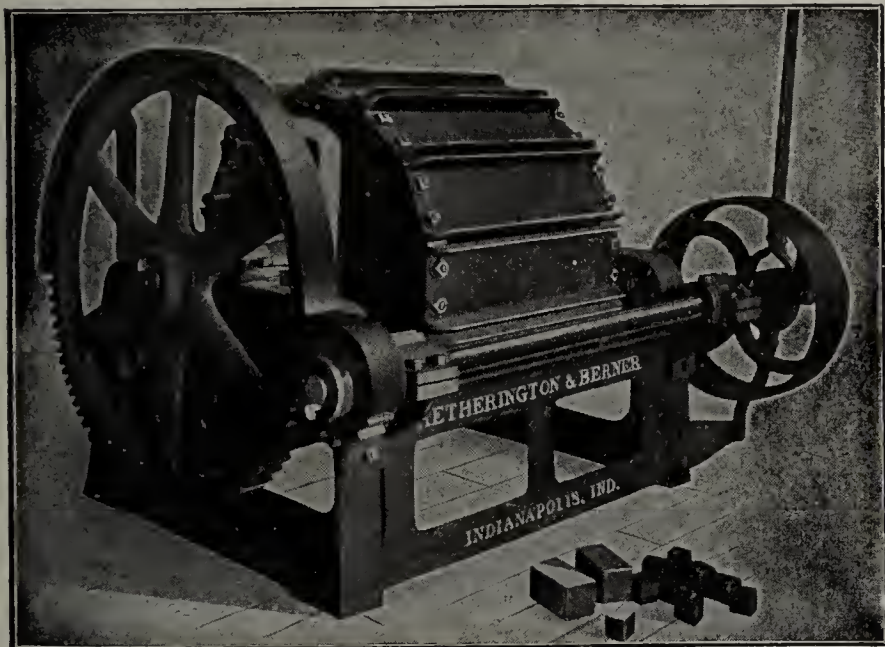
\$2.00

THE CLAY-WORKER
ONE YEAR (IN ADVANCE)

\$2.00

The STANDARD RATTLER[®] FOR TESTING PAVING BRICK.

Every municipality and every manufacturer of paving brick should have a Standard Rattler and thus be able to make frequent tests of brick and block.



This Rattler is designed in accordance with the requirements of the National Brick Manufacturers' Association's specifications, and is skilfully constructed of the very best materials for the purpose, insuring the greatest efficiency and durability. It meets every requirement.

Easy to Operate, Easy to Fill, Easy to Empty, and is in fact *The Standard Rattler*. For prices, etc., write

Hetherington & Berner,
Indianapolis, Ind.

Books for Brickmakers

These Books Will be Mailed, Postage Prepaid, to Any Address
in the United States or Canada,
on Receipt of Price.

BRICKMAKERS' MANUAL	Morrison & Reep	\$3.00
CLAY GLAZES AND ENAMELS.....	Henry R. Griffen, C. E.	5.00
CLAYS; THEIR OCCURRENCE, PROPERTIES AND USES	Henrich Ries	5.00
BRICKLAYING	Owen B. Maginnis	2.00
VITRIFIED PAVING BRICK	H. A. Wheeler, E. M.	2.00
TABLES OF ANALYSES OF CLAYS.....	Alfred Crossley	2.00
BRICKLAYING SYSTEM	Frank B. Gilbreath	3.00
KILN RECORDS	W. D. Richardson	1.00
PRACTICAL FARM DRAINAGE	C. G. Elliott	1.50
ENGINEERING FOR LAND DRAINAGE	C. G. Elliott	1.50
TILE UNDERDRAINAGE	J. J. W. Billingsley	.25

Sold By

T. A. RANDALL & CO.
INDIANAPOLIS, IND.

The —
ROESSLER-HASSLACHER
CHEMICAL COMPANY,
100 William Street,
NEW YORK.

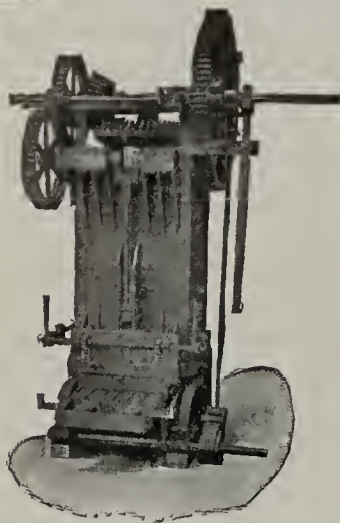
As a Preventative of Scums Use
CARBONATE OF BARYTES
R. & H. PRECIPITATED.
Oxide Tin,
Oxide Cobalt,
Red Oxide Iron,
Green Oxide Chrome,
White Oxide Antimony,
Black Oxide Manganese, and
all Chemicals used by the Clay Trades.

Mention THE CLAY-WORKER

WHEN WRITING TO ADVERTISERS,

Mention THE CLAY-WORKER.

MODERN CLAY- WORKING ENGINEERS



And Builders
of Complete

BRICK MAK- ING PLANTS

For Either
Soft or Stiff-Mud
Processes.

Steam Power
50 Thousand
Animal Power
20 Thousand

We Build the
Most Complete
Line of Yard
Supplies and
CRUSHERS



THE HENRY MARTIN BRICK MACHINE MFG. CO.
LANCASTER, PA., U. S. A.

Get Our Big Catalog.

SALT GLAZED BRICK

The Best in America
Are Made by

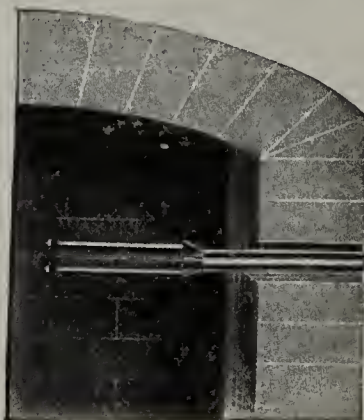
The Hocking Valley Fire Clay Co.

Nelsonville, Ohio.

Light, Medium, Dark Shades
With Heavy, Smooth Glaze

Some Good Territory Unassigned. Write Us.
Annual Capacity, 12,000,000.

PYROMETERS



For measuring the tempera-
ture of kilns, do away with
guess-work. For tempera-
tures to 3000° Fahr.

The Brown
Instrument
Company,

311 Walnut St.,
Philadelphia, Pa.

Pittsburg. Chicago.

"OHIO" ROLLED EDGE STEEL BRICK PALLET.

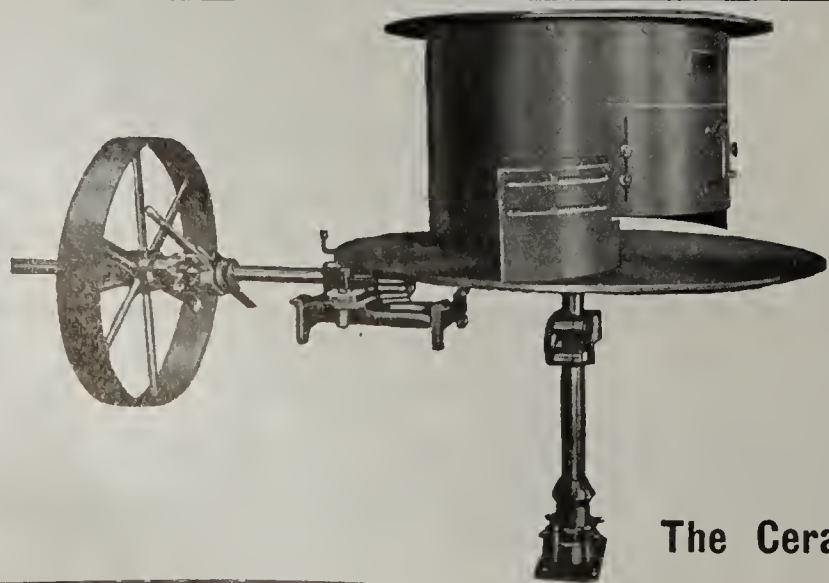
Style No. 8. For Rack Cars.
(Patented.)



Made from No. 13, 14, 16 or 18 Gauge Steel.

$\frac{5}{8}$ -inch Roll running full length and across ends.
Either Galvanized or Black Steel. The lightest,
strongest and most rigid Pallet made.

THE OHIO GALVANIZING AND MANUFACTURING COMPANY, Niles, Ohio.



AUTOMATIC FEEDING

of

Pans, Pulverizers and Pug Mills

Means INCREASED CAPACITY

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of

Clay, Sand-Lime and Other Mixtures

Means IMPROVED PRODUCT

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The profits on your investment—your dividends—depend as much, if not more, on the result-producing merits of your kilns as upon your material, your machinery or freight rate.

We have been in the kiln building business for over twenty years; six years ago we perfected and marketed

The Improved Flue System Kiln

and have been busy ever since, winter and summer, building it for progressive BRICK, SEWER PIPE and DRAIN TILE firms.

It has burned every class of clay goods, and has SATISFIED (get that?) every patron.

We will construct new kilns, remodel unprofitable kilns to our plans; or we will sell working plans and specifications on very reasonable terms.

Inquiries solicited, promptly and cheerfully answered.

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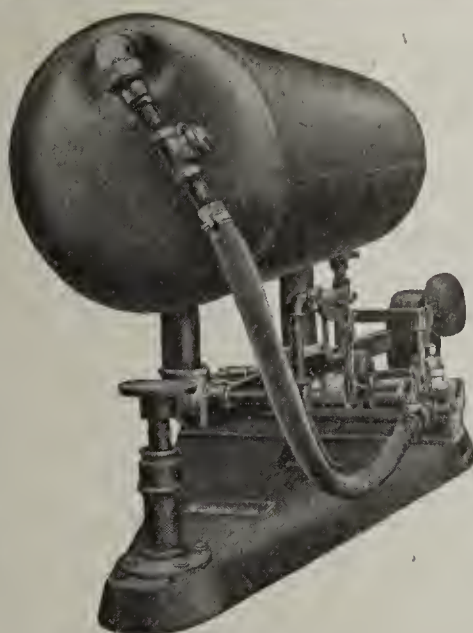


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Of the Tate-Jones type saves time, labor and fuel and insures a very uniform product. It is easy to install and has many advantages over any other type.

Let us explain it to you.

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The Morehead Condenser Trap makes its own Vacuum

and PULLS the accumulated water and air out of your steam lines, insuring rapid circulation. Enables you to cut down your boiler

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Particularly adapted for use in connection with reduced pressure and Exhaust Steam Heating Systems, Dry Kilns, Dryers, Fan Stacks, Etc.

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STEAM SHOVELS AND DREDGES.

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WARES WE HAVE
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WE MANUFACTURE
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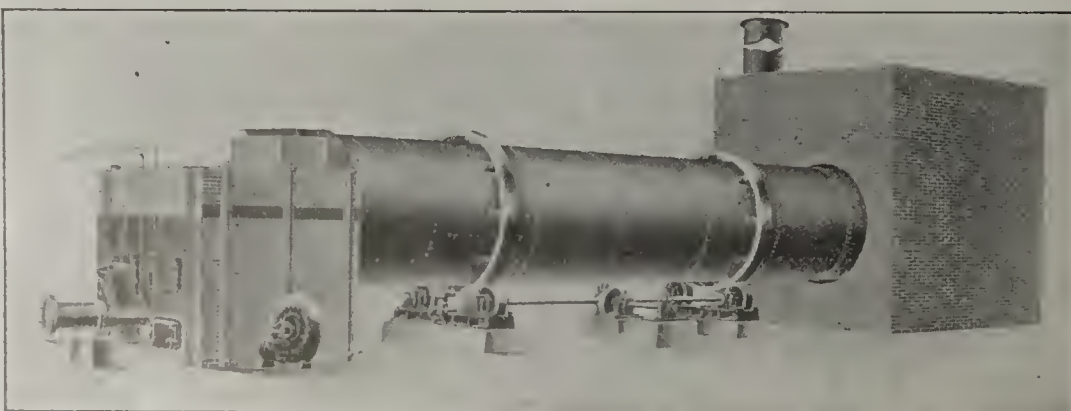
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This book contains valuable information on burning and drying, told in a plain and practical way, and is invaluable to the burner or superintendent. It is very comprehensive and should be in every clayworker's library.

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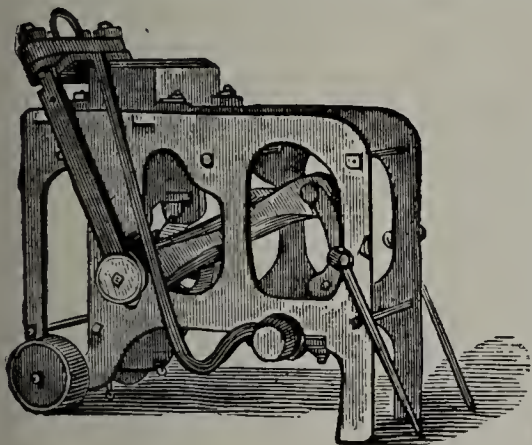
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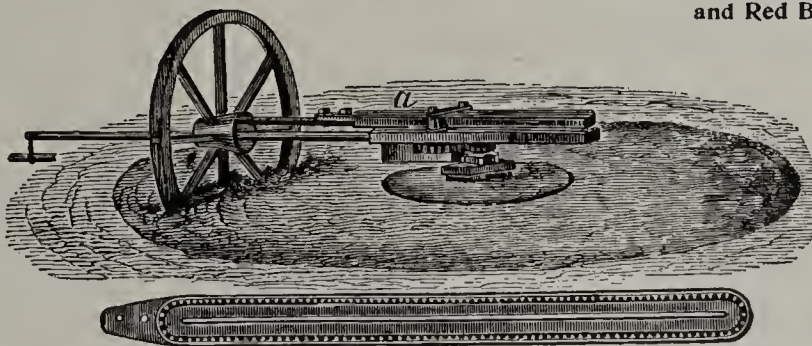


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Philadelphia Brick Machine Works.

Fire and Red Brick Presses All Sizes. Machinists and Engineers.

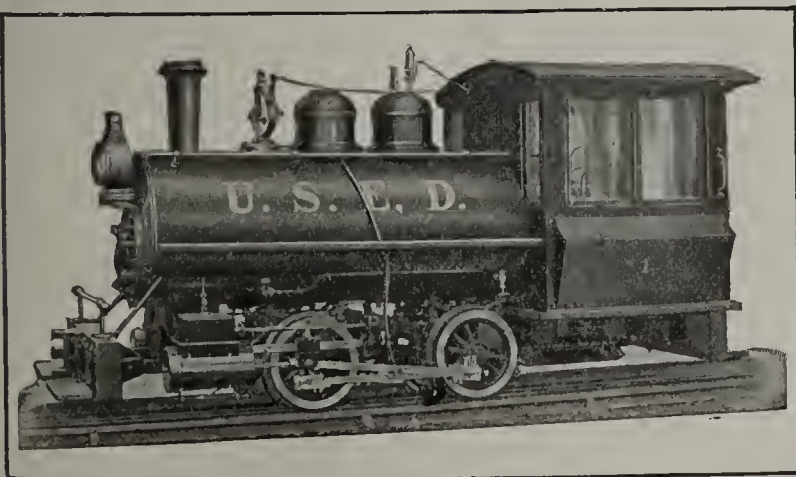
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These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

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Small Size Reasonable Cost

Built especially for the use of clay-products manufacturers, for hauling clay or shale from pits or mines to plant. Write for particulars.

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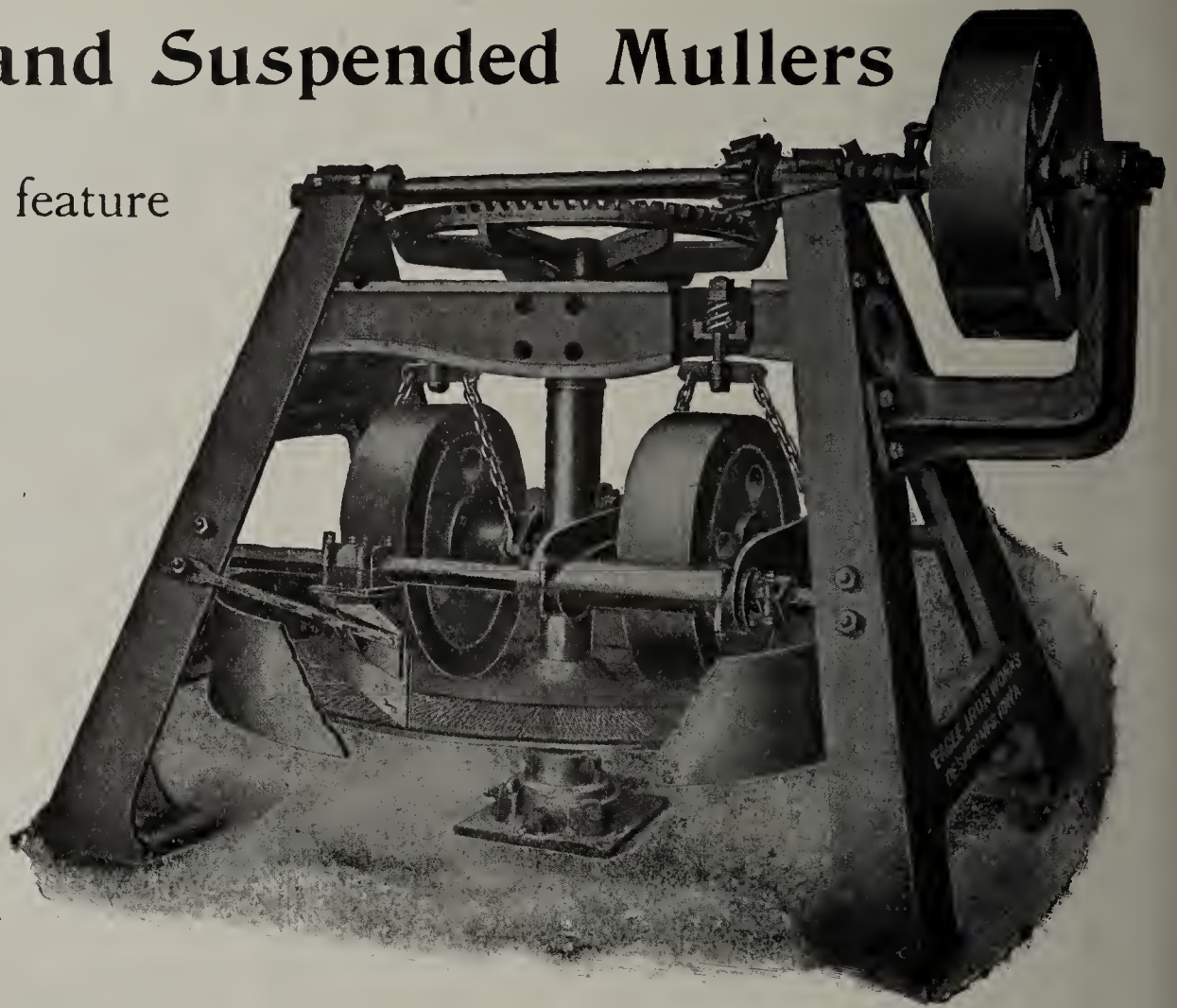
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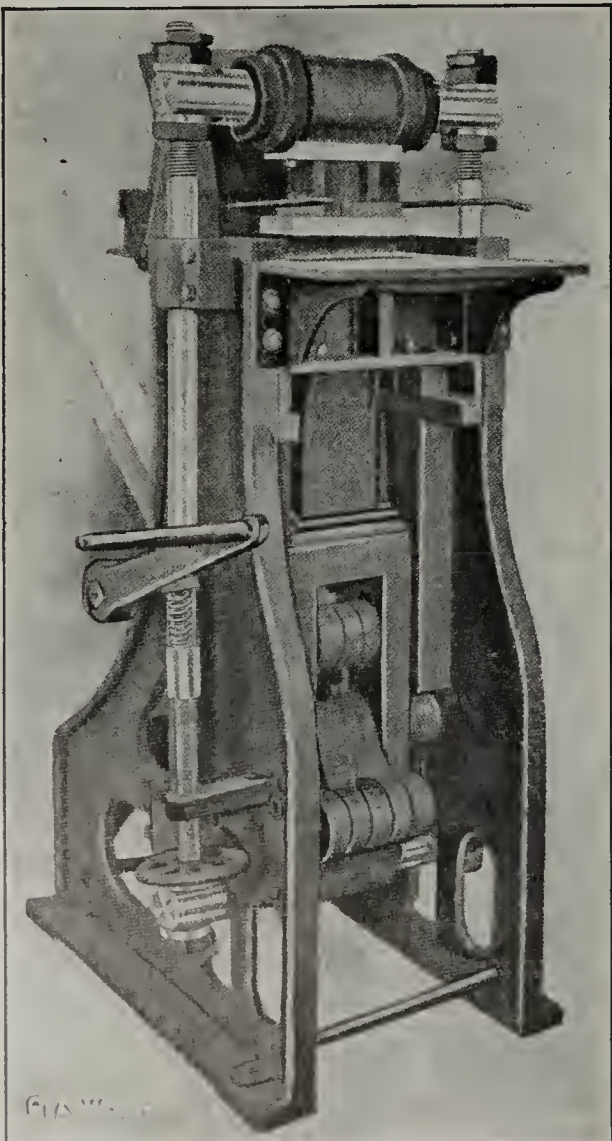
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Our Patent Hand Power Dry Press is used very extensively for manufacturing ornamental bricks as it can easily be fitted with molds to make the different designs. This Press stands in a class by itself for this kind of work. Bricks made on this press are equal in hardness and density to those made on a steam power press.

We manufacture a complete line of dry press machinery and brickyard supplies.

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On Every Roll of
GANDY
Stitched Cotton Duck
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To protect you against inferior imitations, every genuine GANDY BELT has three distinctive marks by which you can always recognize it.

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- 2nd. THE TRADE MARK SHOWN HERE
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COST

Remember the net cost of "THE GANDY BELT" is only one-third that of leather belting and two-thirds that of rubber belting, while it does the work equally as well.

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FOR BRICKYARDS

As proof of the economy and durability of the GANDY BELT for brickyard service, remember that it has been the standard belting in the brick industry for the last thirty-four years.

Write now for detailed information, prices, letters from users in your own line, etc.

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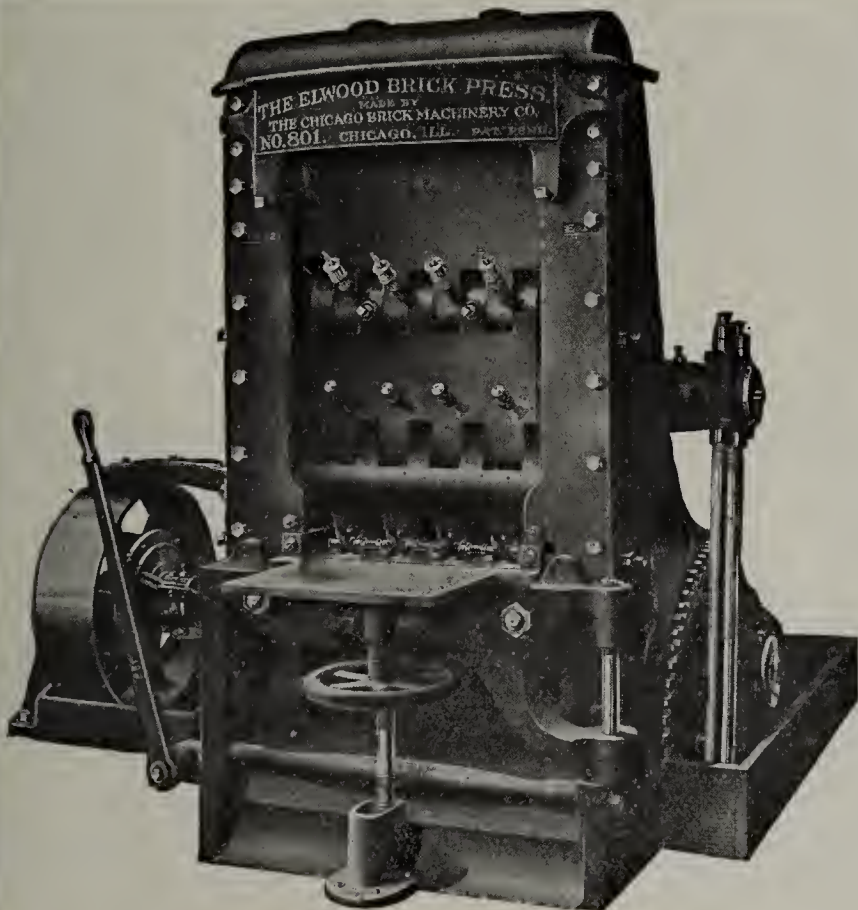
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Burns 1,000 Fire-Bricks
With 5 Cwt. of Slack

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The same applies to Hoffmann Continuous Tile, Pottery, Lime
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The Buhrer Kiln and Dryer

With Fan Draught



1560 Million Brick are yearly
dried and burnt in Buhrer
System Kilns and Dryers
worked by 370 Buhrer Fans.

already in operation throughout the Continent and in **South India and Ireland**, yields far the greatest output in first-class goods, such as all kinds of Bricks and Tiles, Lime and Cement, in the shortest possible time, with great economy of fuel, the waste heat being used either for drying or preheating.

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He has taught our men their work and has shown us what the Kiln and Dryer are capable of doing.

We find the consumption of fuel (cocoa-nut shells and wood) is within the figures you guaranteed, that the tiles are well burnt and color good, and we are satisfied the Kiln does all you led us to believe it would do."

Write for more information to

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No Chains, Belts or Gears.

No Shifting Lever.

No Extra Moulds.

Mould always ready to be taken out at the proper time.

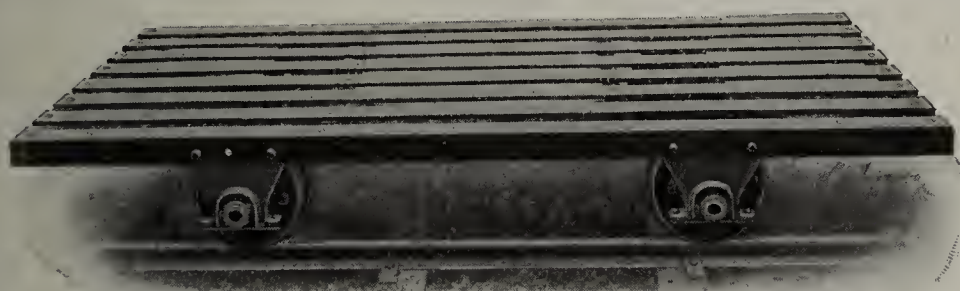
Impossible to break a Mould.

Light running, almost balanced in all positions.

For circulars and prices explaining it more thoroughly, write

Hilton Sanding Machine Co.

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Style 306 No. 1, Single Deck.



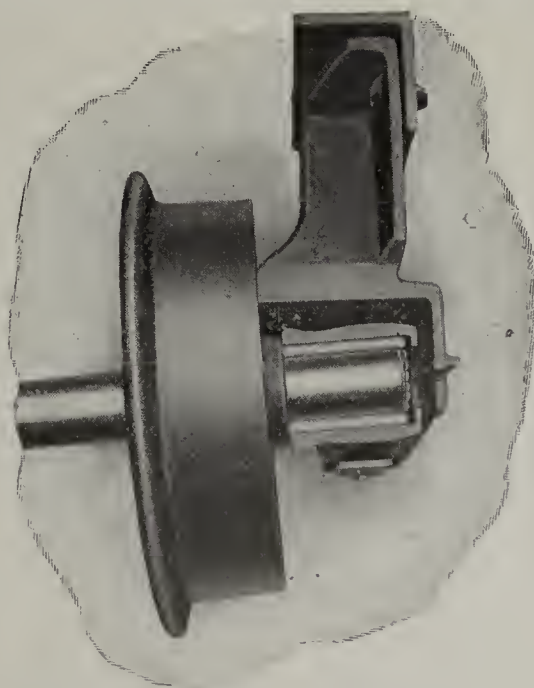
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CHASE DRYER CARS
With Patented
FLEXIBLE and REVERSIBLE
BOXING AND ROLLER BEARINGS.



Sectional view of Flexible Boxing showing deflection in the axle, the same as occurs when the car is passing over uneven track or is unevenly loaded.

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These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

The Brickmakers' Manual, by R. B. Morrison and J. A. Reep. Price \$3.00.

An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryers, kilns, etc.

The Clayworkers' Handbook, by the Author of "The Chemistry of Clayworking." Price \$2.00.

A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport, Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting or Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

Modern Brickmaking, by Alfred B. Searle. Price \$5.00.

It contains well-written chapters on the nature and selection of clays and other materials used, general brickmaking, the different processes, machinery, kilns, setting and burning, various products and uses, and sources of difficulty and loss.

Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

Clays: Their Occurrence, Properties and Uses, by Heinrich Ries. Price \$5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

Bricklaying, by Owen B. Maginnis. Price \$2.00.

This book contains extensive explanations of the most improved modern methods of bricklaying, and is the current practice and experience of the best authorities, making an invaluable work of reference for architects, engineers, contractors, builders and mechanics.

The Effect of Heat Upon Clays, by Prof. A. V. Bleining. Price \$2.00.

A book of valuable information on burning and drying, told in a plain, practical way, and invaluable to the burner or superintendent.

Bricklaying System, by Frank B. Gilbreth. Price \$3.00.

A book whose 330 pages are filled with rules and hints for the foreman and bricklayers, designed to increase the output of the workmen and enable them to do difficult work in the best manner.

Vitrified Paving Brick, by H. A. Wheeler, E. M. Second Edition. Price \$2.00.

A review of present practice of the manufacture, testing and uses of vitrified paving brick.

Tables of Analyses of Clays, by Alfred Crossley. Third Edition. Price \$2.00.

Including analyses of chemically pure clays, well-known common and pressed brick clays, paving brick clays, fire clays, shales, etc., both in this country and abroad. A valuable book for those desiring to compare their clays with well-known and standard clays.

Kiln Records, by W. D. Richardson. Price \$1.00.

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Practical Farm Drainage, by C. G. Elliott. Price \$1.50.

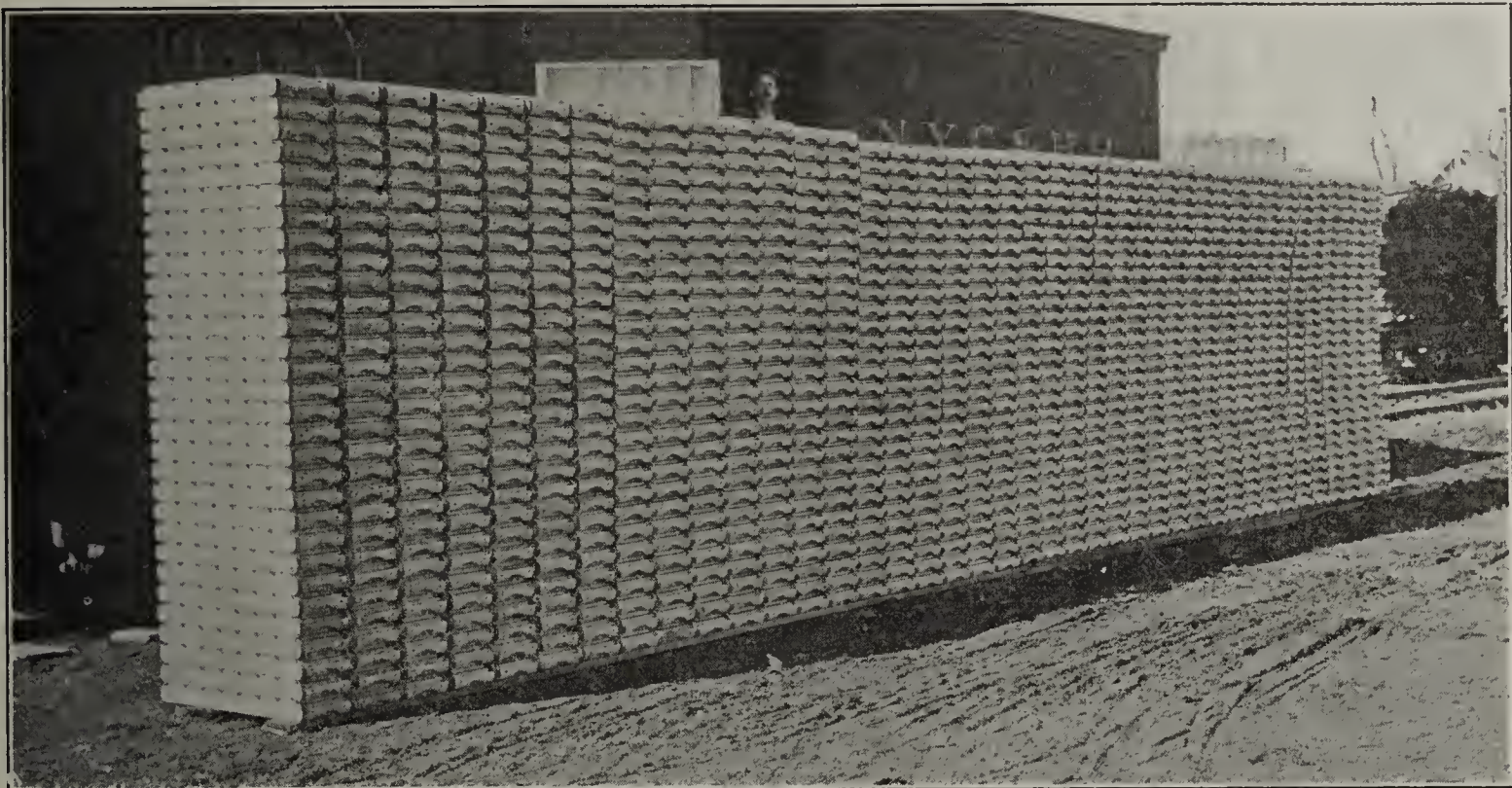
A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

Tile Underdrainage, by J. J. W. Billingsley. Price 25 Cents.

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distributing among tile users. In lots of 100, \$2.50; in lots of 1,000, \$20.00.

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BRICK MOULDS WITH A REPUTATION



This is absolutely the best brick mould made in the world. A pretty bold statement, but we can prove it and do every time we are asked.—G. B. MENTZ CO., Wallkill, N. Y.

WHAT ONE WHO KNOWS HAS TO SAY.

GREEN BAY BRICK COMPANY

Manufacturers of

Sand Mould Brick

Green Bay, Wis., March 22, 1912

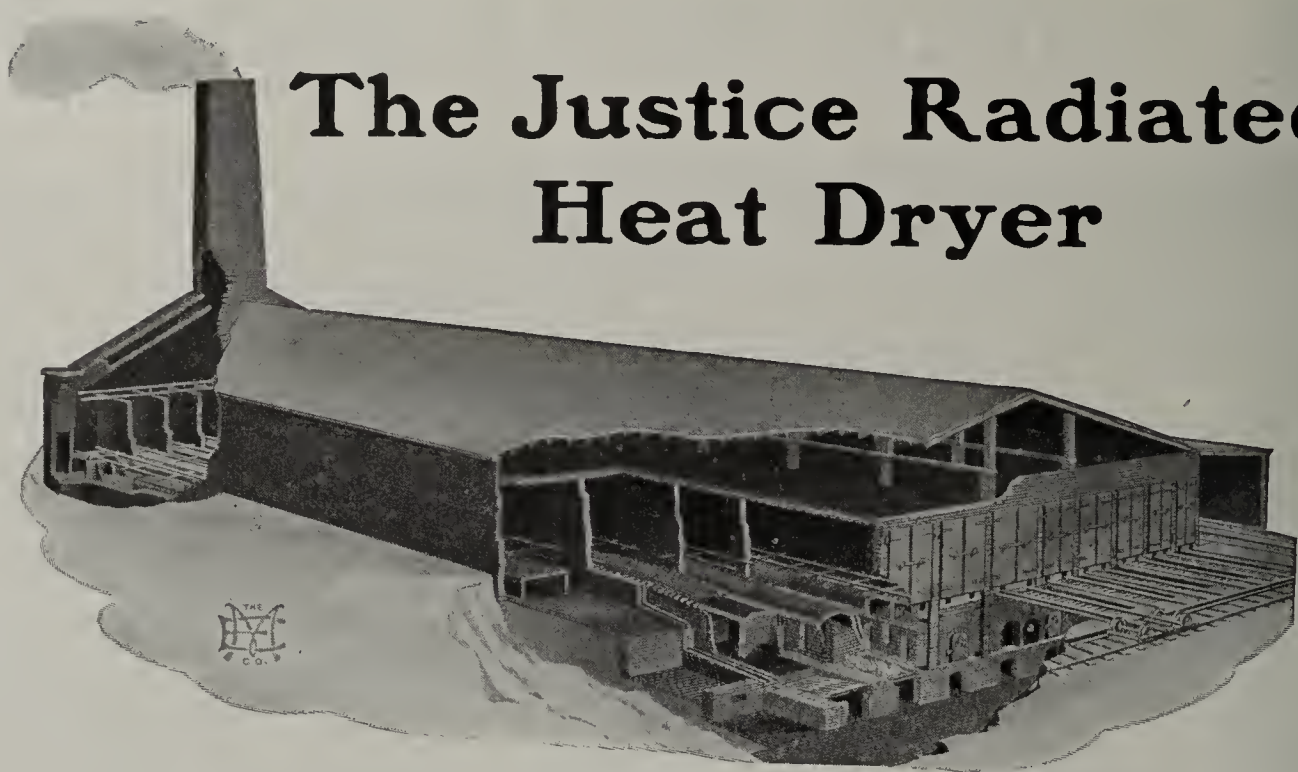
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Gentlemen—Your favour of the 20th is at hand. You may make us 24 of your best moulds of sizes as follows: 5 brick $8\frac{3}{4}$ in. x $4\frac{1}{4}$ in. x $2\frac{7}{16}$ in.; $\frac{5}{8}$ in. partitions. We want them of the best, at the price you name, \$2.25 each. We can buy moulds for \$1.50, but we buy yours because they are the best. We would like to have the moulds here by May 1st.

Yours truly,

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THE G. B. MENTZ CO.
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It is without question vastly superior to any artificial appliance for drying clay products. It is the result of a life's study and experimenting along scientific lines by an authority on the subject. Let us mail you a copy of bulletin No. 1, which gives in detail its many meritorious features.

TRUE ECONOMY
American Ingot "Rust-Resisting" Iron
99 $\frac{94}{100}$ % pure
It is the Ideal Metal for
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It will wear three to five times as long as ordinary galvanized or black metal and its cost is very little in excess of that of other metals commonly used for these purposes.

We are exclusive agents for this product for the clayworking trade and solicit your inquiries. It will certainly pay you to investigate and be convinced of the truth of the above statements.

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Sales Agent for: **The J. D. Fate Company's Complete Line of Clay Working Equipment**
The Elwood Dry Press **The Joplin Rock Crusher**

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You will please send THE CLAY-WORKER and the other magazines named below to me for the ensuing year beginning with the next current issue of each for which

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Save all Trucking on Rack and Pallet and Open Yards.

SAVE FOUR TO EIGHT MEN PER MACHINE.

FOR FULL PARTICULARS WRITE US.

ED. H. CALLAWAY ENGINEERING CO.

50 Church Street, New York City

Engineers, Clay Specialists and Brickologists.
Kilns, Dryers and Complete Clayworking Plants.

Claycrafter Supplement

Announcement

The clayworkers everywhere, especially those looking for any ray of light bearing on proper and improved **mechanical operation**, the latest method in use in the **handling** and **drying** of clay wares, and the most approved practices and systems for **successful** and **economical clay burning**, this foreword is directed.

We will devote this section to the above live and pulsing topics of the trade, endeavoring at all times to submit to our readers anything of economical importance for mutual betterment.

We will also avail ourselves of the opportunity presented of placing before our readers a select series of illustrations and description of the latest types of clay machinery, drawn from our complete and reliable lines that have won and held the favor of the clayworking world for over thirty years.

This exhibit will take the form of random items that will be of especial interest to the trade at that particular season, and each will mark an example of surpassing excellence in its class.

Everyone must realize that **a good Brick Machine, a good Dryer, or a good Kiln** is not built in a day or a year, although it is possible to design and build one that is acceptable—as far as appearances go—in a very short period; but it takes time and money, and the best of engineering skill and experience to construct one that stands for pre-eminence in its field—the RAYMOND CLASS if you will.

Our thirty years of steady progress in the building and perfection of clayworking equipment, and our acknowledged eminence in the line, is at once a guarantee and an insurance to our legion of customers and all clayworkers throughout the whole world.

THE C. W. RAYMOND CO.

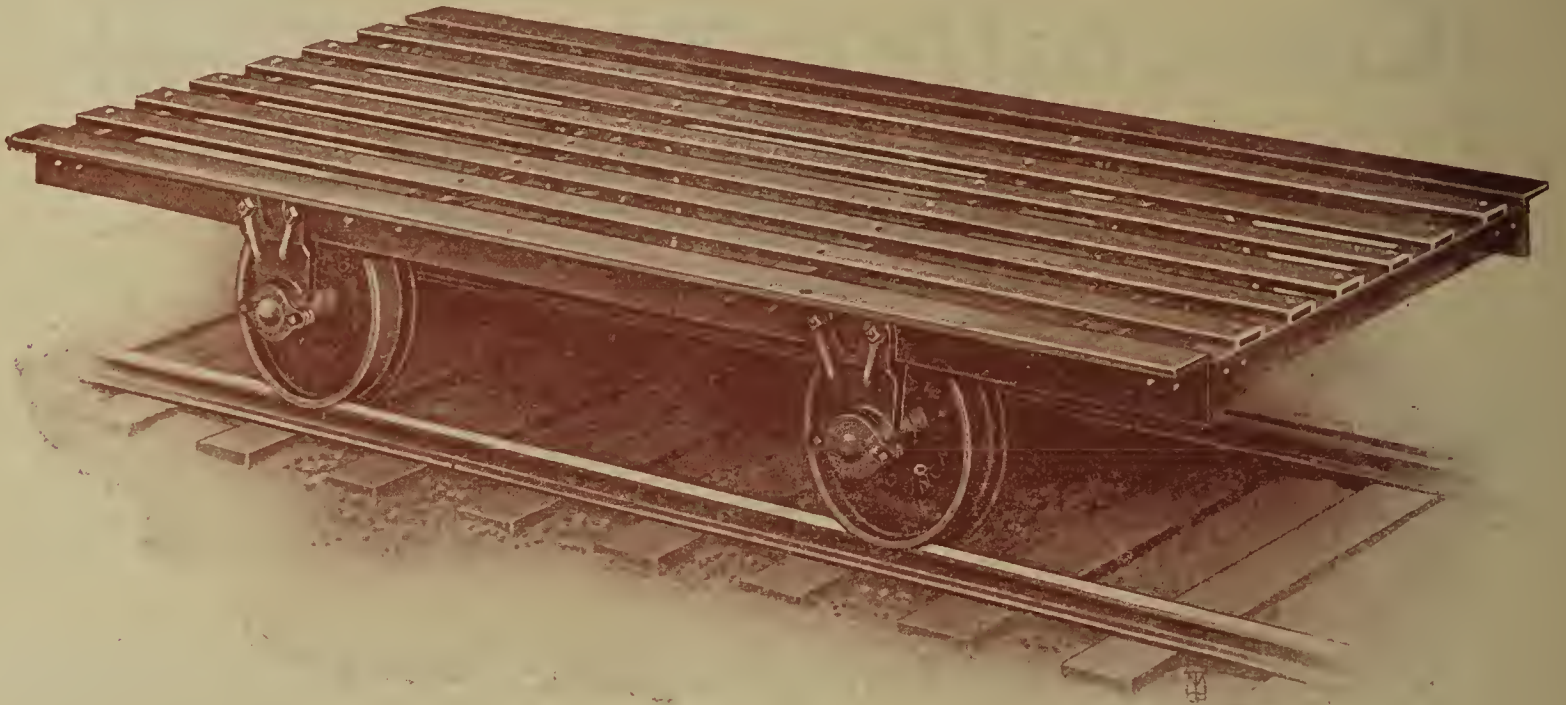
The Strongest Power in the World of Clayworking Machinery

DAYTON, OHIO, U. S. A.

Raymond Improved Dryer Cars.

After years of handling **various makes** of Dryer Cars we have, lately, upon the opening of our new plant and complete car shops, been offering to the trade our **much improved line** of cars in which we have overcome all the principal weaknesses heretofore existing, without sacrificing any desirable features.

We make a complete line, weights and styles to meet successfully every requirement.



The above shows our style "B" single deck car, highly popular, and suitable for stiff mud yards. Fitted also with one or two end uprights for pushing



To anyone desiring a car of **great strength** or for extra rough work we would refer the above, style "J."

This is without doubt the **heaviest** and most **substantial** car built. Notice the four uprights, the **extra heavy standard boxes** and the generous weight of metal throughout.

Strictly a car for those who are looking for the **best the market** affords.

Write for our Catalog.

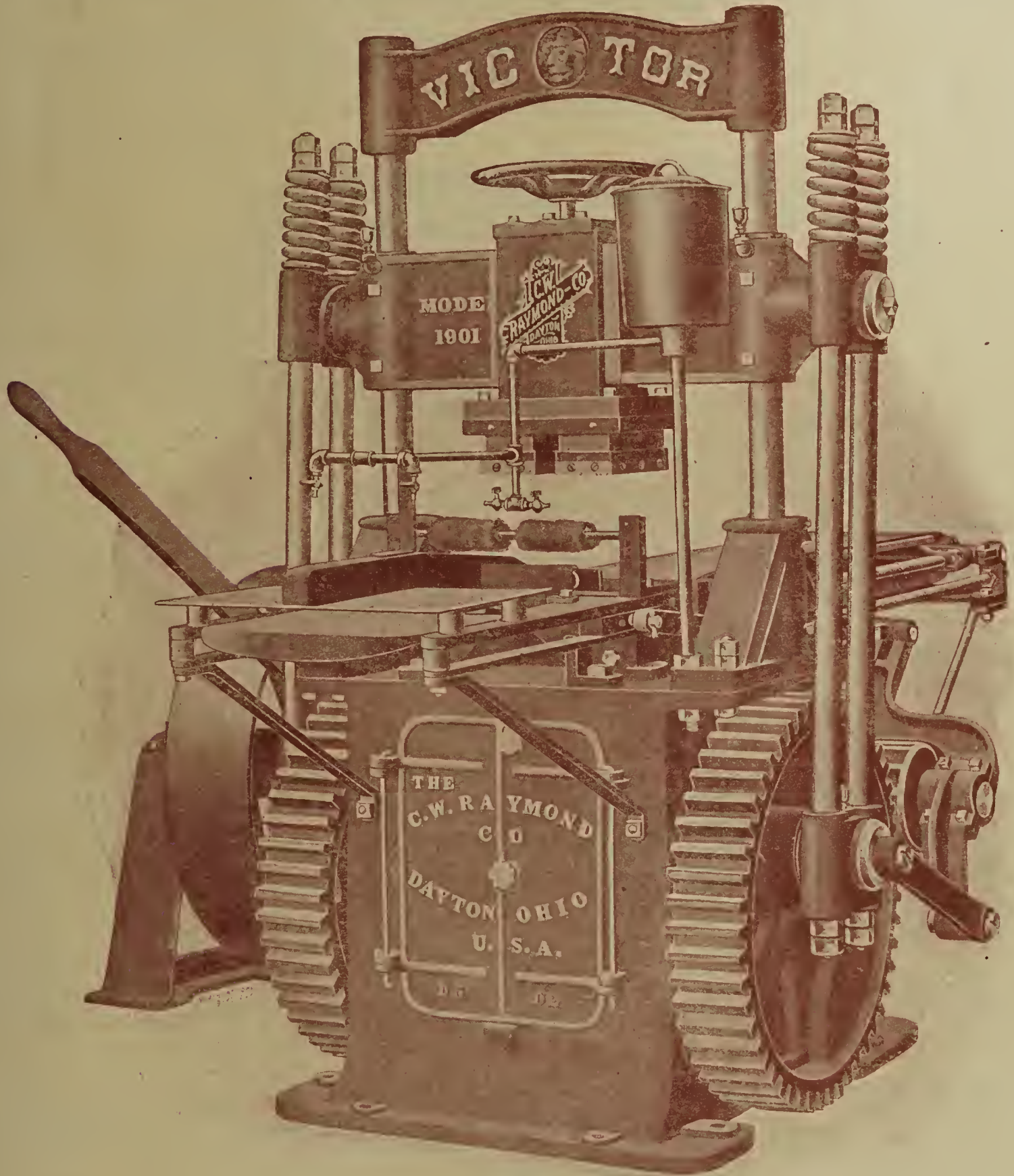
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The Strongest Power in the World of Clayworking Machinery

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Indeed a "VICTOR" and leader of its class. Hundreds in use all over the World and a record of **sixteen years' unbroken satisfaction** to its users.

Simplicity, Strength, Ease of Adjustment and Repairs and General Reliability sees here the crowning achievement in Power Represses.

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The Youngren Continuous Kiln

Producer Gas Fired.



As typifying "Twentieth Century Vehicles" the Automobile stands unique—so also the Youngren Continuous Kiln is as truly the

20th CENTURY KILN.

Both represent **Progress**, both an **Improvement** over that which served before.

The one a betterment in speed and comfort of travel—the other, **simplicity, ease and economy of operation** and greater **certainty of results**.

The **Youngren Continuous Kiln** has long since passed the **remotest semblance of experimentation**, as the large number of these Kilns in **successful operation** all over this country will attest.

There is no ware, however difficult in burning, but will find its highest perfection in this kiln, where conditions can be easily produced to meet the most **exacting material or requirements** and maintained with **ease and certainty** by the ordinary operator.

A saving of **60% of fuel** required in down-draft kilns is easily effected, likewise a considerable **economy in labor and repairs**, insuring a profitable business of one that is only "breaking even" today.

Hear what numbers of users say.

Special catalog on request.

Write today.

THE C. W. RAYMOND CO.

The Strongest Power in the World of Clayworking Machinery

DAYTON, OHIO, U. S. A.

ANNOUNCEMENT

To Paving Brick Manufacturers==

Note the increase in numbers and the character of the manufacturers with whom we have contracted for the production of

WIRE-CUT-LUG BLOCKS

in preference to the so-called repressed or stamped brick.

During the year 1910	{ Corry Brick & Tile Co., United Brick Company,	Corry, Pa. Conneaut, Ohio.
1911	{ Sterling Brick Co., Kushequa Brick Co., Reynoldsville Brick & Tile Co., Danville Brick Co., Patterson Clay Products Co.,	Olean, N. Y. Kushequa, Pa. Reynoldsville, Pa. Danville, Ill. Clearfield, Pa.
During 1st month (January) 1912	{ Wabash Clay Co., Clinton Paving Brick Co., Alton Brick Co., Deckman-Duty Brick Co.,	Veedersburg, Ind. Clinton, Ind. Alton, Ill. Cleveland, Ohio.

The last named Company has three large plants located at Cleveland, Carrollton and Malvern, Ohio.

Over SIX miles of Wire-Cut-Lug Brick pavement were laid within the State of New York in the year 1910 and over TWENTY miles in 1911. More than ONE HUNDRED MILES of this pavement have already been contracted for 1912.

Over 400 cities have advised us that their specifications now admit Wire-Cut-Lug Blocks on an equal basis with the stamped brick.

Brick has long been recognized as the MOST PERMANENT PAVEMENT and now Wire-Cut-Lug Brick means THE PERMANENT BRICK PAVEMENT.

We are making provisions for a Permanent Publicity and Educational Campaign during the Entire Life of our Patents. This Practically Insures Business for the Manufacturers of Wire-Cut-Lug Blocks.

We will License Reputable Manufacturers whom we are satisfied are able to produce No. 1 Paving Blocks.

The Dunn Wire-Cut-Lug Brick Co., Conneaut, Ohio

Patented in the United States, Canada, England and Mexico

POTTS SAND MOULD

Brickyard

Service, as understood by all users
nomical operation at any time, all
ditions, and that Potts Machines
respect can not be questioned;
is the proof—

Horizontal Brick Machines

All Steel and Iron.
Cast Steel Gear.
Steel Shafts.
Bearing boxes all bolted
to rigid Iron Frame.
All surfaces planed.
Bolt holes drilled from the
solid.
All shafts steel; large in diameter
All going to make a machine
which can be depended upon
for making a full day's work
every day, with the least
possible cost for repairs and
maintenance.
A machine which will make
you the largest profit per year.

Disintegrators

Heavy, strong and
durable.
Rolls made from
special iron and
thoroughly chilled.
Shafts of steel,
large in diameter;
bearings long
and lined with
best grades of
metal.
Ring-Oiling,
made in any size
desired, having a
capacity of
25,000 to 150,000
brick per day.

BRICK MACHINES

Equipment

of Potts Machinery, means eco-
the time, anywhere, under all con-
have been successful in every
the past record of these machines
open to all.

Mould Sanders

Sand the moulds perfectly. Do not waste or spill the sand.

No unusual wear on the moulds.

Made with 2 or 3 ply rubber or 3 ply canvas stretched as desired.

Pug Mills and Granulators

Made in various sizes and styles, all amply heavy for the work intended.

Brickyard Supplies

Elevators, Winding Drums, Clay Cars, Moulds, Trucks and Barrows.

Wire Rope Conveyors for taking brick from machine to drying racks, thence to kilns. A money-making proposition.

C. & A. Potts & Co.
INDIANAPOLIS, IND.

WHAT STRIKES YOU WITH SPECIAL EMPHASIS

when you watch an "American" Steam Shovel at work in a clay pit is the ease and business-like way in which the machine does this heavy work. The tough, sticky clay is scooped up with an easy, steady movement, which indicates that the power is ample and the mechanism beautifully adapted to the work.



The shovel is filled at each scoop with 9-16 of a yard of clay, and quicker than we can say it, the plunger at the point of the boom rams the sticky clay out of the dipper.

The "American" is the only steam shovel that has a dipper working with a fixed radius as compared with the end of the boom. This makes it possible for us to employ a plunger at the point of the boom to force heavy, sticky material through that would not, under favorable conditions, fall out of its own weight.

This feature is exclusive with the "American," and because of it we are not obliged to use a "choke-mouth" type of dipper, or a dipper that is narrower at the mouth than at the bottom.

The "American" dipper fills full every time, regardless of whether it is working in hard, sticky material or in loose, free-moving material. It is not so much the size of the dipper that counts as the dipperful and the number of dipperful.

*Circular 15-A Gives an Excellent Description
of This Steam Shovel. Write for a Copy*

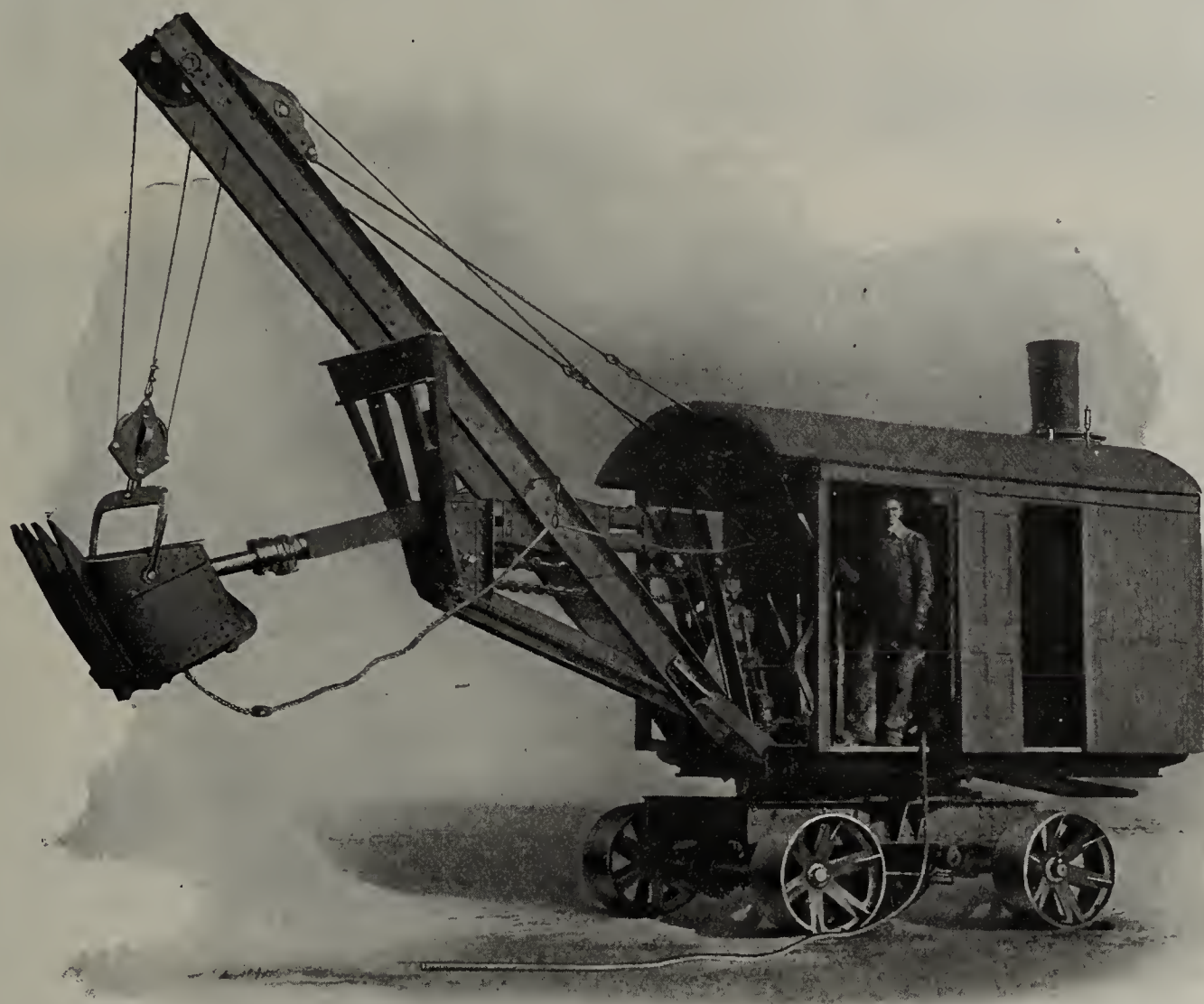
AMERICAN HOIST & DERRICK CO.
ST. PAUL, MINN.

Handle Your Clay With One Man and a **THEW SHOVEL**

For many years we have been furnishing full circle swing steam shovels to the brick manufacturers of the country. We are the pioneers in this field and have created the demand for this type of shovel. We have studied the peculiar requirements of the clay-working industries and have designed shovels to meet these requirements. We offer today a complete line of shovels for this purpose, machines recognized everywhere as the standard of excellence.

THEW Shovels are not like others. They possess features of design not found in other shovels, features that are valuable as to convenience and economy of operation. Several hundred are now operating in brickyards and every one is giving satisfaction.

WE REFER YOU TO ANY OWNER OF A THEW SHOVEL ANYWHERE



Type No. 0 Thew Shovel—Mounted Upon Traction or Car Wheels.

STANDARD SIZES

Type 0,	15 Tons,	$\frac{5}{8}$ yard dipper;	capacity 100 M brick for ordinary clays.
Type A-1,	20 Tons,	$\frac{7}{8}$ yard dipper;	capacity 150 M brick for ordinary clays.
Type 1,	30 Tons,	$1\frac{1}{8}$ yard dipper;	capacity 200 M brick for ordinary clays.
Type 2,	35 Tons,	$\frac{3}{4}$ yard dipper;	capacity 125 M brick for ordinary shales.
Type 4,	50 Tons,	$1\frac{1}{4}$ yard dipper;	capacity 200 M brick for difficult shales.

The above rated outputs are for one man operation and may be doubled by using a fireman and extra laborer on ground.

THE THEW AUTOMATIC SHOVEL CO., Lorain, Ohio

Wellington Well-Made Molds

are sold from 80 degrees East Longitude, = India, = to 125 degrees West Longitude, = British Columbia.

On hundreds of brickyards in all that great region you will find fellow beings using them day after day, to their eminent satisfaction.



Because they are built

- By Careful, scientific carpenters and iron workers who are making Brick Molds their life work, who do nothing else from January to December.
 - On Special and modern machinery to do every part of the work, resulting in a rigidly screwed and evenly riveted mold, clear and smooth, clean-cut panels and letters, and the best of handles.
 - From Our pile upon pile of the best selected Cherry and Hard Maple that money can buy,—air dried from twelve to eighteen months before using. Many manufacturers cannot carry the stock of lumber necessary to warrant a thorough air drying; we find it has paid us well in the extra satisfaction of our Molds made from the thoroughly seasoned lumber.
 - With Special countersunk head screws, threaded to the head, which cannot work out, as well as rivets at each end of partition iron, that absolutely hold the iron flat until the mold is worn out; with perfect dove-tailed joints. These details assure a flat surface on the top of the Molds,—no trouble with the strike knife.
 - With Blocks between the bottoms, the only successful device to absolutely prevent splitting of the bottoms. The brick manufacturer will appreciate this advantage.
- Now, this is our everyday Mold, what we send out on every single order. The steel building iron; heavier or regular, as ordered, varies the price, but all the above details are in our regular grade molds as well as the heavier ones. **Notice if they are in yours.**

In remitting for an order of molds one customer says:

"Enclosed please find check for set of **the best Molds we ever used**, either for hand or machine work. They seem to be built to stay.

(Signed) BARKLEY BROS., Greenville, Ky."

Can you afford not to try to disprove their statement on your yard?

Let us make you prices on your 1912 Molds, or a part of them at least, to be used with and compared with our competitors'.

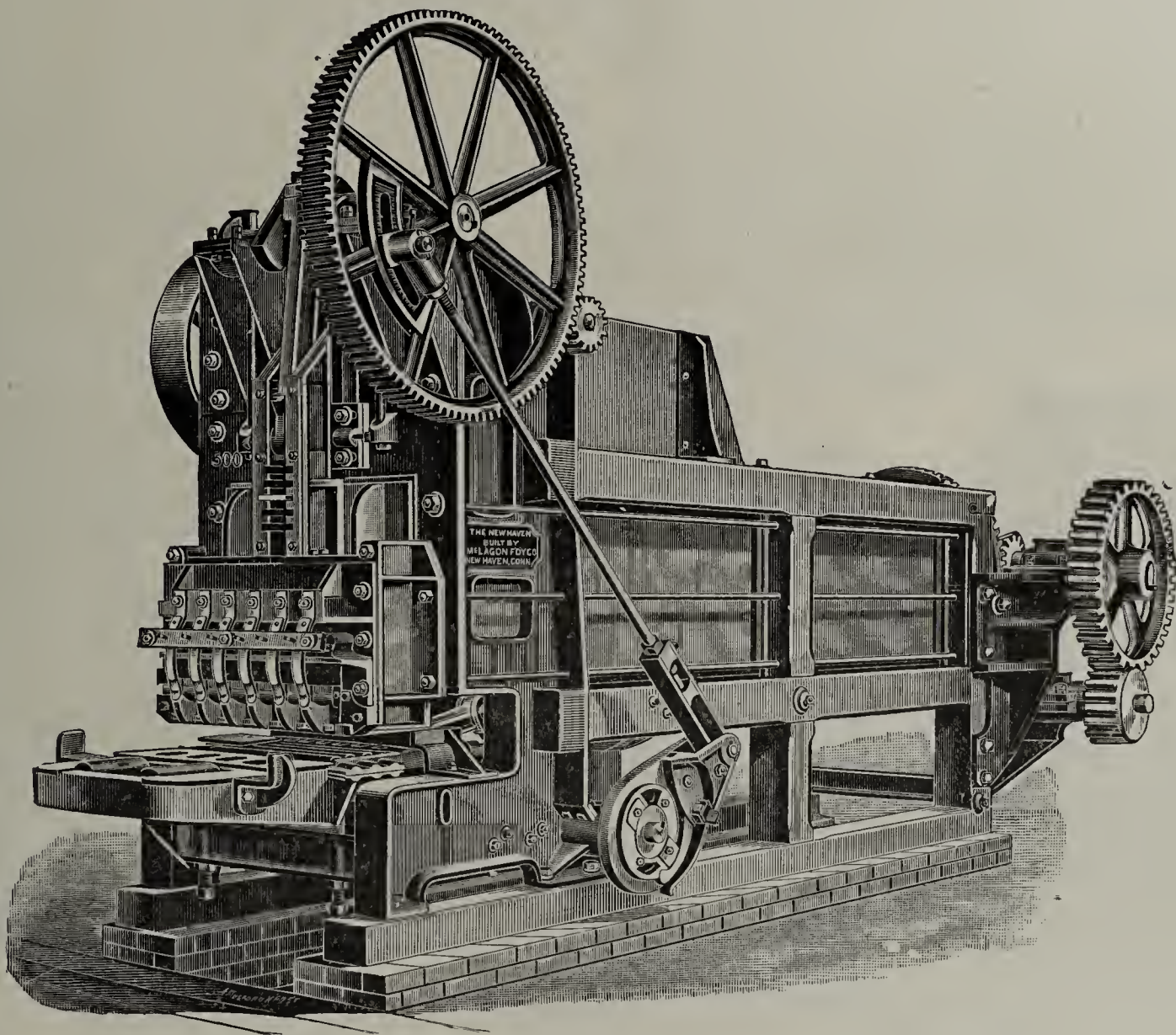
The Wellington Machine Company

Wellington, Ohio

Soft Mud Brick Machines

Are the only kind we build and we build them well. We build them with the greatest strength placed where it is the most required. We build them with stout shafts, long bearings, large oil holes, strong gears, steel liners, and all other details in proportion. We build them so they

DO NOT BREAK DOWN EVERY DAY.



"New Haven" Horizontal Brick Machine.

NEW HAVEN BRICK MACHINES

are popular at home because of their superior qualities. More than three-fourths of the brick made in New England are the product of **New Haven** machines. For hard service they are sure to satisfy where others fail. That is the reason why each New Haven machine is a standing advertisement, and why all users recommend them.

The EASTERN MACHINERY CO.

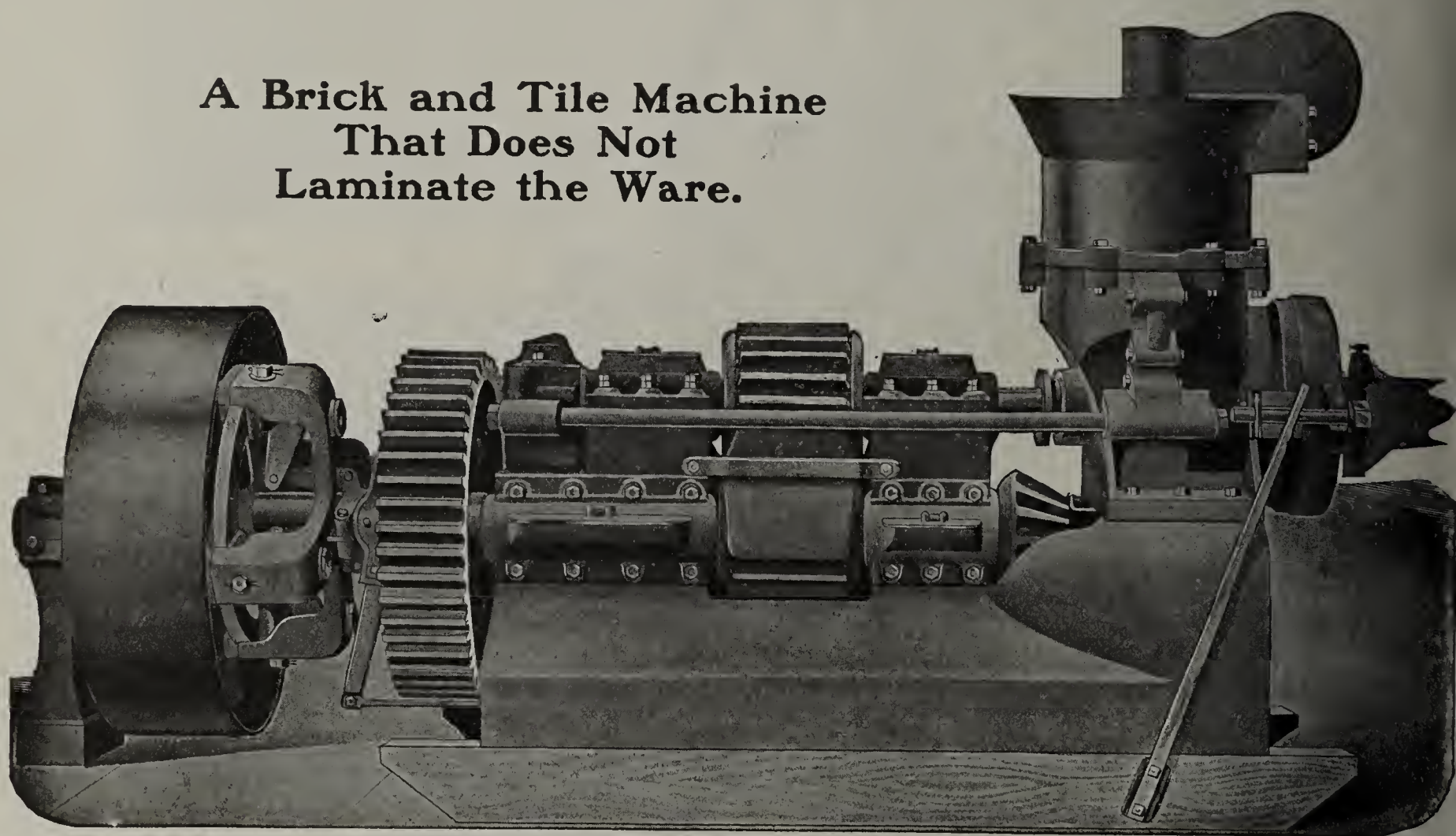
NEW HAVEN, CONN.

TURN FAILURE INTO SUCCESS

With The Wonder Machine.

A Machine of Large Capacity. Unequaled in
Record of Durability.

A Brick and Tile Machine
That Does Not
Laminate the Ware.



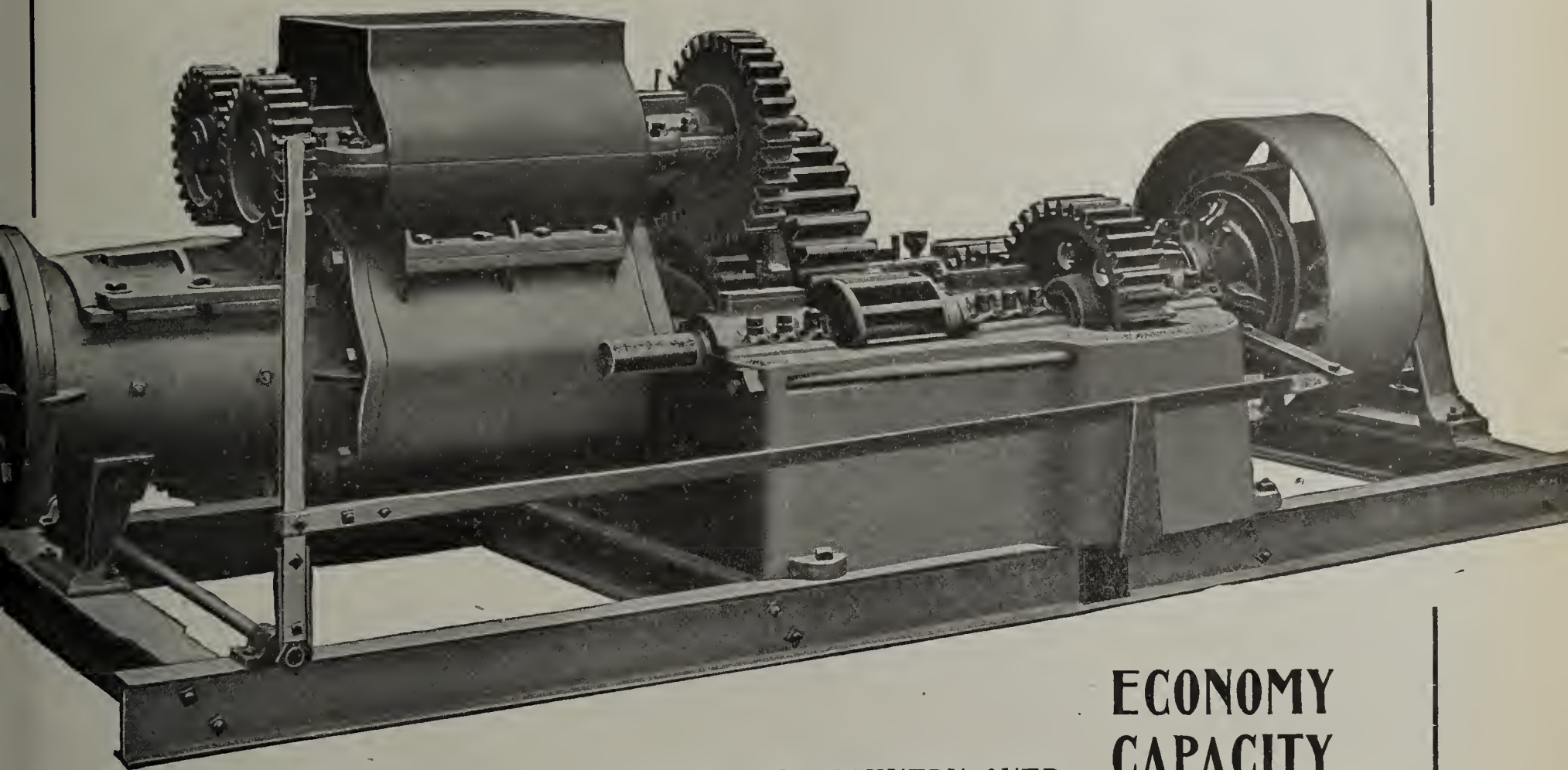
The Big Wonder Brick and Tile Machine.

We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans, Disintegrators, Pug Mills, Granulators and Corrugated and Smooth Roll Crushers.

Write for Catalog and Prices.

THE WALLACE MFG. CO.,
FRANKFORT, IND.

MADDEN MACHINES



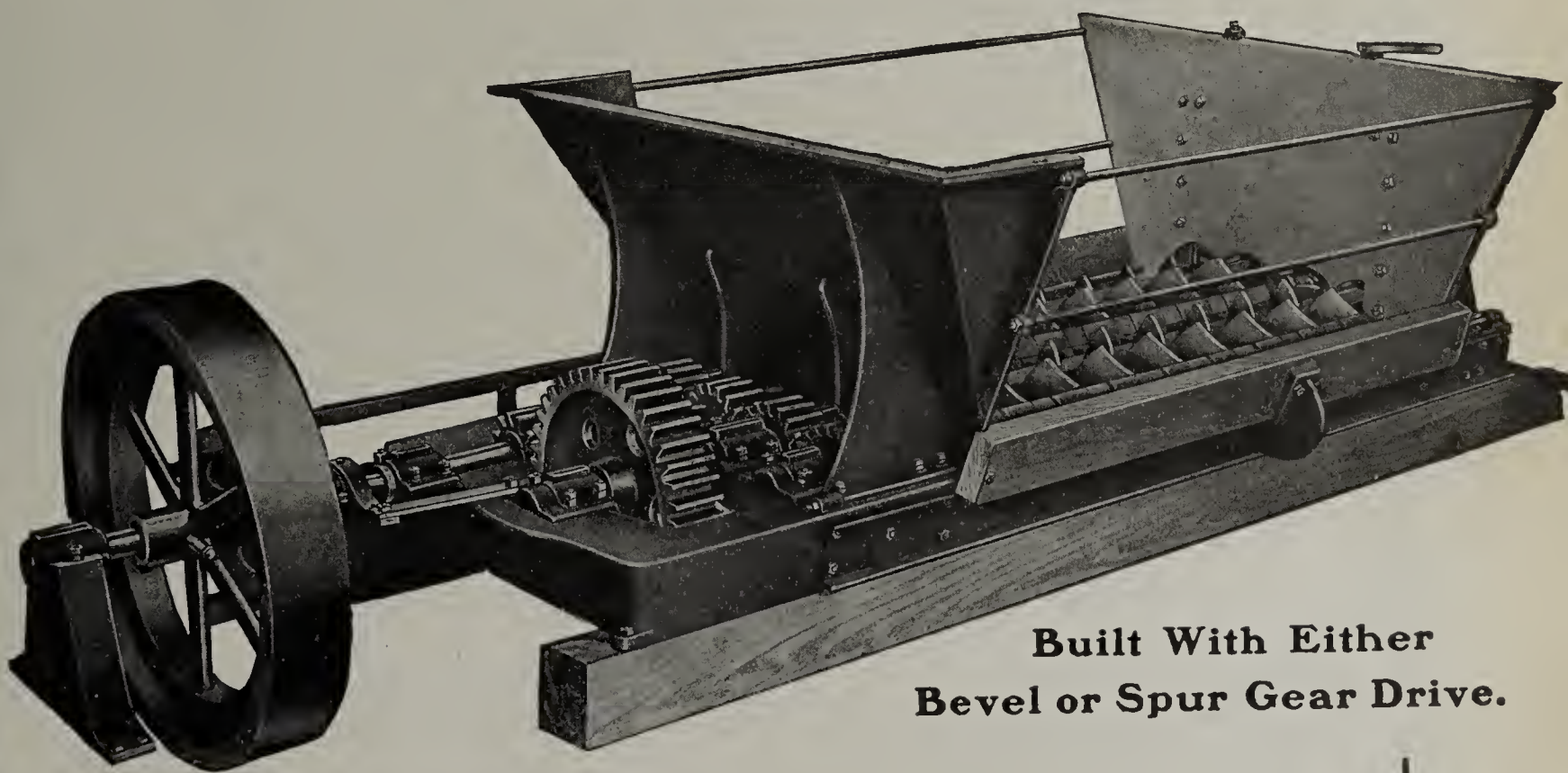
FAMOUS THE COUNTRY OVER

**ECONOMY
CAPACITY
QUALITY**

Used in the most successful Clay Plants in the manufacture of Drain Tile, Brick, Hollow Blocks, Silo Blocks, Fire roofing, and Saving Brick.

TALK WITH ARBUCKLE

We can equip your entire plant with crushers, integrators, FEEDERS, Dumpables, Elevators and any machinery used in Clay-working Plants.



**Built With Either
Bevel or Spur Gear Drive.**

Write to **ARBUCKLE & CO., Inc.** Rushville, Ind.

Successors to Scott-Madden Iron Works Co. Rushville Plant.

(Sold by Scott-Madden Iron Works Co., Keokuk, Iowa)

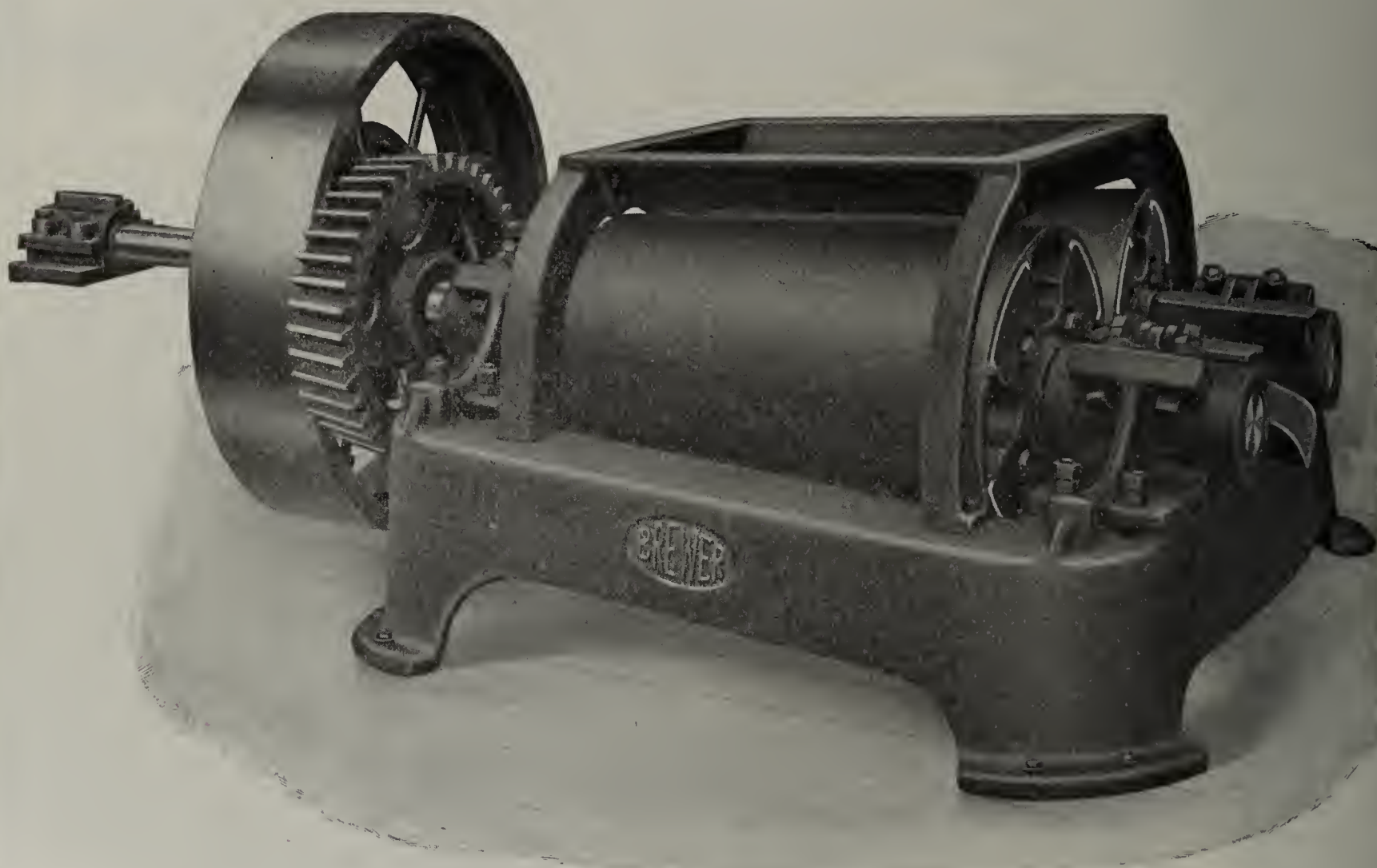
Mention THE CLAY-WORKER.



CLAY CRUSHERS

We make a specialty of Crushers. We build all kinds and sizes—Conical, Straight, and Beaded Roll Crushers, Compound Crushers, Disintegrators and Dry Pans.

We make the rolls with removable shells and we make the shells of a special hard and durable material which, compared on a basis of cost, outwears manganese steel or anything else.

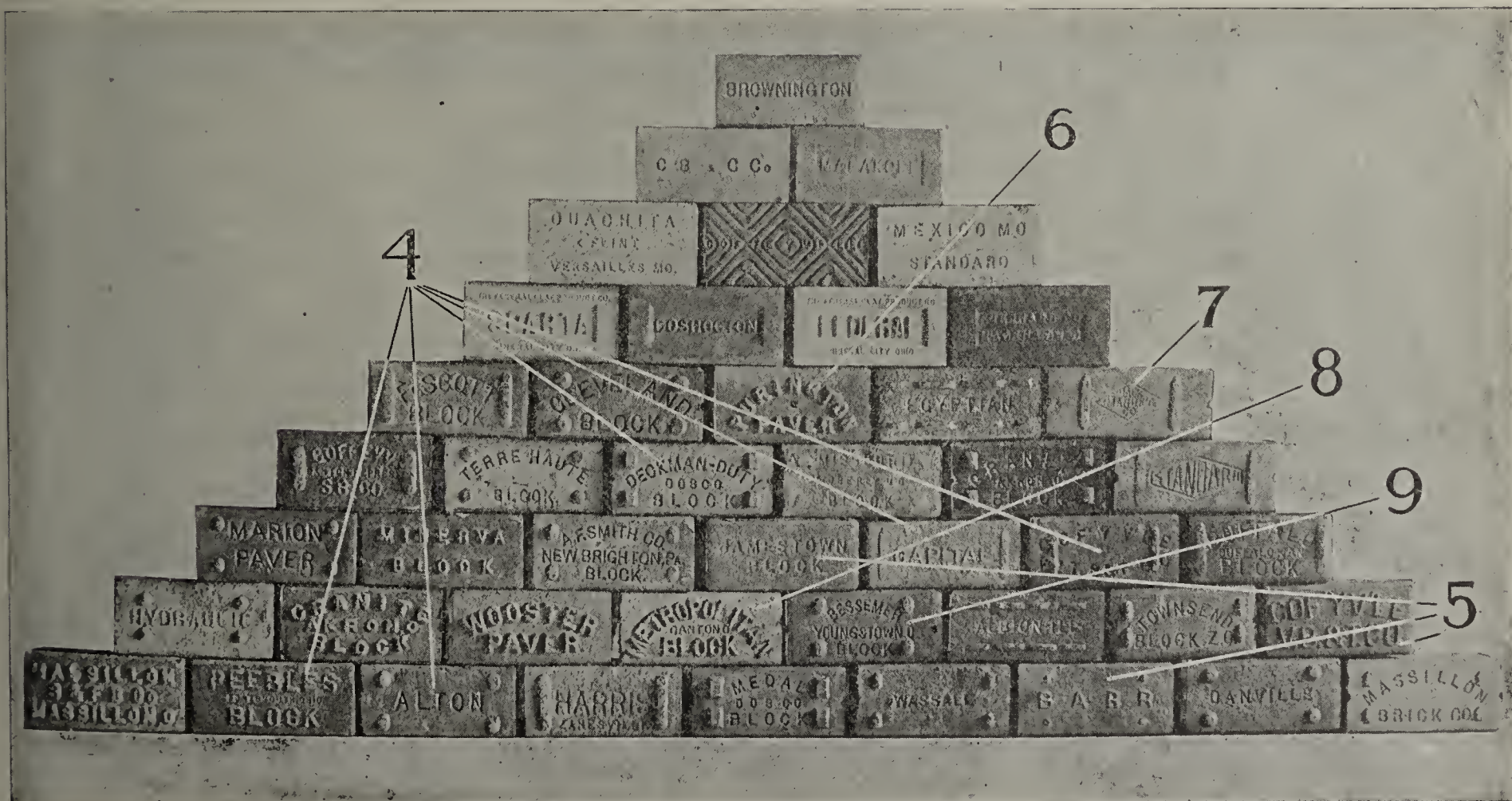
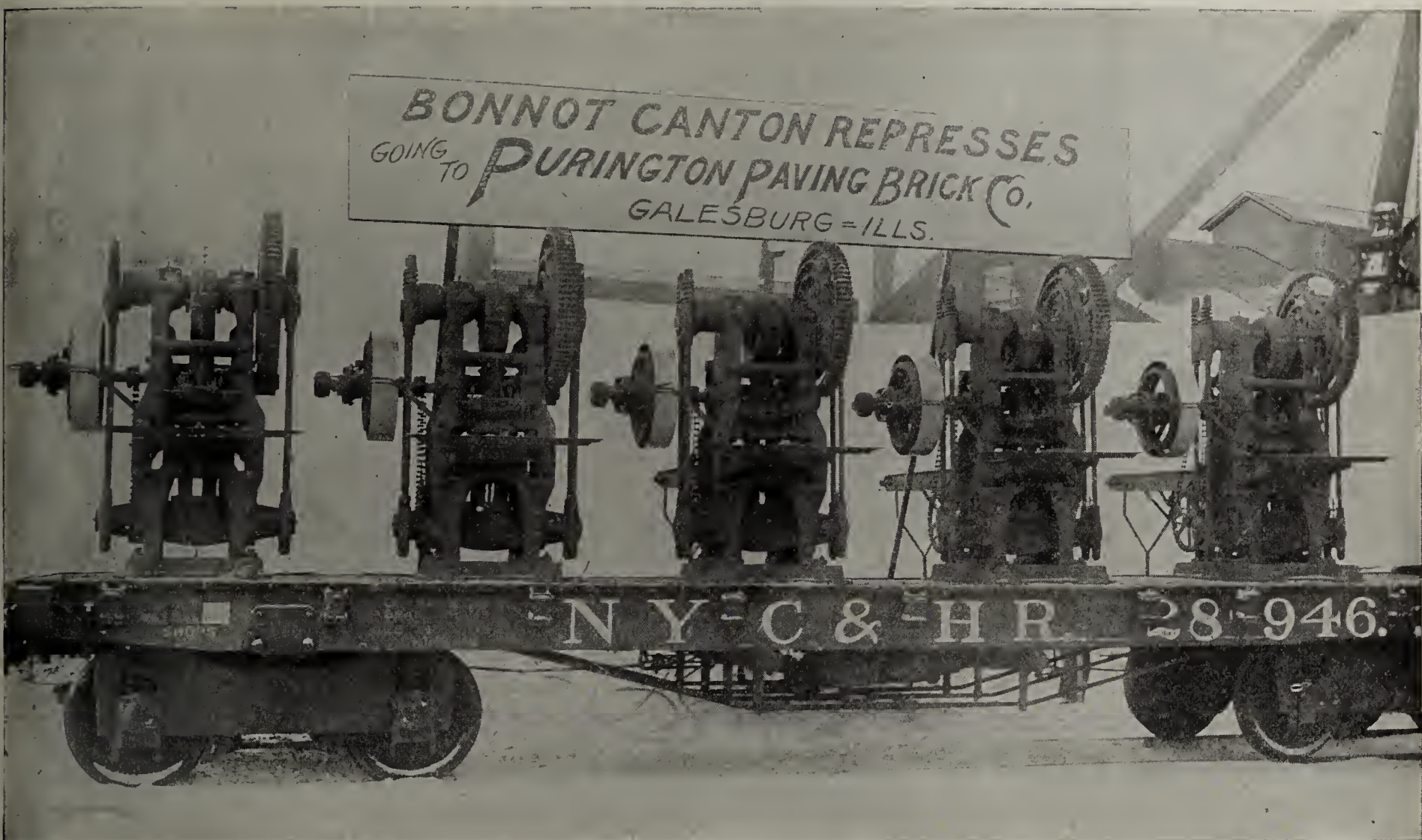


But Crushers are only a small part of our line—we also build
**Brick Machines, Drain Tile Machines, Automatic Cutters,
 Pug Mills, Granulators, Hoists, Conveyors, Etc.** ∴ ∴

GET OUR COMPLETE CATALOG.

H. BREWER & CO.  **Tecumseh, Mich.**

Bonnot Repress has been Adopted by Purington Paving Brick Co.

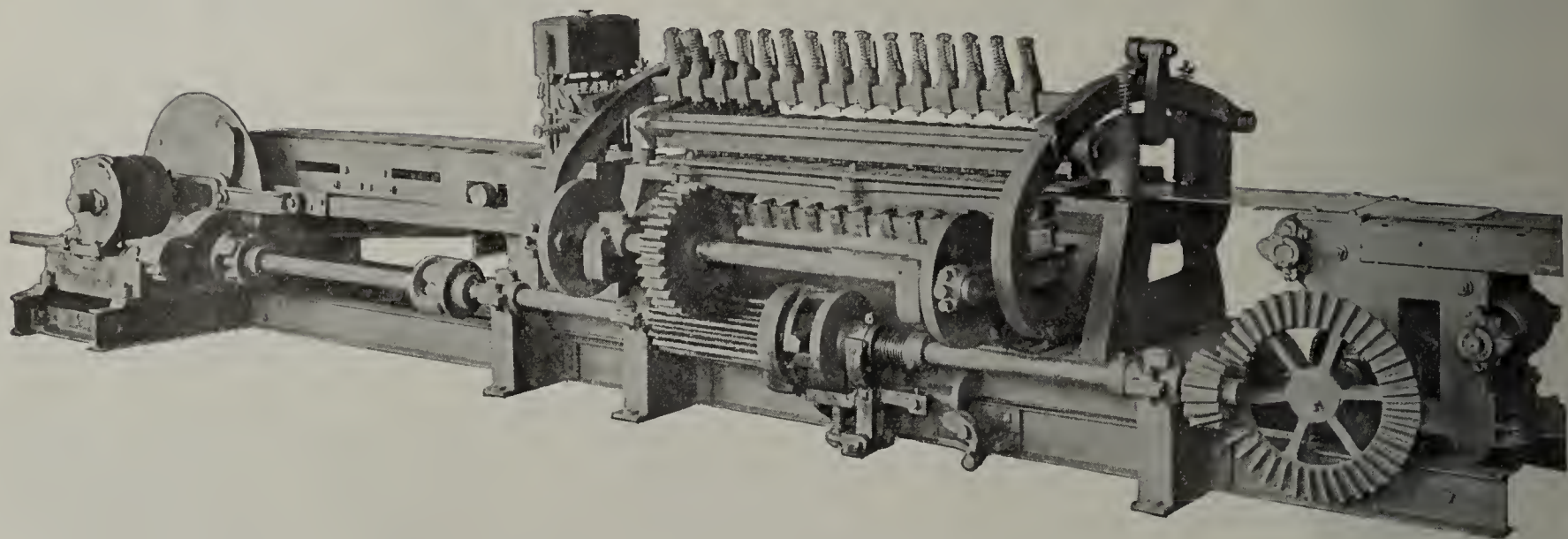


A study of this cut will show the class of brickmakers who use BONNOT REPRESSES and the number of machines some of them are using.

909 N. Y. Life Bldg., Kansas City, Mo
631 Higgins Bldg., Los Angeles, Cal.

THE BONNOT COMPANY, Canton, Ohio

Mention THE CLAY-WORKER.



Model T 60 Reciprocating Automatic Cutter

This cutter, which is of the reciprocating type, is built in two Models "T 50" and "T 60" for capacities up to 12,500 brick per hour or more. The design is extremely simple and substantial. It embodies many of the well tried features of our Rotating Automatic Cutters.

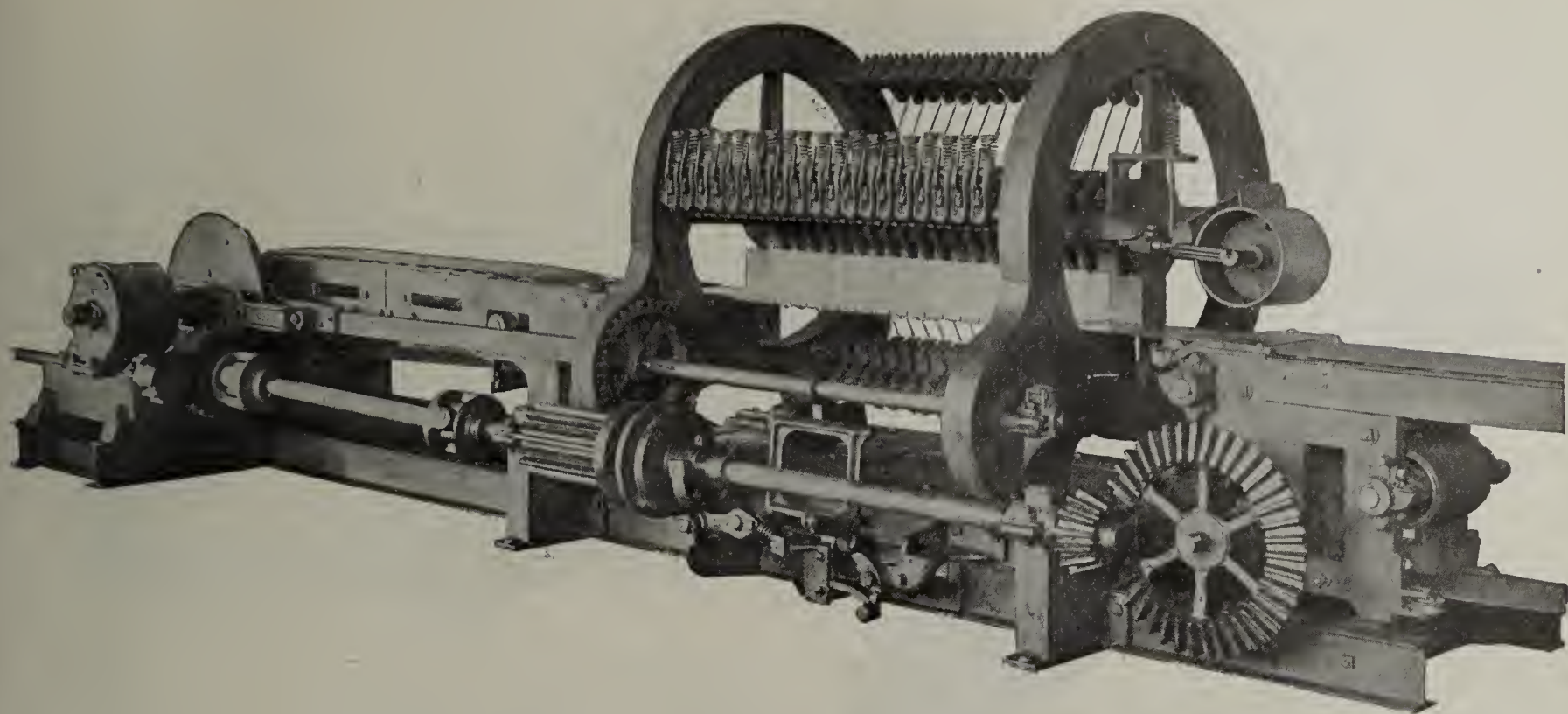
The cutting frame carries only one set of cutting wires and has a swinging movement, avoiding the wear and play common to sliding parts. It is actuated by cranks, driven by a single gear and pinion, giving a smooth, quiet starting and stopping of the cutting stroke. The frame remains stationary between cuts, affording ample time to renew broken wires.

The platens are very easily removed and replaced when the thickness of cut is to be changed. Four bolts hold the platen in place. When these are removed it can be lifted straight up, between the end castings. Only a few minutes required to make the change.

An upper platen (Dunn Patent) can be furnished to insure smooth upper edges on the brick. This is automatically raised to clear the clay column after the cut is completed and is returned to position in time for the next cut, avoiding any tendency for the column to become wedged. Solves the problem of making smooth edge brick on a reciprocating cutter.

Either Model is made to suit a variety of work. The "T 60" is built special to accommodate the largest sizes of fireproofing, etc. These cutters can also be especially arranged for cutting the Dunn Wire-Cut-Lug Paving Blocks.

E. M. FREESE & COMPANY, Galion, Ohio



Model C 20 Rotating Automatic Cutter

We build rotating automatic cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for hollow ware, fireproofing, radial chimney blocks, etc., up to $13\frac{1}{2}$ in. by $7\frac{1}{2}$ in.

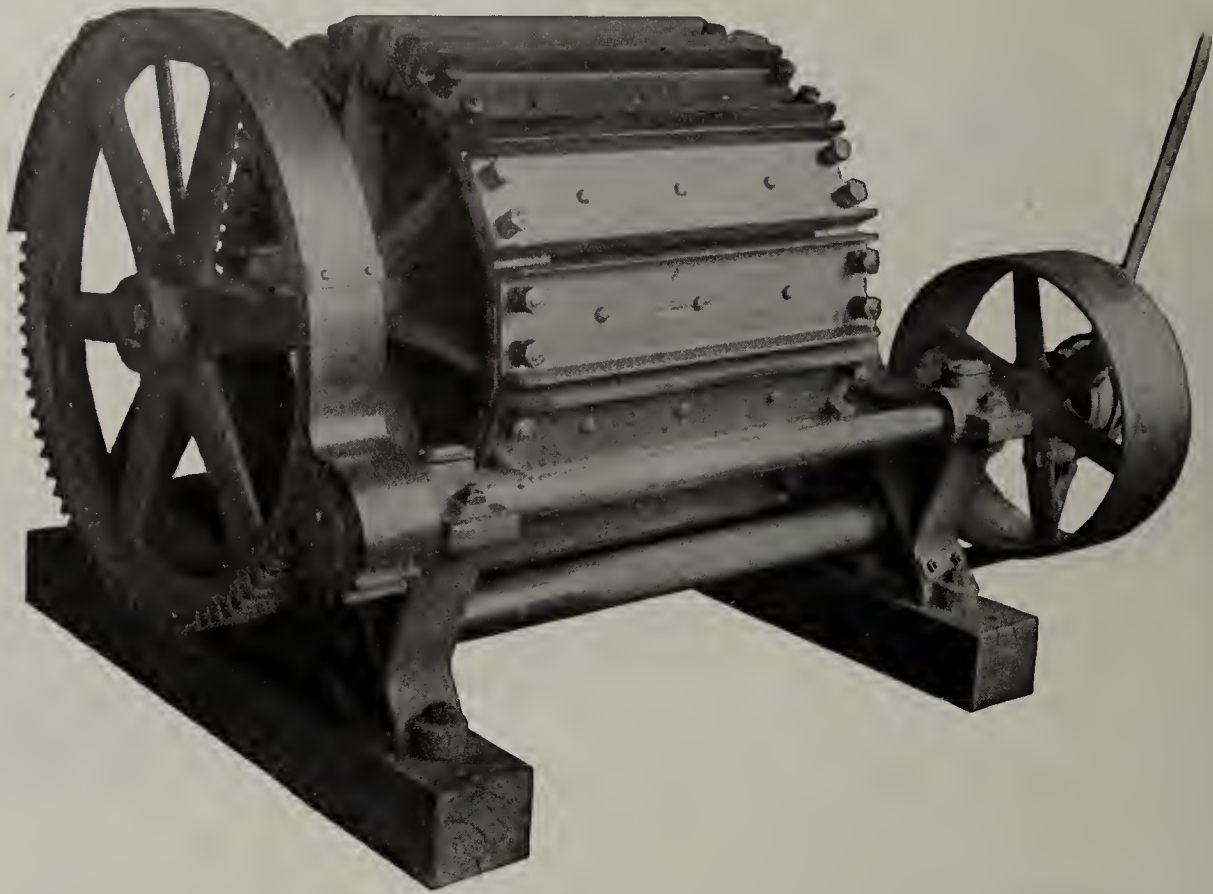
The above illustration shows the Model C 20 Cutter, which is an improved model of our well-known Size 16. It is intended for capacities up to 7,500 standard size brick per hour—18 brick are cut at each cut. At this speed the cutting reel makes only a little over two revolutions per minute, remaining stationary between cutting strokes. It is not necessary to stop the brick machine to renew broken wires, as this gives ample time.

The cutting apparatus, including drive for separating belt, is entirely self-contained, being mounted upon one set of I-beam sills, assuring permanent alignment of all parts. The measuring and separating tables are built with iron or steel sides.

Cutting reel and carriage are carried on rollers requiring little or no oiling. Carriage is positively moved with the clay by an accurate cam. Clutch mechanism is the simplest possible. Wearing surfaces have renewable steel plates.

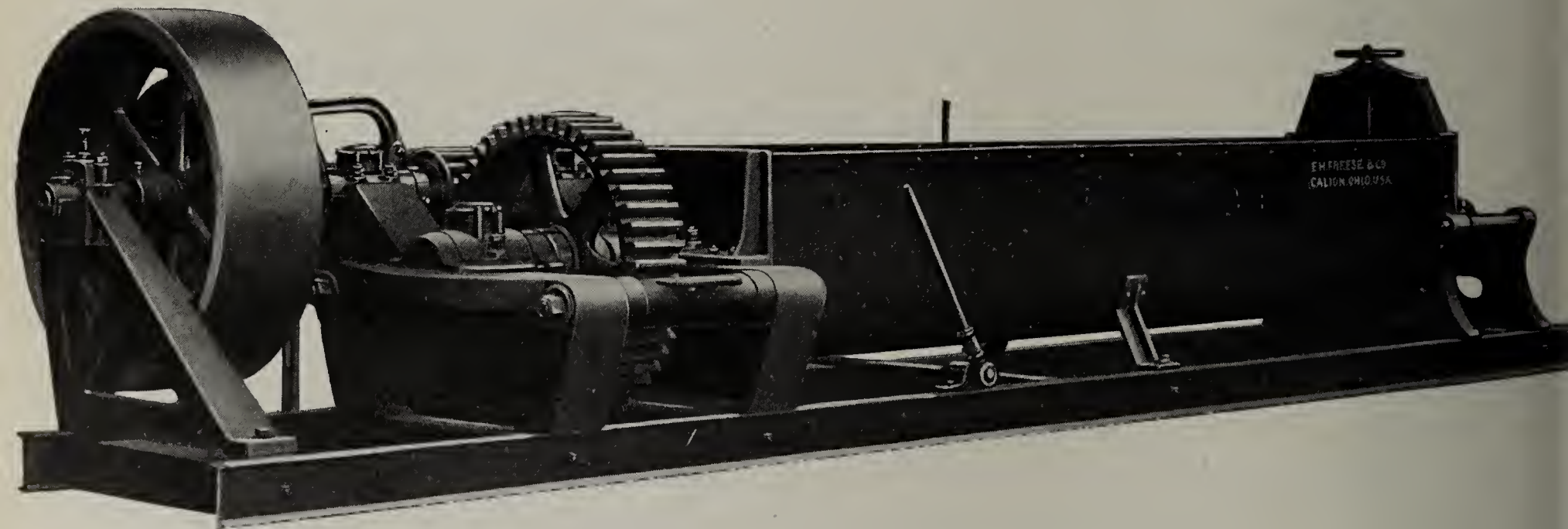
Particular attention is called to the platen construction. The platen is cast in one piece of tubular cross section and is very rigid. Surfaces covered with renewable steel plates, insuring fine slots. The angle of the cutting wires has been changed to give perfect edges on the brick. Built to give long service without skilled attention. Complete description will be furnished on request.

E. M. FREESE & COMPANY, Galion, Ohio



STANDARD RATTLER FOR PAVING BRICK

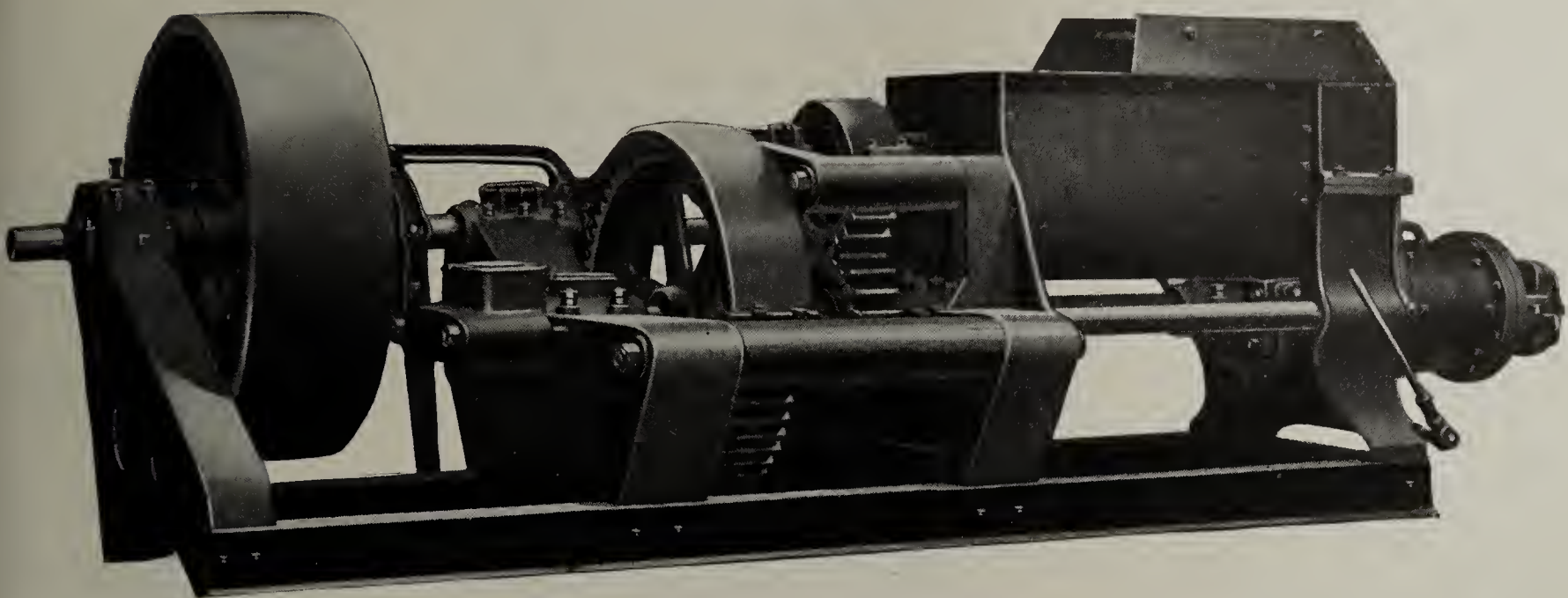
Built to fully comply with the new specifications adopted by the National Paving Brick Manufacturers' Association. Write for detailed information.



We are building Pug Mills in great variety—more than forty patterns and sizes. We have both spur and bevel geared Pug Mills of all sizes, arranged to discharge at either end as may be specified. The above is an example of a heavy, direct geared machine of large capacity, designed for most exacting requirements.

Let us send particulars.

E. M. FREES & COMPANY, Galion, Ohio



Model "KC" Auger Brick Machine

This machine has several features of merit. The construction is simple. The parts conveniently accessible. Each of its three shafts has three journal bearings, insuring substantial support for the gearing and more permanent alignment. The feeding chamber is open its entire length and the auger chamber is kept positively and uniformly supplied with clay. The gearing is designed for smooth and quiet operation. All the shafts are of large diameter and the proportions throughout are extremely heavy. The workmanship and material are of the best.

Intended for first-class product and economical operation.

E. M. FREESE & COMPANY, Galion, Ohio

RUNNING DAY AND NIGHT ON ORDERS WANT ANY BETTER ASSURANCE?

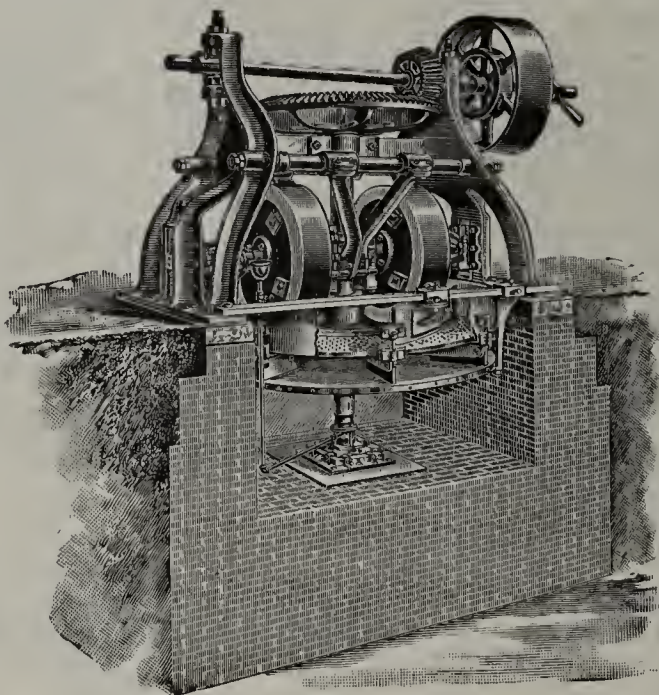
If in the market for pans or presses

**COME
At Our Expense**

and let us show you what our machinery is doing in the BEST PAYING plants of the country.



Write Us You are Coming
and When.



**Our Machines
are
BUSINESS**

If that's what you mean,

COME;

If not—DON'T

STEVENSON'S

WELLSVILLE, OHIO

**Never Made So
Many Presses**

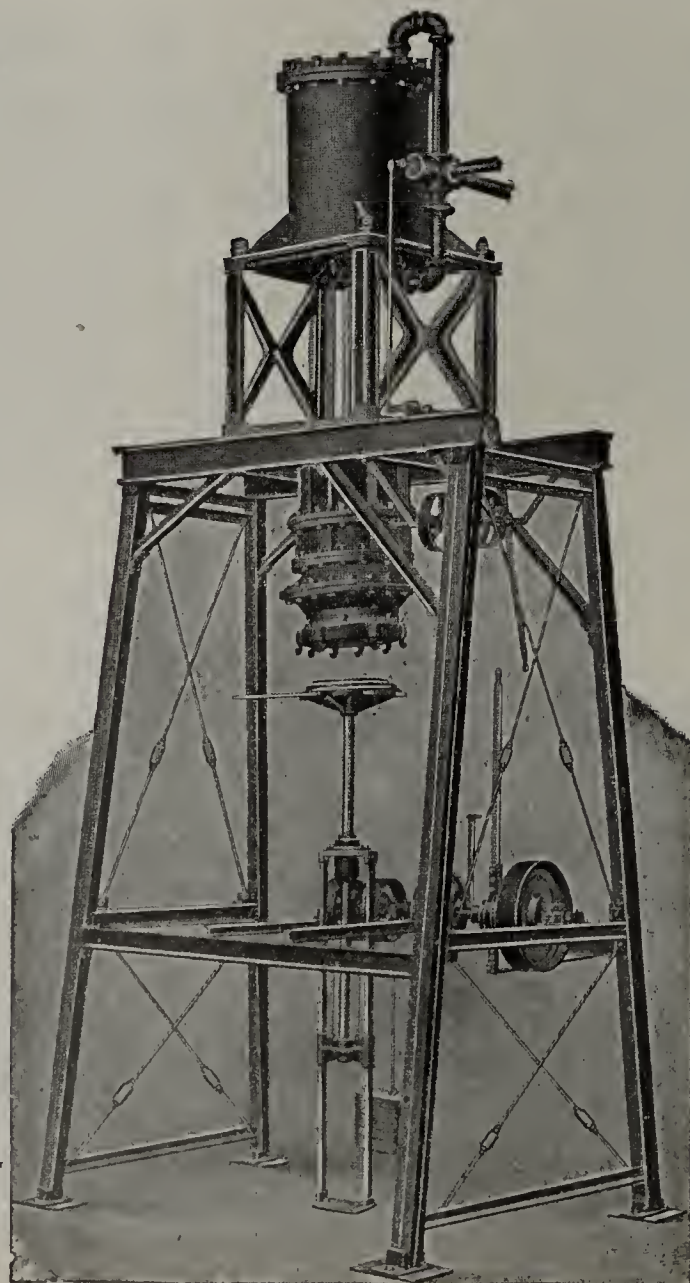
Do you know why?

There are

**No
Other
Such
Presses
Made**

and

NEVER WERE



Our Presses

Are rapidly

**Displacing
Other Presses**

You "from Missouri?"

If you want a new press
COME at

OUR EXPENSE

and

WE'LL SHOW YOU

Mention The

Clay-Worker.

For Sixty
Years
The Name

Frost

Has stood for all
that is best in
Power Plant
Equipment, Clay
Crushing and
Mixing Machinery

SOME OF OUR PRODUCTS

Dry Pans
Wet Pans
Sand Mills
Chaser Mills
Brick Rattlers
Automatic Side Crank Engines
Automatic Center Crank Engines
Automatic Enclosed Engines for
Belted Service
Automatic Enclosed Engines for
Direct Connected Service
Throttling Side Crank Engines
Throttling Center Crank Engines
Throttling Twin Engines

Well Drilling Engines
Horizontal Return Tubular Boilers
for 100, 125 and 150 lbs. pressure
Vertical Submerged Tube Boilers
Vertical Full Length Tube Boilers
Scotch Marine Boilers
Portable Locomotive Boilers
Rocking and Dumping Grates
Open Feed Water Heaters
Closed Feed Water Heaters
Pressure Tanks
Air Receivers
Stack and Plate Work
Complete Power Equipment

Send for Our Descriptive Bulletins Illustrating and
Giving Full Details of Our Products.

The **Frost** Manufacturing Co.

Works at
GALESBURG, ILL.

CHICAGO OFFICE:
112 West Adams St., CHICAGO, ILL.
Cable Address "FROSTMANCO," Chicago.

Mention THE CLAY-WORKER.

FREE

This superb self-pronouncing Dictionary, in substantial cloth binding with The Clay-Worker for 1912, for \$2.00. Nothing nearly so valuable has ever been offered before. The flexible morocco binding, an elegant volume, will be sent for \$2.75, charges prepaid, together with The Clay-Worker for twelve months. **ORDER NOW.**

The Most Valuable Premium Ever Offered Free.



FRENCH MOROCCO BINDING
Absolutely Flexible

reinforced in all necessary parts to add to strength and durability. Title stamped in gold on side and back, marbled edges, Patent Thumb Alphabetical Index.

=THE NEW UNIVERSAL= —SELF-PRONOUNCING— DICTIONARY

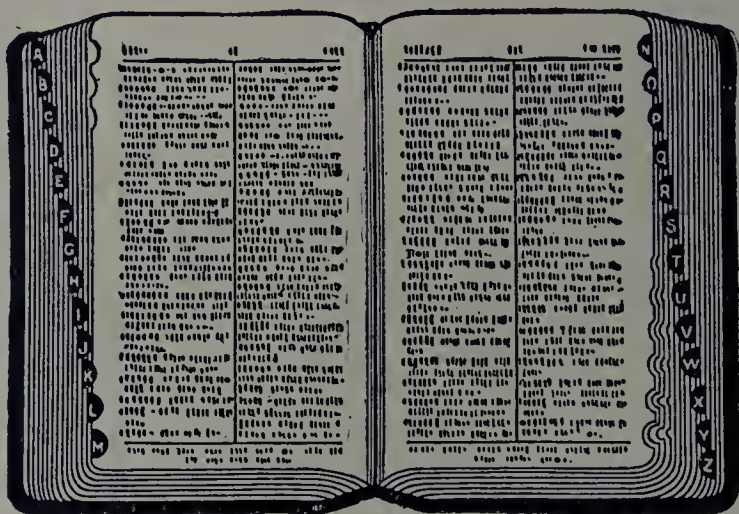
Based upon the Solid Foundation laid by
NOAH WEBSTER

and other Lexicographers, thoroughly modernized by
CHARLES MORRIS

In the Office It tells you how to divide each word into syllables; how to pronounce it, whether it begins with a capital letter or a small letter; gives abbreviations; legal and commercial terms, and names of persons and places. It will be found indispensable to employer, stenographer or clerk.

In the Home and School Its simple arrangement and clear definitions admirably fit it for this purpose. The bold type and the vast amount of general information it contains, commends it to Teacher, Parent and Child.

Printed
from New
Type-Set
Plates



This cut shows Patent Thumb Index and how Dictionary appears when open. It lies perfectly flat. Size when open 8 x 11 1/2 ins. Size when closed 5 1/2 x 8 1/2 ins. Contains over 1000 pages.

In Convenience of Size
Fullness of Contents
Logical Arrangement

it is especially adapted to
every-day use for

Business Man, Teacher,
Student and The Home

Among the noteworthy improvements are the following:
It Contains All the Words in the English language in ordinary use, including the many new words that have recently come into use. The definitions are accurate and reliable and embrace all distinctions and shades of meaning.
Words Divided into Syllables. Each index word is divided into syllables in the manner employed by the best writers.
The Proper Use of Capital and Small Letters is clearly indicated. Proper nouns begin with capital letters, common nouns begin with small letters.
The Pronunciation of Each Word is shown by a clear and properly accented system of phonetic spelling.
The Synonyms and Antonyms are given with the words themselves following the definitions instead of the usual but less convenient method of placing them in a separate list in the appendix.
Each Word and Its Derivatives are separately indexed instead of the suffix words and prefix words being crowded in with the definitions, an expedient used to save space, but with a loss of clearness and utility.
Many Other Necessary Features Useful in Home, School and Office, including Rules for Pronunciation; Dictionary of Prefixes and Suffixes of Names of Men and Women; of Mythological and Classical Names; of Forms of Address; of Popular Titles of Cities and States; of Important Persons, Places, Monuments; of Foreign Words and Phrases, Colloquialisms, Quotations and Significant Words and Phrases frequently met with in Literature; and a Dictionary of Words adopted by the Simplified Spelling Board; Maps of the World and of the United States in Colors; Flags of All Nations in Colors.

1000 PAGES

SIZE 5 1/2 x 8 1/2 INCHES



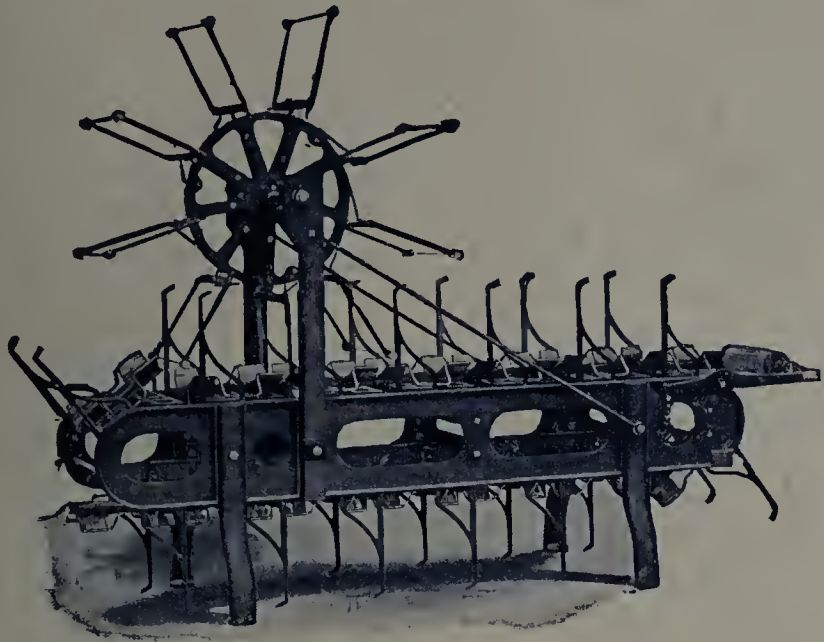
ABSOLUTELY FLEXIBLE
The French Morocco binding is so flexible that the book may be rolled without injury to binding or sewing.

Remit by check or in any way most convenient to yourself.

T. A. Randall & Co. (Inc.), Publishers, Indianapolis, Ind.

Mention THE CLAY-WORKER.

Needed Every Day at the Plant, the Office, the Home.

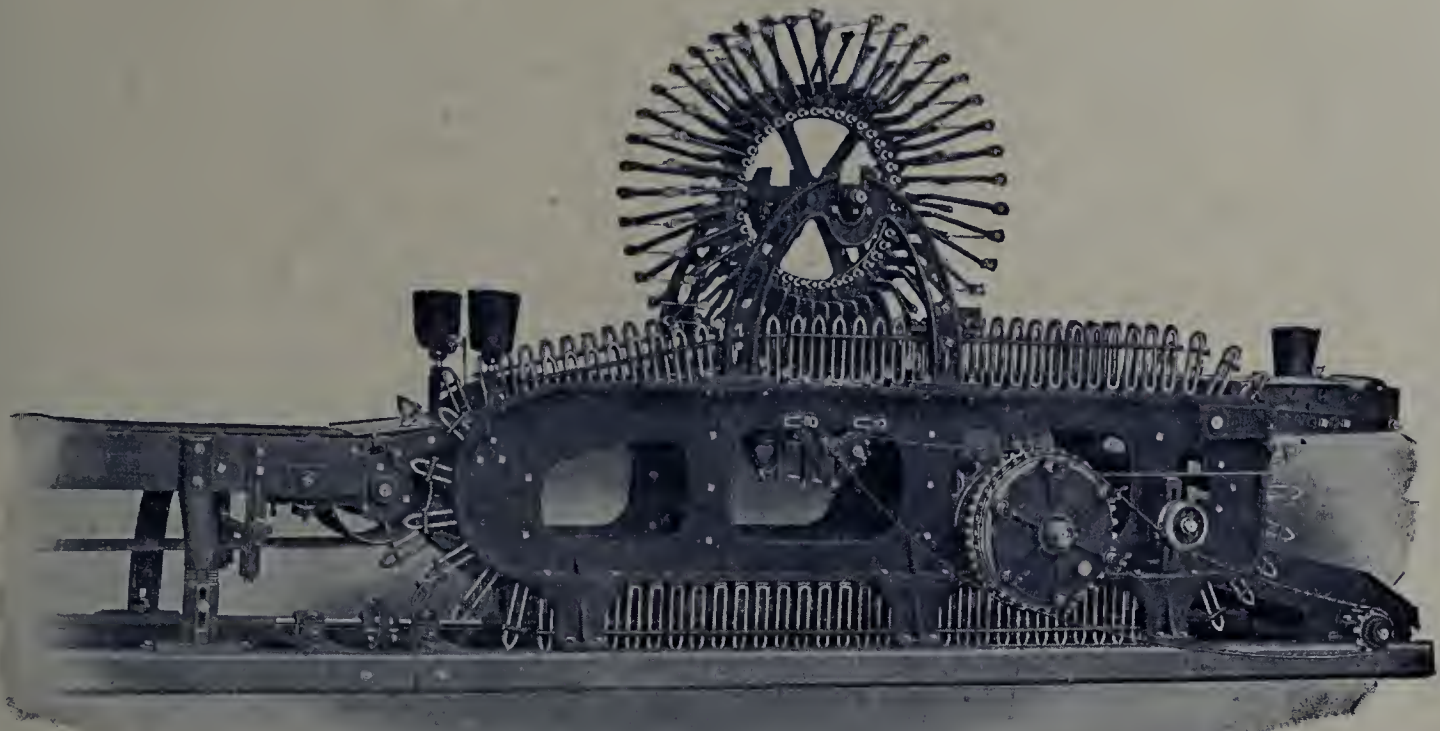


Bensing's Automatic Tile Table

OUR

Automatic Cutting Tables

Are much more satisfactory and cheaper to operate than any hand table made. We can furnish them for cutting most any ware used—solid and hollow brick, paving brick, face brick and tapestry brick, drain tile, large and small, silo blocks, fireproofing, Denison tile, roofing tile and floor tile. They will save their cost in a few weeks. Write us for more complete information.



Bensing's Automatic Side Cut Brick Table

Our line of General Clayworking Machinery is very complete and second to none in quality. We have started many plants on the road to success when failure seemed certain. If you are having machinery trouble, or are planning on building a new plant, you should not fail to write us.

The J. D. Fate Company

Plymouth, Ohio

A. E. DAVIDSON, Western Representative
604 Blake-McFall Bldg.
Portland, Oregon.

Manufacturers Equipment Co.
Sales Agents
Dayton, Ohio.

We manufacture a complete line of
BRICK MACHINERY
 and make a specialty of equipping yards.

Roller Bearing Brick Barrows.

Everybody duplicates orders; they must be used to be appreciated.

Price \$7.50 each.

Stock size wheel, 20 inches diameter.
 (If wanted, 18 inches.)



For catalogue and any further information address

James W. Hensley,

Successor to S. K. Fletcher.

Indianapolis, Ind.



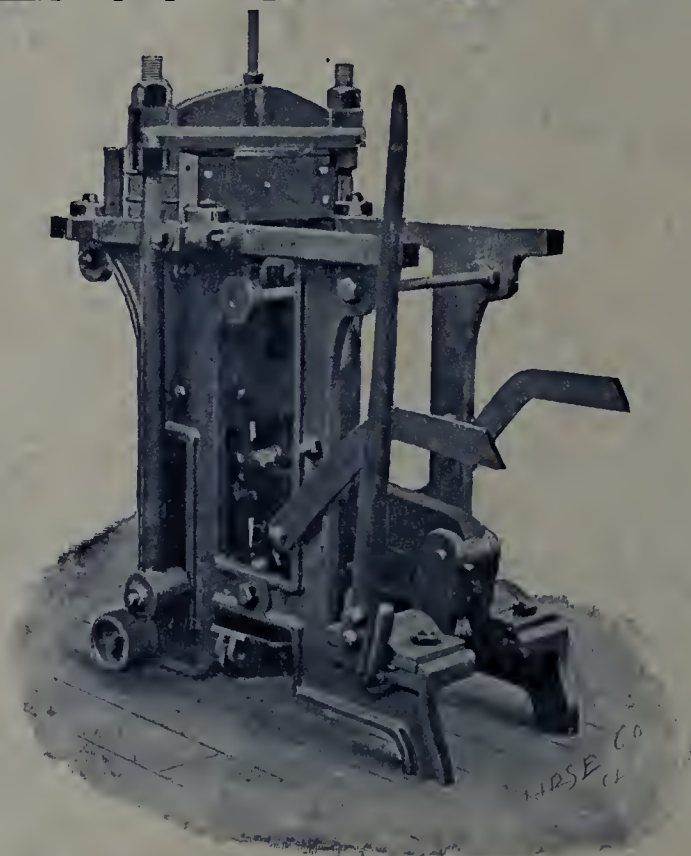
SAND DRYER.

Weight, 1,100 lbs. Every brick work needs one. Diameter over all, 3 ft. 1 in. Height 4 ft. 9 in. We will be glad to send one to any responsible party subject to ten days' trial and approval. We sell them that way and not one ever came back.

About a year ago a brickmaker bought a Lakewood Single Die Hand Repress and began supplying the local demand. The demand grew and grew so that he was compelled the last week in March to purchase "The Old Reliable Richardson Repress," for, he said, "I cannot keep up with my hand repress, but must have a power machine."—"Go thou and do likewise."

LAKEWOOD LINE

- "Lakewood" Richardson Repress
- "Lakewood" Soft Mud Rack Cars
- "Lakewood" Single Deck Dryer Cars
- "Lakewood" Double Deck Dryer Cars
- "Lakewood" Triple Deck Dryer Cars
- "Lakewood" Flat Cars
- "Lakewood" Turntables
- "Lakewood" Transfers
- "Lakewood" Portable Track
- "Lakewood" Clay Cars
- "Lakewood" Dump Buckets
- "Lakewood" Kiln Bands
- "Lakewood" Miniature Repress
(for models)
- "Lakewood" Switches, Frogs
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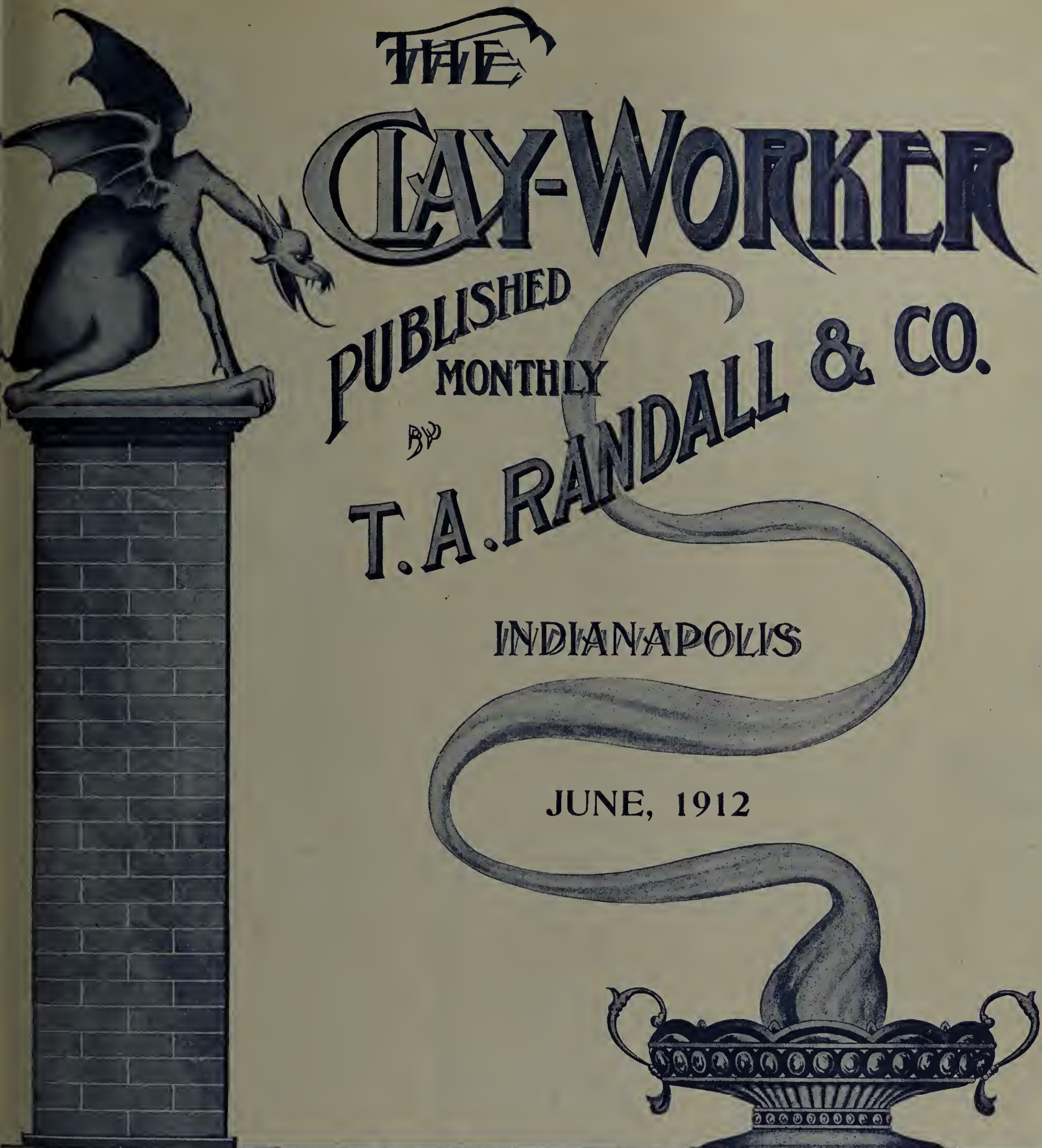
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THE CLAY-WORKER

PUBLISHED
MONTHLY
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INDIANAPOLIS

JUNE, 1912



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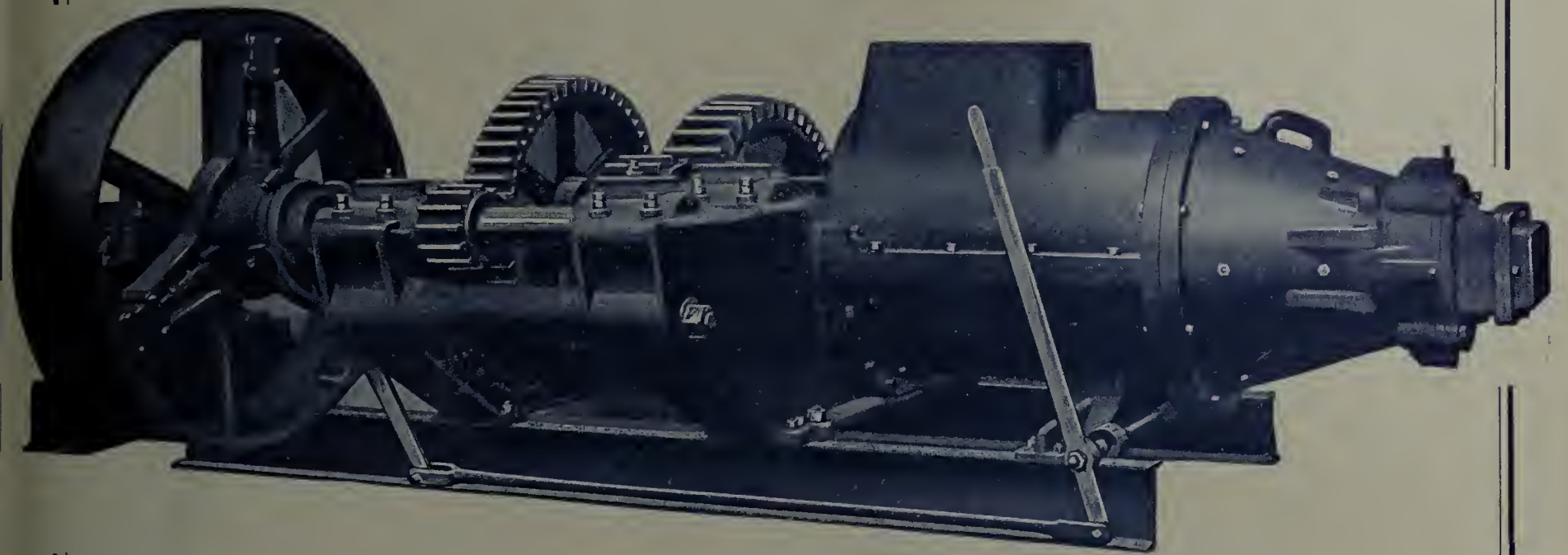
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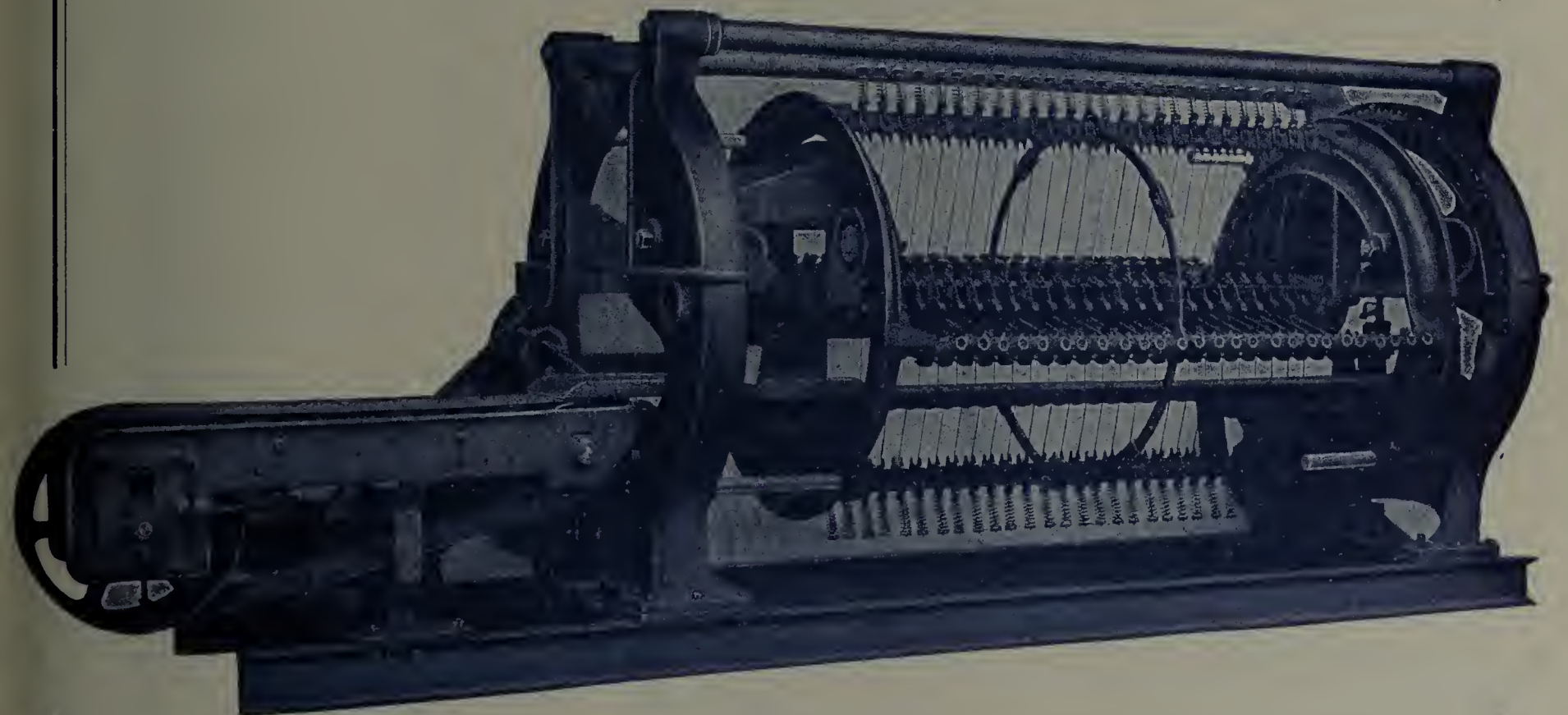
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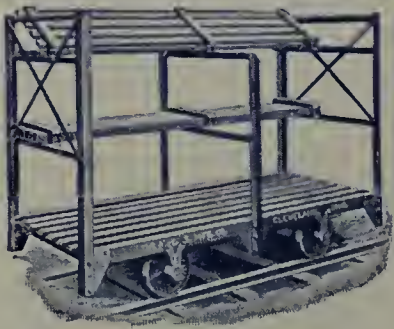
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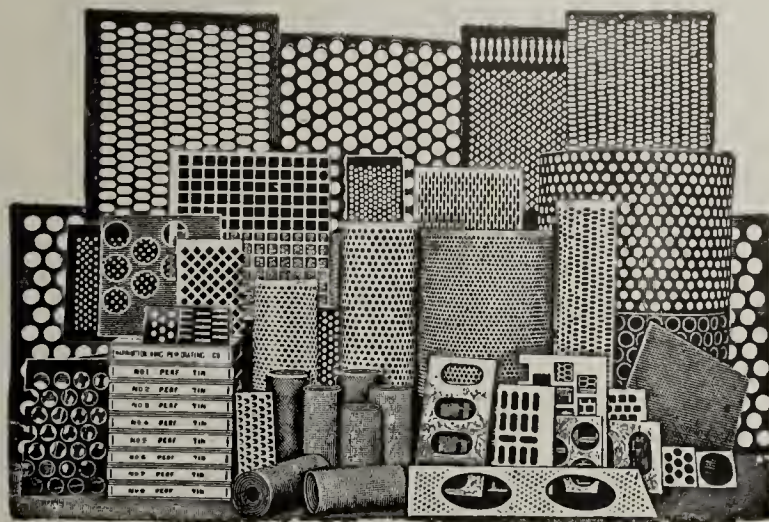
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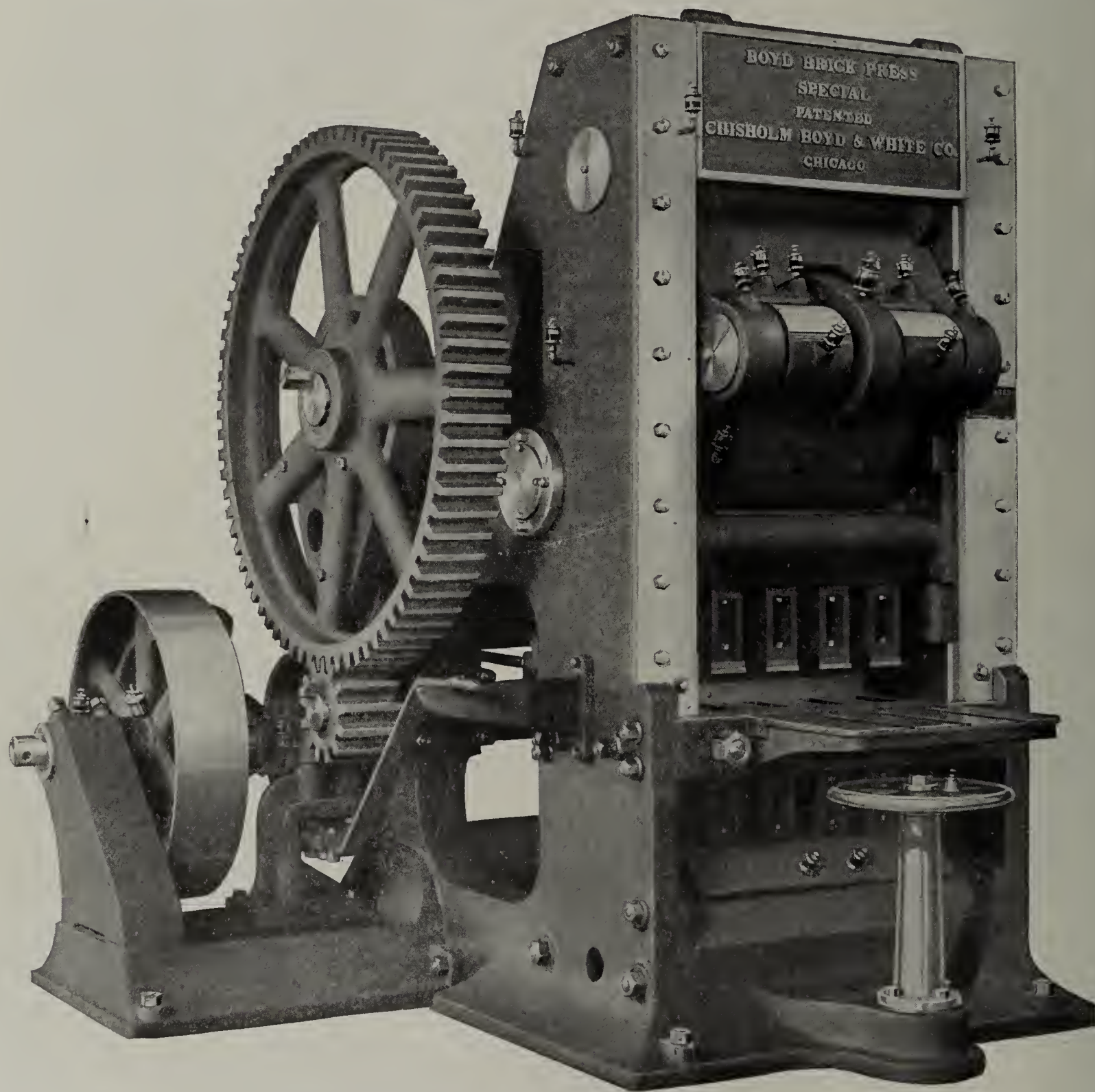
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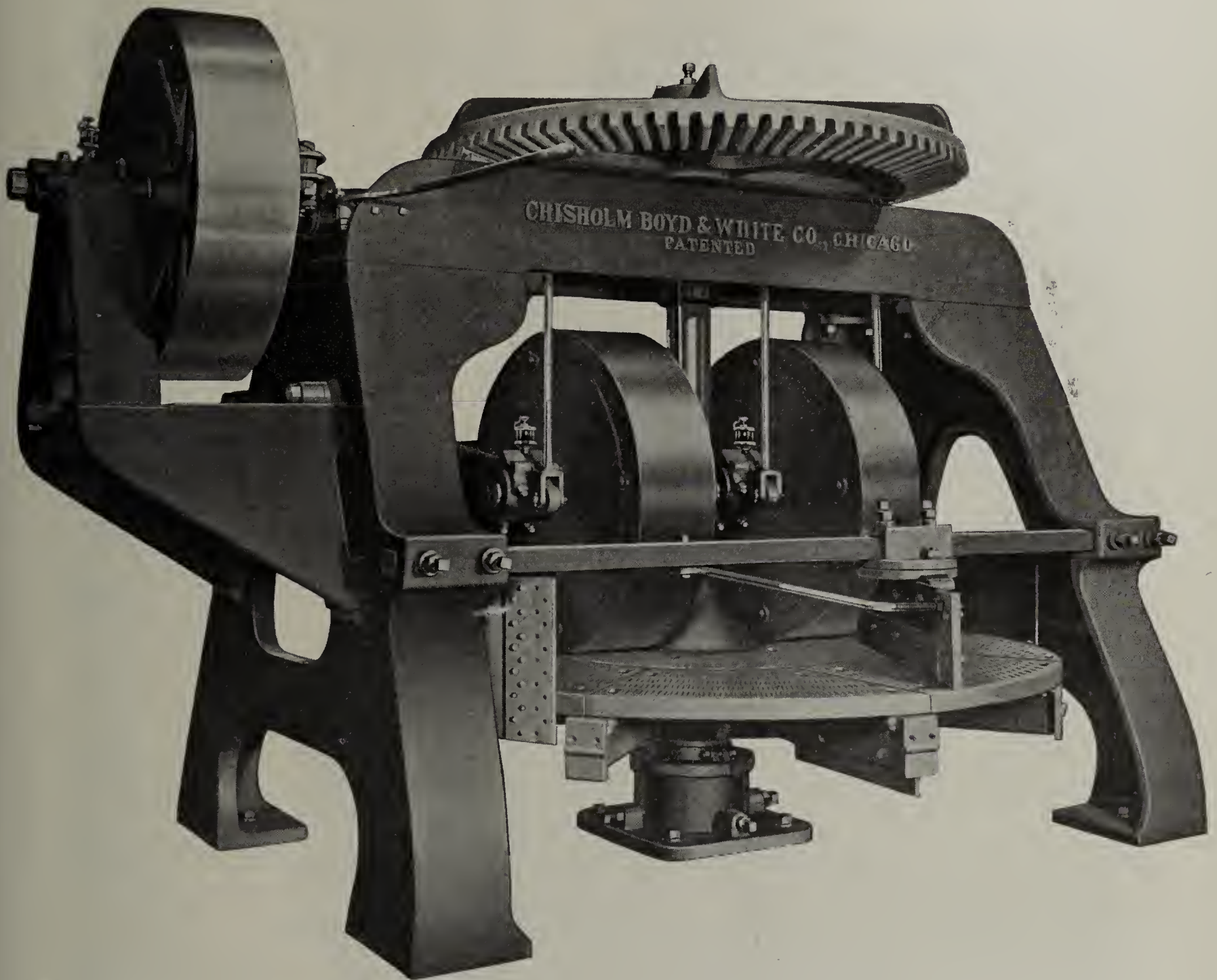
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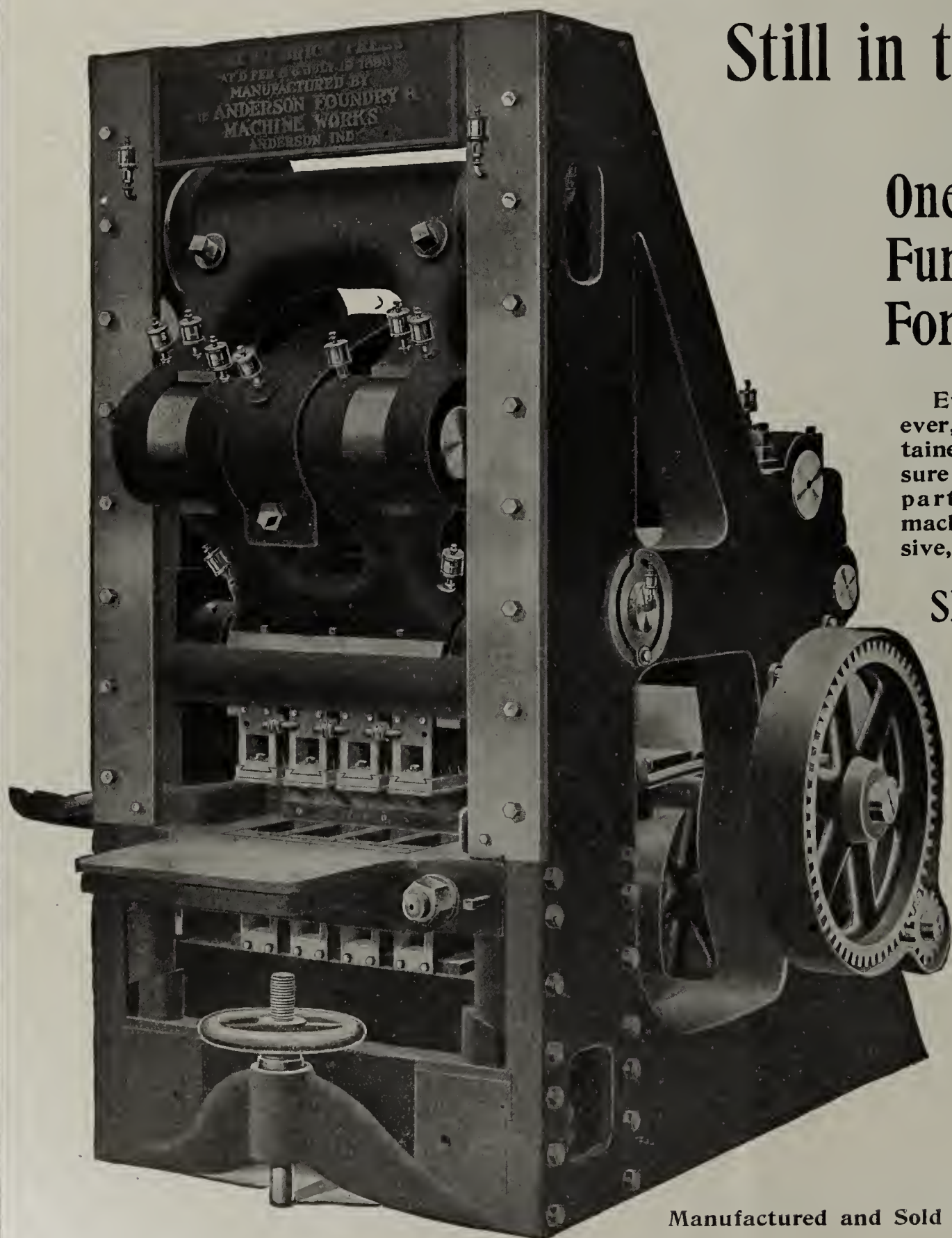
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 H. Brewer & Co.
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Raymond Co., The C. W.
 Scott-Madden Iron Works Co.
 Stevenson Co., The
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 Wallace Mfg. Co.

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Evens & Howard Fire Brick Co.

Jacks.

(See Supplies.)

Kilns.

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 Boss, J. C.
 Buhner, Jacob.
 Chisholm, Boyd & White Co.
 Dennis, F. W.
 Gas Machinery Co.
 Hoffmann Construction Co.
 Illinois Supply & Con. Co.
 Manufacturers Equipment Co.
 Raymond Co., The C. W.
 Richardson-Lovejoy Engr. Co.
 Snowden & Co., G. E.
 Shumaker, J. H.
 Vogt, Anton.
 Yates, Alfred.

Kiln Bands.

Tecktonius Mfg. Co., E. C.

Kiln Doors, Castings and Frames.

(See Supplies.)

Kiln Floor Tile.

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Locomotives.

Davenport Locomotive Works.

Manganese.

(See Coloring Materials.)

Mechanical Draft.

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 Boss, J. C.
 Rodgers Engr. Co., The L. E.

Mineral Paint.

(See Coloring Materials.)

Molds (Brick).

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 Eastern Brick Machinery Co.
 Hensley, J. W.
 Martin Brick Mach. Mfg. Co., H.
 Mentz, George B.
 Potts & Co., C. & A.
 Raymond Co., The C. W.
 Wellington Machine Co.

Mold Sanders.

Carnell, Geo.
 Eastern Brick Machinery Co.
 Hensley, J. W.
 Hilton Sanding Machine Co.
 Martin Brick Mach. Mfg. Co., H.
 Potts & Co., C. & A.
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(See Coloring Materials.)

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 Trautwein Dryer & Engr. Co.

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 Anderson Fdry and Mach. Wks.
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(Continued on page 868.)

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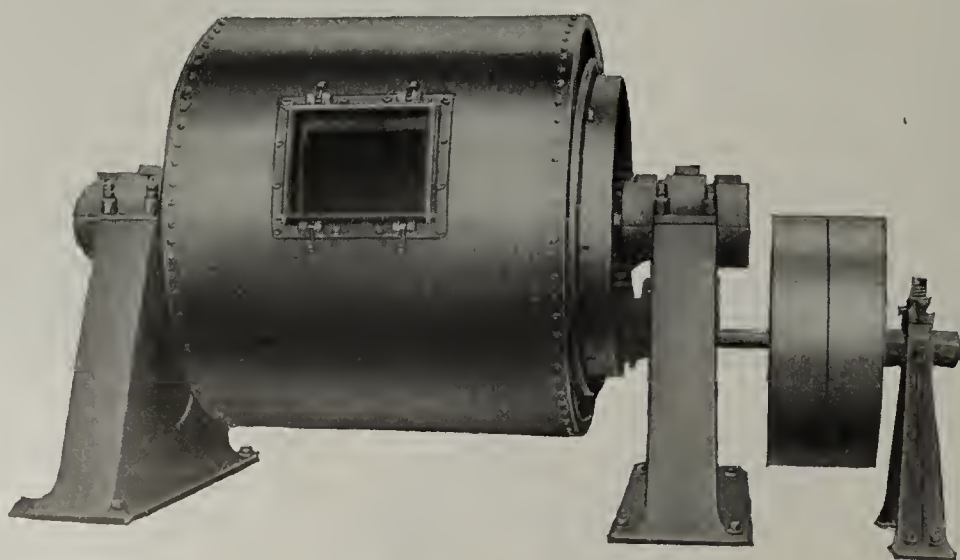
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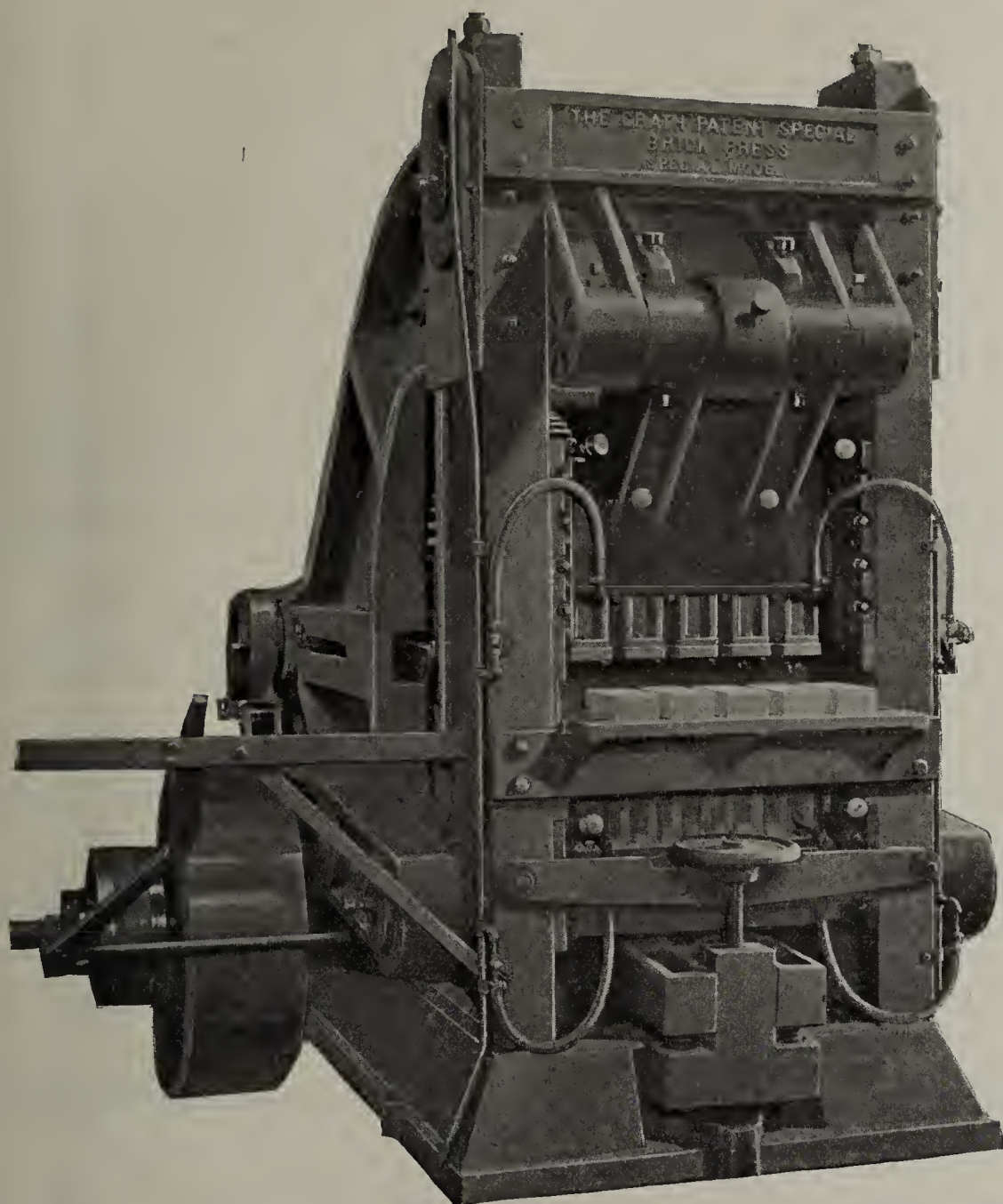
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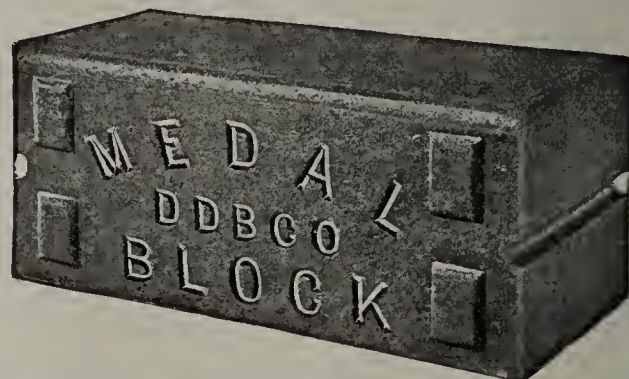
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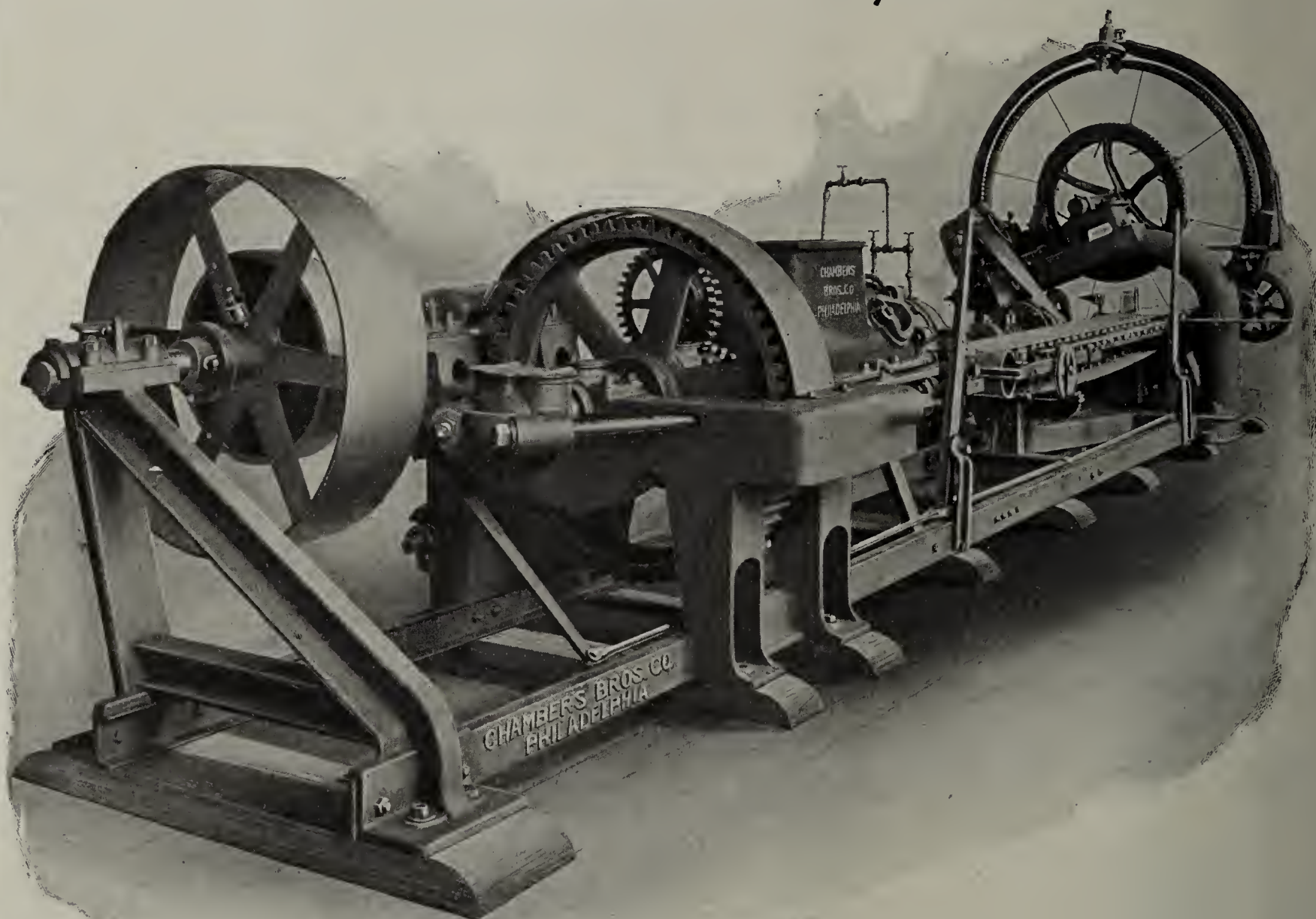
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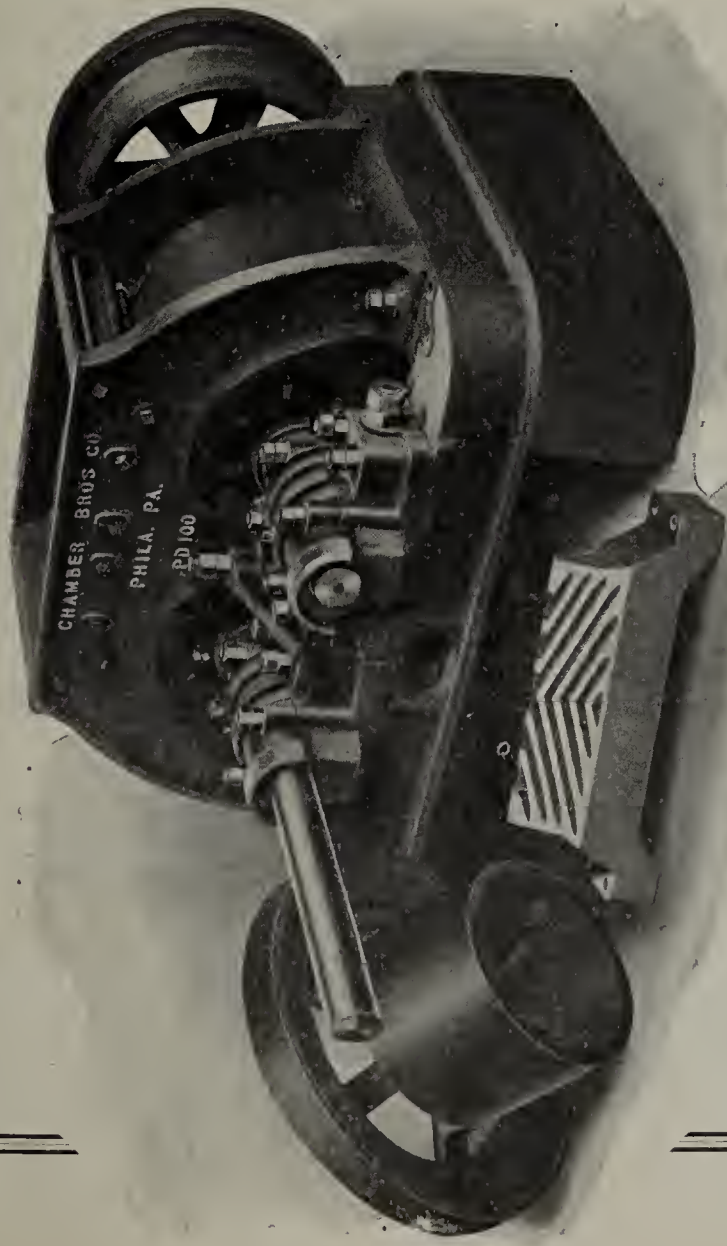
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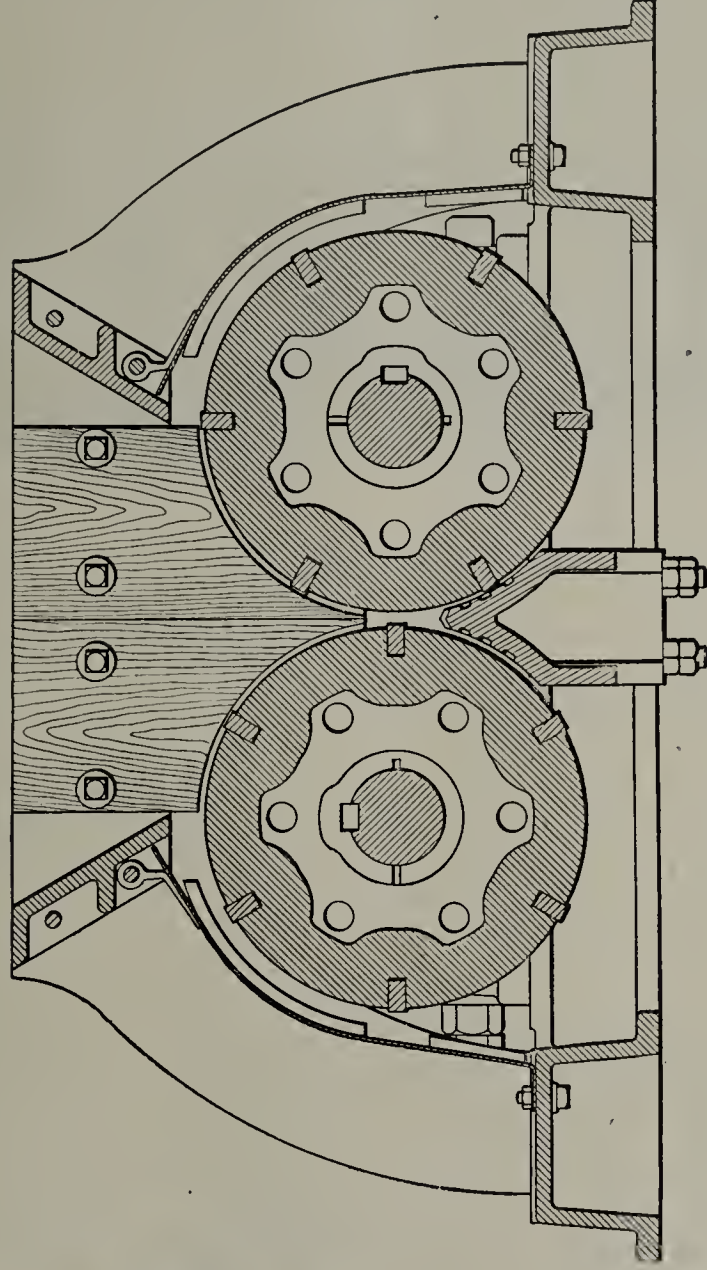
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THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LVII.

INDIANAPOLIS, IND., JUNE, 1912.

No. 6.

SOME BRICK MONUMENTS NEARLY A THOUSAND YEARS OLD, AT BUSTAM, IN PERSIA.*

BY PROF. A. V. WILLIAMS JACKSON.

IN ONE of my three journeys through Persia I visited the old city of Bustam or Bostam, in the great province of Khurasan in northeastern Iran, where are to be found a number of interesting monuments in brick, nearly a thousand years old. The most important of these edifices are grouped around the tomb of a famous Mohammedan saint called Bayazid, who died in 874 A. D.

The grave of this venerated man, who was a renowned mystic philosopher, a dervish mendicant, and also a poet, it is said, is a humble structure of stone raised over his remains after he suffered martyrdom (as a sort of Moslem St. Stephen) by stoning at the hands of his fellow citizens, who later, however, sanctified his memory and made his tomb a place of hallowed pilgrimage.

Close by his grave are two historic mausoleums of brick construction. The one to the left in the photograph, and nearest which lies the saint's grave, is the tomb of the glorified hero Bustam, who is said to have founded the city about fifteen centuries ago. The other, standing a short distance to the right, is the mausoleum of Kaisin, a devoted friend of Bayazid, who is said to have met martyrdom at the same time

when the great saint was stoned to death. Both mausoleums resemble each other in style of architecture and constructive art.

Bustam's monument, with a pointed roof that looks like an old-fashoined candle-extinguisher, is composed of carefully set layers of unglazed bricks set off by ornamental

bands of dark and light blue tiling before the roof is reached, a decorative row of headers making the transfer to that part of the edifice. The roof shows traces, here and there, of azure tiling that once covered it, and is surmounted by a metal spindle which crowns the cone.

Kasim's mausoleum (on the right) is of similar construction and material. Noticeable in the square body of the lower half of the building are the shallow blind arches of brick, somewhat resembling lance windows, three on a side, the upper part being cross-latticed screens that harmonize exactly with the angular design of the brick setting above them. The pyramidal top which rests upon this well-proportioned foundation has its round brick-row base relieved by a girdle of bluish tiles embellished by intricate arabesques, being quotations from the Koran or some other Moslem source. The cone itself differs from the one described above only in having a simple metal knob as its caption.

In the background, between the two imposing structures, rises a handsome vaulted arch of unglazed brickwork, adorned with faience tiles of a light bluish color. A glimpse of a part of its facade is seen in the photograph.

The chef d'oeuvre of the composite group, however, is the towering minaret on the left, belonging to Saint Bayazid's mosque. From a low, square base of foundation

brick, it lifts its cylindrical shaft of yellowish unglazed brick to a graceful height. Huge drums, girdled with zones of artistic setting and ornamented raised geometric designs of marked variety, make up the whole. The intricate pattern of broken-edged diamonds in the central belt is particularly striking, whilst circling bands of Koranic texts in handsome arabesques divide the zones and add to the



Courtesy The American Architect.

Detail of Brick Tomb of Bayazid Bustam, Northern Persia

*Reprint by permission from "The American Architect."

effect. The fretted stalactite work of the elaborate summit of the minaret is notably impressive and is a good example of Mohammedan workmanship in the eleventh or twelfth century, the date to which this interesting tower is assigned by Sarre, the German authority on Moslem architecture.

A study of eastern minarets has a special importance for us of the west, not only because of their historic connection with the ancient Leggurat towers belonging to the Assyrian and Babylonian temples, and indirectly associated likewise with the steeples of Christian temples, but also from the practical standpoint of the brickmaker's line, since many a lesson for the artistic composition of brick in modern factory chimneys and otherwise can be learned from the old-time monuments of the Moslem builder's trade.

SMALL WASTE IN CLAY PRODUCTS.

When we come to study the real facts in a broad gauged way, there is less waste in the manufacture of clay products

brick walls better brick are put on the outside and for backing up the inner walls one can use soft brick, brick bats, and utilize everything that is workable, and finally the bats and burnt clay can be crushed and used as a road material for mixing with cement to form a concrete for foundations.

Recently, in speaking of the products of sanitary ware, a manufacturer said that the metal people have an advantage over the clay people, in making bath tubs, for example, because when a piece goes bad from any cause or other they can send it back and melt it over and use the raw material a second time and the clayworker can not do this. That is true, too. One can not use raw materials a second time, but generally there is some use for the raw material. It can be broken up and is sometimes used for artistic effects in outside plastering on walls, crushed tile and other burnt clay products being used instead of gravel, and it always has a use as a road material. This may seem a rather lowly use for some of the high grade ware, but it does become useful just the same and, therefore, need never be an utter waste.

Moreover, there are peculiar instances that come to light



Courtesy The American Architect.

Brick Tomb of Bayazid, Bustam, Northern Persia.

than in almost any other industrial line using natural resources for raw material.

We need to make only a few comparisons to get some appreciable idea of this fact. Take the lumber industry, for example, and anywhere from fifty to seventy-five per cent of the raw material is wasted and never taken out of the woods. It goes into the form of tree tops, limbs of the upper parts, and faulty timber and then of that which is taken into the mills to be worked, the loss is from twenty-five to fifty per cent in the primary working and sawing it into lumber. There is often again another fifty per cent of waste when it is being converted into the finished product, so that by the time the finished material is on the market it represents only a small per cent of the original raw material.

In the brick industry there is practically no irredeemable waste in raw material, because it can all be gathered up and used until, of course, it passes through the burning. In the process of burning one may have lots of what is termed kiln waste. Yet much of this is used. In the building of

occasionally. One was in the case of a jug man speaking of their trade. It developed in the course of conversation that they have many jugs that prove to be culls with small holes or cracks in the upper shoulder, or something, and yet they find quite a market for these for what is called tar paint. They sell them cheaply, of course, which is a benefit to the paint man, and the tar paint is heavy enough that it will not waste through small cracks and holes, and it is material that once used in a good jug would ruin the jug. Consequently it furnishes a use for many of what would be waste jugs and thus does a good turn to the jug manufacturer and also to the manufacturer of tar paint.

Indeed, taking it all around, the clayworking industry, while it has its waste problems, is one in which the final waste of raw material is very small indeed, if enough thought and attention is given to the handling of it. There is, of course, a certain waste when the grade and value is reduced, and there is always need to guard against this to seek for ways and means to prevent it. But after all is said and done, the final absolute waste in clayworking is very little.

Written for THE CLAY-WORKER.

BUTTON-HOLE TALKS.

Santa Claus and the Phonograph.

YOU can never tell what is behind the horizon till you go see. Nor can you safely determine what is back of a countenance till you explore. You can guess, and often you may be right, but often there is that there that will surprise you. So I was glad for the Button Hole route when he hooked on and began, and I was gladder when the results panned out, for I never should have expected this from him.

"My little girl has been a firm believer in Santa Claus, but just before Christmas her faith was shaken by the rash talk of a too practical elder. I didn't like it. I think the old delusions have their place, and I don't want to dispel them too quickly. It don't do the child any good to dispel the glory of cloud and rainbow by telling them they are really vapor and snow and thunder and lightning. What if they are? God hung them in the sky and lighted them and made them glow for our enjoyment, and glorified them. If you want just water and snow and mud, look down, not up. Raphael's Madonna is just canvas and paint and oil to such a mind, but it is because they haven't it in them to see and appreciate.

"But to get back, I took a phonograph record and made a Santa Claus talk with particular reference to the Gink family, and Christmas morning I told Miss Bright Eyes that I had heard that Santa Claus had the habit of talking to himself and that I had set a trap for him; that if he happened to talk that I would find it in the trap. I had the roll on and the machine wound, and I touched the spring and away it went.

"It started off with a fit of coughing and remarked how he had gotten the ashes and soot in his throat coming down the chimney, and yet that it was a comfort to find a fireplace instead of getting all tangled up in miles and miles of hot water pipes in trying to get in through new fangled contraptions. Then he consulted his notes, and decided that this was the home of the Gink family, and what a bother they had been to him; everlastingly on the move, west, north, south and east. Never was sure where he would find them—Alaska or Florida. Then he glimpsed the long array of stockings, and said that was enough to discourage even Santa Claus, but that his reputation was at stake and it was up to him. Beginning with the dainty stockings of little Miss Bright Eyes he worked up the line with appropriate remarks on each, past Tommy and Arthur and James and Lucy and Roger and William and George, and then lastly to the great gaunt sock of old man Gink, at which he waxed wroth, and said that he would just put a hole in that, and that Old Man Gink wasn't of any account any way.

"The bright eyes twinkled all day. The cute little feet flashed away and every neighboring child was brought in to listen and be convinced that 'there was a truly Santa Claus.' The day was an unqualified success.

"When night came and the tired little feet faltered and the 'sand man' got busy with the bright eyes, and the going to bed confronted Miss Bright Eyes, she hesitated and finally insisted that her father go up with her. Then when clad in the little white nightie, her prayers said, she hesitated and, finally, turning to him, said, 'Daddy, you mustn't mind what Santa Claus said about Old Man Gink, he didn't mean anything.'

"The dear little miss didn't want her day of enjoyment to have a spot of pain for anyone when she closed her sweet eyes in sleep."

When you put your spoon in the church soup you sometimes get an oyster. When the miner digs deep with his pick he sometimes gets a golden nugget. When you offer

your Button Hole for use you sometimes get more than you expect from the outside evidences, and while all that glitters is not gold, sometimes the purest gold may grow dusty and may not glitter until it is rubbed. GATES.

"SIX YEARS AFTER" IN SAN FRANCISCO.

THE PROGRESS of San Francisco in its rehabilitation since the memorable earthquake and fire of April, 1906, reads like a chapter from the "Arabian Nights." At a bound the California metropolis has passed upward from eighth place among the cities of the United States in the matter of bank clearings, and now, on the sixth anniversary of the great cataclysm, San Francisco ranks sixth, just behind St. Louis and ahead of Kansas City. New York, Chicago, Boston and Philadelphia stand in the order mentioned ahead of St. Louis. For the first three months of the present year San Francisco's bank clearings amounted to \$648,327,392.

In the six years of rehabilitation considerably over \$500,000,000 have been spent in rebuilding the great city of the Golden West, and in this expenditure the products of the clay industry play a most prominent part.

The cost of construction thus far during 1912 has passed the \$7,000,000 mark, compared with \$5,600,000 during the same period last year. According to the latest returns at San Francisco, reports from forty-three cities representing building centers throughout the country show a loss of seven-tenths of one per cent over the same month last year. This in spite of the fact that greater New York showed a gain of more than eleven millions over March, 1911, about one-fifth of the entire amount reported.

Outside of New York, New Orleans and Des Moines and a few of the minor New England cities show a gain and the total from the others show a uniform decrease. Of the Pacific coast cities, San Francisco, Seattle and Spokane show a gain, while Los Angeles, Portland and Tacoma show a loss. A glance around San Francisco is sufficient to show the immensity of the manner in which terra cotta and brick have displaced concrete and cement faced buildings which at one time were favored by San Francisco constructors.

Recent examples of terra cotta work are the Hearst building in the heart of the business section, furnishing a fine example of Gladding-McBean's polychrome ware; the Spring Valley grammar school and Denman grammar school, two artistic buildings of cream terra cotta supplied by N. Clark & Sons from their Alameda factory; the First Church of Christ, Scientist, an example of polychrome terra cotta also from Clark's; the Jean Parker school and the Y. M. C. A. building, built of terra cotta by the Steiger Terra Cotta and Pottery Works, of San Francisco. This last mentioned firm is now busy with the magnificent German Societies' home at San Francisco, probably the finest example of German renaissance on the Pacific coast. Their white glazed terra cotta for the girl's high school of San Francisco is also another large undertaking. In another section of the city the Catholics are building St. Ignatius church on Parker avenue and Fulton street, from designs by Charles L. Devlin. Features of this building are the stately fluted columns and artistic clerestory windows. N. Clark & Sons, who are engaged in this work, have been working at high pressure on the Walker Brothers bank building at Salt Lake City, a huge structure some twenty stories high, one of the largest orders carried out by a California pottery. Other work by this firm includes the Sacramento county court house, where grey terra cotta resembling granite finish is employed.

The first four months of 1912 have been almost the busiest ever experienced by California terra cotta manufacturers, and in view of the fillip certain to result from the building activity caused by the Panama-Pacific exposition at San Francisco, trade in clay industry has a bright future for the next two years at any rate.

"LAMBETH."

CONCRETE ROADS.

What they Cost.

W. P. BLAIR, CLEVELAND, OHIO.

THE AMERICAN PEOPLE will not stand for misrepresentation. It matters not whether it be ignorantly or purposely perpetrated. Though oftentimes indulged in for the purpose of gain, it will not secure, in the long run, any benefit to those who indulge in the use of it; but it is the duty, nevertheless, of every patriotic citizen to refute, to deny, and to put truth in the place of falsehood, wherever and whenever opportunity occurs, where and when, at least, the citizens' interests are in any way affected. If falsehood and misrepresentation are allowed to pass unchallenged it often happens that persons innocently but carelessly help to distribute misinformation who would not knowingly be guilty of such an offense.

I have heard reputable public speakers assert that they could build a concrete road for \$3,500 a mile. In an article in the "Cleveland Motorist," April 9, Mr. D. S. Humphrey is made to say, in speaking of the concrete roads out of Detroit, that they are being constructed at about \$8,000 a mile as against \$15,000 to \$16,000 a mile for vitrified brick roads.

We have before us the third annual report of the Wayne county road commissioners, 1909. In that report the commissioners say that they constructed one mile of Woodward road, exactly 5,280 feet in length, with a concrete width of 18 feet and 6½ inches deep at a cost of \$13,537.59.

In addition to the actual charges in the cost of this road we note in the same article the statement of the commissioners, namely, "Your commissioners have exercised a close supervision of the work as it progressed, being out and over the roads daily."

We notice also that the general engineering expenses of the board foot up.....	\$ 4,612.38
We note again that there were charged off as worn-out, discarded and depreciated tools, equipment, etc.	70.53
Depreciation of same	3,850.88
Items of expenditure in advertising, salaries, blue prints, etc.	3,496.89
Total of miscellaneous expenditure.....	\$12,030.68

The report shows a present investment in equipment, machinery, etc., of \$21,821.71.

The road commissioners doing this work for the county have expended these sums in the execution of their road building work, which represent, in a way, the overhead contractors' expenses and which would be, in cases of a contractor doing the work, included in his contract price.

Unquestionably, therefore, a certain portion of this equipment of \$21,821.71 and a certain portion of the miscellaneous expenditure of \$12,030.68 must be fairly chargeable to the construction of the mile of road which appears to cost as per items directly charged in the report as stated, to-wit, \$13,537.59. Just how much one can not say, but as the board's entire expenditure amounted to but little more than \$300,000, a part of which was contract work, this 5,280 feet of concrete road must have shared in this miscellaneous expenditure.

The legitimate cost, therefore, is more than the actual charge of \$13,537.59.

The fifth annual report of these same Wayne county road commissioners discloses the following as the cost per mile of concrete roads built by them during the current year from October 1, 1910, to September 30, 1911:

Ft. Road, 12 feet wide	\$10,592.74
Eureka Road, 12 feet wide	9,354.92
Gratoit Road, 16 feet wide	13,157.23
Grand River Road, 16 feet wide	17,824.89

Wayne Road, 15 feet wide	10,112.12
Van Dyke Road, 15 feet wide	14,467.45
Michigan Road, 18 feet wide	17,288.03
Mt. Elliot Road	14,732.80

In this fifth annual report, as in the report of 1909, the overhead or miscellaneous expenditure, which is a legitimate charge as a part of the cost of these roads, is as follows:

Office expense	\$ 5,689.71
General en. expense	6,983.29
New contracting equipment	21,088.24
Total.....	\$33,761.24

This amount, if apportioned to each mile built by the commissioners, will add to the cost of each mile approximately \$1,700.

A careful examination of these Wayne county roads discloses clearly that the grading and preliminary preparation for the construction of these roads has required but a minimum expenditure.

Sometimes a misrepresentation or misinformation obtains wide circulation through a semblance of truth. A name may carry with it the impression that it is a boy when it is a girl.

If it is intended by the manipulation of the use of any word or words to deceive, it is a fraudulent act.

The intention of those interested in the sale of this pavement is to create the impression that it is cheap as compared with certain other forms of pavement. By such conduct superiority is recognized in pavements they oppose.

But, aside from all this, is this a cheap and economical pavement? It is, from figures shown, but little, if any, more economical in the first cost than other pavements of durable and permanent character.

At the very best these roads can not be regarded by any prudent man in any other light than experimental. The oldest of them have borne the wear of but two summers, now approaching the third. The one longest in use shows a greater erosion for wear in three years than hundreds of brick streets and roads that are properly built and in evidence, subject to much more severe traffic, and covering a period of fifteen and more years.

A close inspection of conditions shows that the coarser aggregates in these roads are regularly being whipped out by the automobile traffic, so that the surface of the roads is full of little pits from which the aggregates have been drawn.

This, in truth and reality, considered in the light of the original cost of such roads, is going on at a rapid rate. The numerous cracks from expansion and contraction, unprotected from any additional wearing surface, widen and ravel out rapidly the units of the aggregates, being so small that they are readily whipped out or worn off.

If the cheapest possible protection to this surface is prepared and applied from any of the asphaltum or tar preparations, such as have been in use in the experiments made in Ann Arbor, Mich., it can be no more effective for the purpose of country highways than it is on the streets of that city. For it is a well-known fact that the Ann Arbor streets are subject to very moderate use indeed; and yet this wearing coat on all of the Ann Arbor streets has practically disappeared during the winter and it is conceded that it must be applied annually and frequently repaired as well. So this protection is nothing more or less than a case of annual repair, but which, in the case of a country highway 18 feet in width, could not possibly cost less than \$528 per mile, a sum for annual repairs that no taxpaying community will stand.

Now this is exactly what the taxpaying public of Wayne county have got. This is what the taxpayers of any county in the Union will get in attempting to follow in their footsteps.

As compared with the cost and maintenance of a brick road, instead of the burden being lightened it is made far more excessive and with a road much less effective for the

purpose, as a brick road can be built in compliance with the directions for its construction as published by the National Paving Brick Manufacturers' Association, which will absolutely insure a road without any repairs whatever for a great many years to come.

The artificial wearing surface, as recommended by these Wayne county road commissioners, is seven inches deep, with a 1-1½-3 mix. Such a road will cost approximately as much as the most approved type of vitrified brick road having a four-inch concrete base of a 1-3-5 mix, a two-inch sand cushion and a four-inch wearing surface of brick with the joints filled with a one to one mix—eight inches deep in all.

The two-inch sand cushion almost entirely prevents injury to the brick surface, due to the cracking and rupture of the concrete foundation.

No one will pretend to question the superiority of the vitrified brick wearing surface over that of the concrete, even if the action of the automobile should whip out some of the cement concrete from the joints, which is improbable; because of its strength and quality, there is no such thing as whipping out the brick units. To get the brick surface out of the way it must wear out, and that means the undetermined lapse of many years.

There is a certain infatuation to many people in experimentation, but the disposition to do so should not be indulged in, except in a very limited way, at the expense of the taxpayer's money. Enough for the experiment is sufficient, but it is a bad proposition to experiment with all or even a considerable portion of what you have.

What the public demands of its officials is a careful and conservative expenditure of money in highway building, that which will afford the largest return for the dollar expended.

The vitrified roads are not an experiment. They are in no sense whatever theoretical.

Hundreds and hundreds of miles of those properly constructed, subject to excessive use, have not called for repairs covering a period of ten to twenty years, and those moderately well built have called for slight repairs.

It is in the truth and in the proof absolute, found in vitrified brick as a surface wearing material, that our challenge of superiority can not be met with any other material.

Persons under the halo and surprise of something accomplished beyond their expectations see in it something above and beyond the extraordinary.

The road commissioners of Wayne county, Mich., have developed very suddenly a great contrast in the roads that were and the roads which they have built and are now. It is wonderful to them, but, with their vision, they are not competent to judge of the highest and best adaptation of highways for future use in this country.

We are in the midst of a revolution in the use of highways, and this condition is supplemented and aggravated by a revolution of ideas in which is to be seen the wide extended advantages of the public highway to our civilization never before appreciated.

The roads must be built with the economy in the first instance, meeting all of the requirements of the coming transportation, yet with that durable quality without which every hope in this direction must fall.

In the light of what is possible and what has been accomplished in the building of highways that so nearly eliminate maintenance charges, the Wayne county roads, at their best in their present condition, and in the promise they bear for future worth, are a comparative failure.

The one foreboding aspect affecting the enthusiasm with which taxes are levied and bonds are issued, for the improvement of our streets and highways, is the wastefulness of money in the purchasing of the roads that are not worth the cash paid for them, and if greater caution and the utmost wisdom is not to be exercised henceforth the source

from which the money is being so bountifully supplied will dry up, the enthusiasm subside and road and street building will be greatly hindered and delayed, and in all probability cease for a time.

It does not avail any information or benefit either to the public or engineers to give any weight to the failures in any kind of road construction or road building that will occur from time to time through ignorance or unskillful workmanship.

One of the Wayne county roads, which was let by contract, is a serious failure. Like results occur in the construction of other roads. It requires a certain amount of skill and especially requires disposition on the part of the contractor and his workmen to follow the instructions to build any road at its best.

In this discussion, however, we are not taking into consideration any exceptional failure. We are only looking to such roads as seem to be built at their best, which is the only way out of which a final and best conclusion can be reached.

Written for THE CLAY-WORKER.

BRICK IN NEW HAMPSHIRE.

ACCORDING to the latest statistics issued by the New Hampshire Bureau of Labor, there are twenty-six establishments in the State making brick. The capital invested aggregates \$491,600, and the annual value of the product approximates \$356,644. Of the twenty-six firms reporting, four noted an increase in product, while five decreased. The average number of men employed was 529, which, with four women, constituted the working force. The total wages paid amounted to \$138,869, and two firms reported a decrease in amount paid.

The firms making brick are well scattered through the State, enabling them to handle the business which comes to them through development in their own localities. New Hampshire has developed rapidly during the past few years in some directions, though not so much in the way that demands brick as have some of the other New England States. The summer resort business of the State brings in something like \$300,000 a year, but, unfortunately, this does not, excepting incidentally, create any remarkable demand for brick, most of the buildings being of frame construction. Brick has been too costly as compared with the abundant timber which has hitherto clothed the mountains and hills. It may be now the timber has been too much overcut, or is controlled by powerful organizations which prevent cutting, that brick will come into its own. In other localities this has been true. It may work out so in New Hampshire.

What makers in New Hampshire have not obtained from their own State has come to them from Massachusetts, particularly Boston. A considerable proportion of the brick made in the New Hampshire yards has gone to Boston for many years. Indeed, contractors depend upon New Hampshire for much of their supply. The price has been maintained at about the same rate for years, say \$6.00 to \$7.00 f. o. b. Boston. Rarely does it go as high as the outside figure and sometimes it falls as low as \$5.00, but most makers object to that price, and in some instances have refused to sell.

Not much beside common brick are made. There are two or three fire brick plants which have developed a profitable business, but, in the main, common brick constitute the bulk of the output in all localities.

The slowup in building construction in Boston has influenced the New Hampshire manufacturers quite seriously the past year or two, and some have not been operating to capacity because demand promised to be too small to consume their output. They look forward to better times this year and in most localities are preparing for a prosperous season.

IMPRESSIONS OF CLAYWORKING METHODS IN EUROPE.

By A. E. Eaton.

A SHORT TIME AGO I had the pleasure of making a trip through Europe for the purpose of seeing the methods there in use in the clayworking plants, and especially to study the kilns most used, and due to the fact that I happened to carry letters of introduction that brought me into contact with some of the leading members of the brotherhood over there, I had exceptional opportunities of seeing some of the best plants of each country. In fact, I was particularly indebted to Mr. Maxted, of the firm of Maxted & Knott, and to Mr. Grunhut, of the Hoffman Construction Company, and to Messrs. Buhrers and Mendhiem, in Germany.

The first thing that strikes one in the English plants in the vicinity of London is their machinery, being for the most part, in even the largest plants, in small units, and often used long after its useful life is over, according to our standards, although for the most part being very well built. Among other things, the almost entire absence of automatic cutting tables is noticed. At one plant the writer found a cutter of a well-known make in their store room, the owners stating that they were unable to get satisfactory results with it. This slowness to discard machinery that might be regarded as "antique" is all the harder to understand, as in several plants visited their power machinery was of the most up-to-date variety, consisting of the most efficient engines and electric drive, and in several cases of gas engines of large sizes.

London and its near vicinity is a country of brick and clay construction. Many of the railways have brick walls along the right of ways, and along the country roads brick walls are often found, as well as substantial walls around the barnyards, etc.

Nearly all the farm houses and barns and many of the sheds are roofed with tile, as well as the more important buildings.

Many of the large viaducts are of the famous hard-burned "blue brick," made principally in the vicinity of Birmingham, some of them having considerable length. There is not the strong competition from concrete in England that we have in this country, there being few reinforced buildings of importance in London, although a few, among others the new home of the Royal Automobile Club is of the so-called "Portland stone."

The English brick are much larger than ours, an average size being about $9 \times 5 \times 2\frac{3}{4}$ inches, and there are fewer rough finished face brick made, although they are very rapidly becoming popular, having the same names in many cases as similar brick in this country, such as Tapestry, Oriental, Rustic, etc. Stucco has been used with common brick for facing in most of the older buildings of average cost, but is being replaced to a considerable extent already by the rough finished brick.

While the competition with cement interests is not so strong the competition with other building materials, such as stone, and with each other, is much stronger than in most localities in this country, the price for common brick having gone as low as ten shillings (\$2.50 per thousand) in the past year in the vicinity of London, and those plants not well equipped and not favored by natural conditions were forced to close for a time, but it is surprising how cheaply some of the plants can produce brick. The methods can be the better compared if some of the details of the different plants are given. One of the first plants that I visited was that of the Old Ford Brick Company, of B. J. Forder & Sons, at Wooton Pillinge, where they are turning out from

1,300,000 to 1,400,000 common brick per week. This plant is interesting in that the shale they are using is full of natural oil, or "shale oil," as they call it, to such an extent that they use only from 50 to 75 pounds of coal per thousand of the brick, using continuous kilns, making a good, very hard brick—of a poor color, however. Shale is obtained at this plant from a large open pit, the top surface, amounting to about ten feet, being stripped by hand, and dump cars, the shale being dug by a steam "navie" of an interesting type. This shovel was designed and built to the plans of a member of the firm, having a boom long enough to cut a full cut of 120 feet in width, taking a cut of 60 feet in depth.

The idea in a shovel of this type was to get a good even mixture of the entire face of the shale from the bottom to the top, and, the shovel being of the full swing type, a move does not need to be made often. All over England and Europe one sees the greatest attention paid to the getting of a good mixture of the materials, and using, as they do, a clay or shale that we do not try to work, it is an absolute necessity for them to take every possible chance to improve



Interior of Gas-fired Hoffman Kiln for High Grade Ware, With Candles Set. Tiles are Perforated.

their product. The shale is loaded into dump cars and hoisted to the elevated track above the ten nine-foot dry pans. After grinding, the shale is elevated into a screw conveyor running the length of the machine room, directly over the twenty-five dry presses; each machine has a chute from the bottom of the horizontal screw conveyor. These dry press machines are all two-mold, running rather slow (only about 9,000 per day) but making a very nice, smooth brick, due in part to the oil in the shale making it work very easily.

The brick are then loaded on steel trucks and taken direct to the ten continuous kiln where they are set without the use of pitchers, the kilns, in common with the most of the modern plants, being built with arches so low that the setters can reach any part of the kiln, using both hands, and setting from ten to eleven thousand of the large brick per day. During the burning, considerable care has to be taken owing to the oil in the bricks causing it to heat very rapidly when the heat has been raised to the point where the combustible matter begins to burn. A very high percentage of good brick are obtained, running very nearly all hard, evenly burned.

The power equipment of the plant is entirely modern, consisting of two 150 horsepower producer-gas engines, one

of the engines being in use for some time and the other being nearly new, having just been installed. The manager stated that this equipment was giving the best of results and that the saving in fuel was nearly fifty per cent of that with steam power, running close to 1.25 pounds of coal to the horsepower. The installation of this power also affected a considerable saving in labor.

At the plant of the Randley Brick and Tile Company is one of the newer type Hoffmann continuous kilns of the low arch pattern, burning tiles, quarries, bricks and terra cotta. This kiln is of the usual oblong type, but the fuel does not come into contact with the ware, and they are getting from 97 to 100 per cent of number one goods of high grade. As in this country, it is usually considered that it is only pos-

by gasifying it, if high grade goods are made, or direct, if common brick are made.

A large installation of this kind is that of Messrs. Pease and partners, in Crook, where they are burning fire clay goods such as blocks for coke ovens, steel furnaces and the like. The fuel used here is coke dust, finer than one-eighth inch in size. The results were good and the saving in fuel enormous, the kiln being a new Hoffmann with gas candles, as shown in the accompanying photo.

At no plant visited in England were any pavers made and few brick pavements are to be found in England. Nearly all the pavements of London and the other cities are of wood block, on the principal streets, or asphalt or combination paving. With the heavy wear that the pavements have there should be a very good field for brick, and while good raw material seems to be scarce, there are some firms that could make very good ware. An interesting point for brickmakers is to be seen any wet day in the large force of men busy scattering fine gravel on the wood block pavements on all the principal streets on account of the slipping otherwise present.

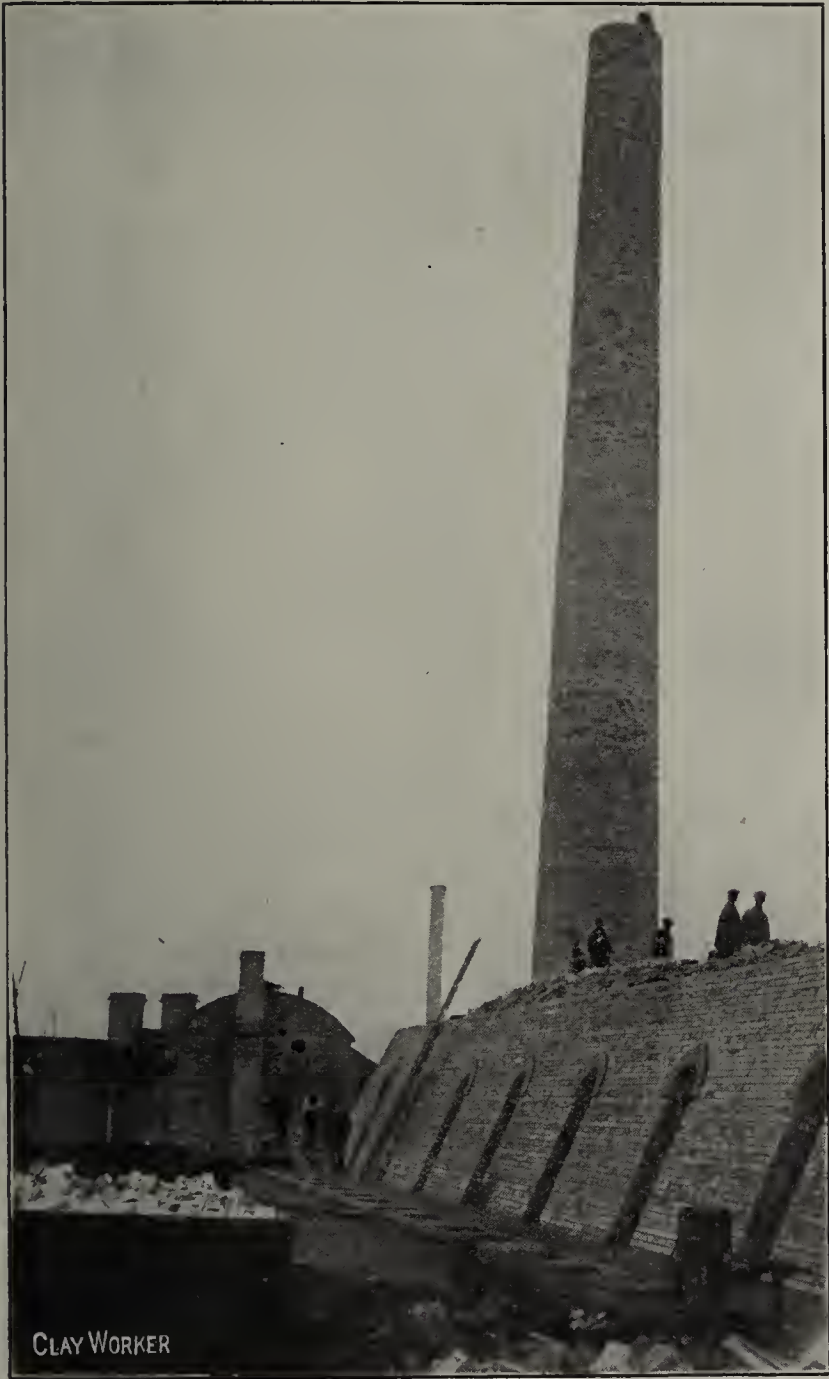
The manufacture of the famous London stock brick is an interesting operation to one not acquainted with it. At the plant of Messrs. Smead, Dean & Co., in Sittingbourne, large numbers of these stock brick and red facings are made, the stock brick in the regular clamp kiln and the facing bricks in a continuous kiln. The operations here and in other yards are about the same, and is about as follows: The clay is pumped for a distance of some two miles from a dredge in the river into large settling basins, where it is allowed to settle and the water drained off. There are enough of these basins to allow of there being always one or more dry basins, so that work can be continuous. When ready for working, the clay is covered with a coating of the London ashes to a depth depending on the heat in the ashes, these ashes being gathered in London from the houses, and, due to the practically universal use of the grate, containing rather more heat than domestic ashes in this country, in most cases. The clay and ashes are well mixed in the shoveling out of the basin and are taken by barrows to the making room and thence to the open air dryer, or to the tunnel dryer, it being fitted with a tempering chamber at the receiving end. Having been dried, the brick are then taken out to the yard and are "stacked," or set, the width and height of the brick "clamp," being about the same as an ordinary up draft kiln with the same kind of clay, a coating of about one-half inch of ashes being spread between each row, except the bottom, top and sides, where the brick are set more open and more ashes used. When enough are set the fire is started in the end of the pile, and the ashes begin burning, making the operation practically continuous, brick being set in front and taken away behind, as in a continuous kiln. In case the fire advances too fast on one side, brick without ashes are set to partly retard the fire advance on that side. Sides and the top are covered with burned brick for protection.

As may be imagined, the brick are not very evenly burned, but it is surprising how hard the brick get, under the conditions, due partly to the low temperature required, and also to the chalk or lime in the clay and the conditions in the clamp during burning.

The brick at this plant are mostly marketed in London, by barges, the firm having a canal from the sea where their barges come in at high tide, resting in the mud during the low tides. Since these same barges bring back ashes from the city, the cost of transportation is very low.

(To be continued.)

One of the good signs of the times is the appearance of more and more brick in the types of architecture displayed in family magazines.



The Low Chamber Hoffman Gas-fired Kiln.

sible to burn goods of the classes they are making here with a compartment kiln, it is surprising to see the results they get with a fuel consumption given by the owners as only 75 pounds per ton, the goods finishing at a rather high temperature. All over England, the only points wherein it seems to the writer that they are in advance of the usual practice in this country is in their kilns and burning, as they have practically abandoned the clamp kiln in every form except for stock bricks, and are rapidly replacing the few periodical down draft kilns with modern continuous kilns, getting better results with enormous saving.

Many of the colliery companies have plants in connection with the collieries and are using with great success the waste "culm," or fine dust slack, that is otherwise a waste, either



BY W. G. WORCESTER.

THE SELECTION OF ROOFING TILE CLAYS.

The primary and most important factor to be given consideration by the would-be investor in the roofing tile industry is the selection of his raw material. He may make mistakes in the general design of his plant, construct improper dryers and kilns, or even start with a poor tile design, but any or all of these can eventually be corrected, though unquestionably at great cost. However, if he has been hasty in a selection or has been too short-sighted to see the importance of spending time and money to properly and thoroughly prospect for a suitable material, then, later, finds that his selection has been wrong, money can not correct this mistake.

The highway leading to a successful issue in the roofing tile industry is strewn with the wrecks of enterprises that have been started by men of little knowledge of the business. Their failures have for the greater part been due to the selection of a bad or poor material. The aim in this article will, therefore, be to set forth the qualities to be sought for in the ideal raw material for roofing tiles. The factors entering into such a material are numerous. It is extremely rare that they are found perfect and satisfactory in any single material; it is, therefore, a question of deciding whether the good properties will more than offset the poor ones.

The problem, to be correctly solved, should be undertaken by none except those having a thorough knowledge of the requirements that must be met.

Taking up now the points or properties that a clay should possess to produce an ideal and perfect tile, we find them to be as follows, irrespective of their importance:

1. Clay available.
2. Ease of winning or gathering.
3. Grinding properties.
4. Plasticity.
5. Structure formed upon passing through flow dies.
6. Working properties upon repress dies.
7. Drying properties.
8. Strength in unburned condition.
9. Burning properties, i. e., oxidation, rate at which temperature can be raised, vitrification range, warpage, color and color range.
10. Total shrinkage.
11. Ability to take glazes, engobes and slips.
12. Strength and nature of burned body.
13. Summary.

Clays Available.

In the past the raw materials that have been most largely used for the manufacture of roofing tiles were the shales, glacial and alluvial clays. Very little has been accomplished in the use of the stoneware or No. 2 fire clays, and still less in the use of secondary clays, that is, clays that have been moved and, to a more or less degree, mixed with impurities like the low grade ball clays.

The shales are very widely distributed and will always enter very heavily into the manufacture of roofing tiles. On the other hand, there are certain districts where only the

glacial or alluvial clays prevail; in such sections it is only natural that they will be used very largely. Especially is this true of the red burning alluvial clays.

As to the fire clays and clays of their type being used, it is not at all probable that they will ever be used to any great extent, owing to their color when burned being against them; and, furthermore, the temperature required to produce satisfactory bodies from them is considerably higher than that for the ordinary clays and shales. This, for economical reasons, is also against them. In addition it most frequently happens that shales and clays occur where the fire clays are found, hence there would be no logical reason to select the fire clays where the others are available.

There is, however, one field into which the No. 2 fire clays may enter, and unquestionably with good results; that is for glazed tiles. The fact that they burn to buff or light colors is favorable to the production of a wide range of colors, which is not true of the red burning bodies. The objection of higher fire still holds true, but if the desired color effects can be obtained more satisfactorily, then this objection would be removed.

It is not probable that the low grade ball clays or kaolins will ever be used, owing to the difficulty to be encountered in the working of them, such as warpage and popping.

In the mountainous districts there are undoubtedly numerous deposits of a more or less complex nature that may be found available as the market and demand increases, but at present the chances for success lies in a selection from the shales and alluvial clays that are within easy reach of the market.

Winning.

In the selection of a raw material for roofing tiles it is quite possible to extend the scope of work to deposits that one would hesitate to use in the brick industry or other lines where large tonnage is required, that is, the tonnage required for tiles is very low, so that it is possible, though not desirable, to work deposits that are under quite heavy overcap; for instance, one of the present plants working an alluvial clay is stripping an amount of overburden equal to sixty-six per cent of the material used.

It is also possible and frequently desirable in banks of varying shales to reject the more objectionable ones, even though this work must be done by hand picking. In one case at present the clay is being mined after the manner of coal, while two other plants are located near good markets and ship their raw material in by rail, in one case a distance of over one hundred miles. While such conditions as the latter case have been possible in the past, they are not to be recommended.

Grinding Properties.

If the material should be shale, it should be of such a nature that it will grind easily by the well-known standard methods, and in doing so should produce or yield a considerable amount of dust or fine material in proportion to the coarser particles, otherwise a soaking or ageing treatment after tempering will most likely be necessary in order to produce a body of the proper density and strength.

While extremely hard shales have been used, in which it was necessary to use a rock crusher in advance of the pulverizing machines, the product obtained was not of the best properties. In the unburned condition it was brittle, breaking easily upon being handled; then, further, upon being fired, it was necessary to carry the burn to a much higher degree than with soft materials in order to obtain the proper degree of fusion of the clay grains. There is very little that can be said in reference to the grinding properties of the soft clays. As a general rule they are passed through rolls to crush any stone or hard lumps that may be present.

Plasticity.

Without going into a discussion at this time of the various machines and methods employed to develop plasticity, and especially the treatment necessary to develop the latent plas-

ticity of otherwise non-workable clays which are special within themselves, a treatment of the subject in a general way is all that can be accomplished.

The term "plasticity" conveys to the average mind but a small part of its true meaning. Plasticity is that dormant property of a clay which permits it to be molded or shaped and to retain a shape when given it. There are widely different degrees of plasticity of which we have no perfect method of measuring; hence, one hears such terms as poorly plastic, highly plastic, etc. To the experienced hand there is no difficulty to draw a line of distinction between any two of the above grades. However, any attempt to explain the difference to the inexperienced, without typical samples, would prove a difficult problem. But in a general way a material is said to be plastic when, upon mixing and working with water, it can be easily changed from one shape to another by the hands. A poorly plastic clay is one that can by careful manipulation of its water content be molded and made to retain the shapes given it, but a slight excess of water will cause it to sag and lose its shape. The highly plastic clays are quite prone to prove too gummy or sticky and are troublesome to work alone, though when once molded and dried they become very hard and will permit of rough handling. While it is desirable to have clays of average plasticity for the manufacture of roofing tiles, there is quite a wide range that can be used, depending on the method of manufacture. For instance, it is possible to work clays through a flow die that would be found very difficult to work on the dies of a roofing tile press. As a general rule, the clays that possess sufficient plasticity to permit of the manufacture of stiff mud brick will be found satisfactory for tiles in so far as their working properties are concerned.

Flow Die Structure.

A clay to properly fulfill this point is the one that will issue from the die free of laminations. Nearly everyone is familiar with the laminated stiff mud face and paving brick and the failure from frost. A clay which tends to laminate badly should be avoided by the roofing tile manufacturer, otherwise he will be inviting trouble. It is also preferable to have a clay that will flow through the die easily without feather-edging or cracking, though defects of this sort can, in most cases, be corrected by using suitable dies.

Working Properties on Repress Dies.

It will be found that more clays will work satisfactorily on flow dies than on roofing tile press dies. In the latter case should the clays be too plastic they will stick to the dies badly and will also be found to produce laminations, while under the die pressure. On the other hand, a clay that is short or lean will prove troublesome by failing to fill out the numerous locks of the tiles, and, furthermore, it will prove bad upon removing the tiles from the dies, due to the clay being short, and much breakage will result. While experience will in a measure enable one to pass on the working properties of a clay, the only positive proof lies in an actual die test.

(To be continued.)

THE PRISONER AT THE BAR.

A man was arrested on the charge of robbing another of his watch and chain. It was claimed that he had thrown a bag over his victim's head, strangled and robbed him. There was so little evidence, however, that the judge quickly said: "Discharged!"

The prisoner stood still in the dock, amazed at having been given his freedom so soon.

"You're discharged," repeated the judge. "You can go. You're free."

Still no move from the prisoner, who stood staring at the judge.

"Don't you understand? You have been acquitted. Get out!" shouted the judge.

"Well," stammered the man, "do I have to give him back his watch and chain?"—Successful Farming.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

THE general conditions of the building and other improvements in which clay products figure to a large extent are favorable as compared with the general situation over the whole country. Seattle in particular has been stimulated with new building improvements, and the local brick plants are getting their share of the business. The brick contract for the new forty-two story L. C. Smith building was awarded to the Builders' Brick Company. It calls for about two million brick. The face brick and the partition tiling for this same building was awarded to the Denny-Renton Clay and Coal Company. The foundation for this building is nearly completed. It will have concrete piles and it required 1,281 piles for the whole building site.

The Pontiac Brick Company, of Seattle, was awarded the contract for the brick needed in the addition to the Byron hotel at Bellingham. It will require about 60,000 brick for this job.

Through the efforts of the Denny-Renton Clay and Coal Company to find a larger market for their products, some of their brick was recently shipped to South Africa. The order was for 50,000 brick and went by steamer to England and will there be transferred to steamer for Cape Town.

An innovation in constructing country roads in this section has been advocated by the paving department of the Denny-Renton Clay and Coal Company. They say that around Cleveland, Ohio, there are about 1,100 miles of brick paved country roads, and this company is now trying to persuade county officials in various parts of this state to construct county roads with a brick paved strip about sixteen feet wide. They have made a proposition to the county commissioners of Pierce and Kittitas counties, and we hope that these officials will see their way clear to give paving brick a trial on some of their county roads. The San Francisco supervisors have also decided to try Seattle made paving brick on a part of Powell street. The Denny-Renton people have secured the contract for furnishing the paving brick on that street and the company expects a big market for their brick in the California metropolis.

The Far West Clay Company, of Tacoma, has secured some large contracts for its Dennison interlocking partition blocks. They will also furnish this tile for the new Reed Institute buildings in Portland, and for the new general hospital in Vancouver, B. C.

The Little Falls Fire Clay Company has been bought at receiver's sale by the newly organized Standard Clay Company, of Tacoma, and the business will hereafter be conducted by this company. Their brick plant at Bayne has been put in operation again, and brick will be shipped shortly. Mr. W. S. Dimmick, who acted as receiver, was appointed manager of the new company.

The old Idaho Brick, Tile and Pottery Company has been dissolved and a new company under the name of the Coeur d'Alene Clay Company, with headquarters at Coeur d'Alene, has been organized. Mr. H. Wilson, a pottery man from Ohio, has been placed in charge of the management of the new company, and he reports that the plant will be put in operation in the near future.

The Idaho Fire Brick Company, of Troy, Idaho, has been incorporated with a capital of \$100,000 and will manufacture brick and fire clay products.

The first carload of white pressed brick ever brought to Bend, Ore., has come in from Seattle. They are for use in the construction of the First National bank building. The common brick in this building will be furnished by the Bend Brick and Lumber Company, which is making soft mud brick at the rate of 10,000 per day.

The Tualatin Brick and Tile Company, of Tualatin, Ore., whose plant has been idle for the last two years, has been started again. It is the intention to make only drain tile for the present on account of the small demand for common brick in the Portland market at present. SIWASH.

RECENT PATENTS.

Material for this department is compiled expressly for The Clay-Worker by Watson & Boyden, Patent and Trade-Mark Lawyers and Solicitors, 918 F Street, Washington, D. C. and to them all inquiries in regard to patents, trade-marks, copyrights, etc., and litigation affecting the same should be addressed. A complete printed copy of the specification and drawing of any United States patent in print will be sent, postpaid, to any address for 10 cts.

Brick Machine: Harry S. C. Walker, of Alexandria, Pa. 1,022,165. Patented April 2, 1912.—My invention relates to improvements in brickmaking machines, and more particularly to machines for making silica brick, the primary object of the invention being to provide improvements of this character which will dispense with the necessity for the hands touching the stock during the entire operation of forming the brick.

A further object is to provide an improved table over which the molds are moved between adjustable guide rails, and during such passage are subjected to the action of a press, a slicker and an ejector.

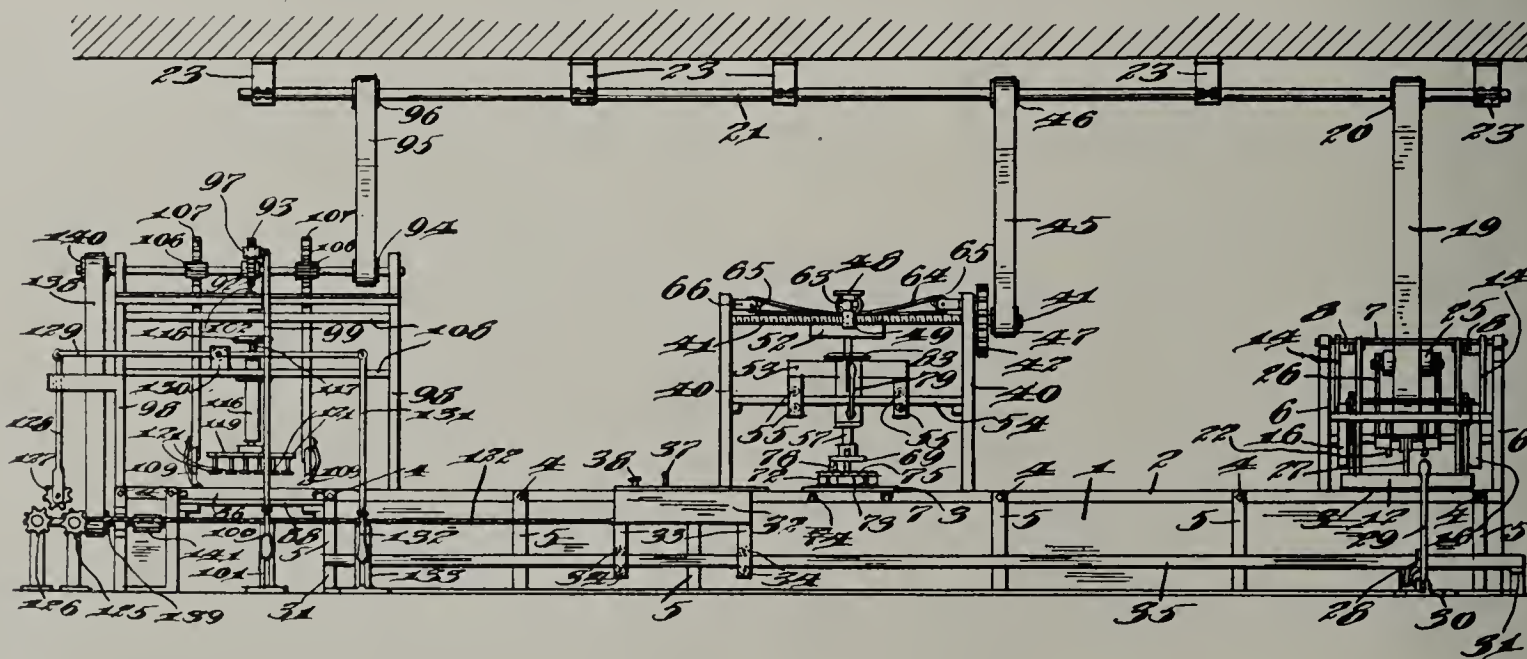
A further object is to provide an improved press under the complete control of the operator for pressing the stock into the molds.

A further object is to provide an improved mechanism

which are formed of hollow concrete walls 2 of any desired number and length with a clear space between them, as indicated at 3, open at both ends so that trucks, as 4, can be run from either end upon tracks indicated at 5. These trucks are designed to carry the pallets 6 which are fitted to carry any desired number of bricks piled loosely thereon, so as to permit the air to pass therethrough. Each pallet is hollow, and has perforations in its top, preferably in the form of slots, for the passage of the air from the interior of the pallet upward into and through the mass of bricks resting on the pallet. The pallets are of such length as to bridge the space between the duct walls and rest at their ends upon the upper faces of said duct walls, which latter are preferably widened at their tops, so as to somewhat overhang their bases, as shown.

The pallets are provided with openings 6a in their under sides, which, when the pallets are supported by the duct walls, align with ports or passages 1a, and thus place the ducts in communication with the interior of the pallets. Between the adjoining faces of the duct wall and pallet around said aligning openings may be placed a suitable elastic packing material to effect a tight joint.

The trucks 4 are provided with vertically adjustable platforms 4a by which the pallets may be held high enough to enable the trucks to be run in between the duct walls and



1,022,165.

which I term a slicker, which serves to smooth the stock in the mold.

A further object is to provide an improved ejector for forcing the brick out of the mold.

A further object is to provide an improved car or carrier adapted to move the molds along the table from one operation to the next, and so on.

A further object is to provide an improved arrangement of levers, gearing and power transmission for controlling the operation of the several mechanisms.

The operation of my improvements is as follows: The mold containing the stock is placed in position under the press and the latter operated to crush the stone within the molds. The carrier (32) is then utilized to move the mold from the press to the slicker, when the slicking or smoothing operation takes place, and then move the mold to the point of discharge where the bricks are ejected from the mold as above explained, it being understood that the three operations are being continuously carried out, so that with a complete machine of this character, three molds are continuously in use, one being under the presses, another under the slicker and the third under the ejector, so that the three operations are carried on simultaneously while the molds pass step by step from one operation to the other.

Apparatus for Drying Bricks: John C. Boss, of Elkhart, Ind. 1,026,558. Patented May 14, 1912.—According to my present construction, I provide a plurality of parallel ducts 1

after the pallets are properly positioned the platforms are lowered until the pallets rest on said walls with the openings aligned as above described.

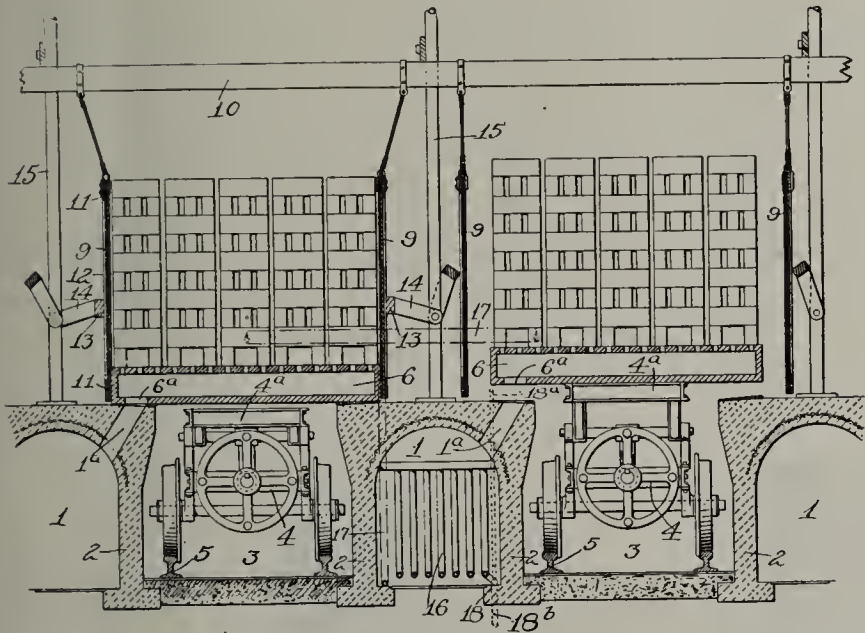
The dryer ducts are connected at their bottoms by inclined ducts which lead to an underground main supply duct 7, which leads to a blower, which, in turn, is connected by similar ducts 8 designed to be connected to and receive air which has been heated by passing through the hot kilns.

Arranged over each of the dryer duct walls are a pair of parallel curtains or movable shields 9 of fireproof material such as asbestos, which are supported at their upper ends by a suitable supporting framework indicated at 10, from which the curtain hangs freely, the point of suspension of each curtain being such that it tends to hang clear of the corresponding faces of the pallet and pile of brick carried thereby, so that the curtains do not interfere with the placing of the pallets with their loads of bricks and their removal after the bricks are dried. The curtains are made continuous of the length of the dryer ducts which are generally one hundred feet in length or over, and may conveniently be made of layers and which are stiffened by horizontal strips 11 and vertical strips 12.

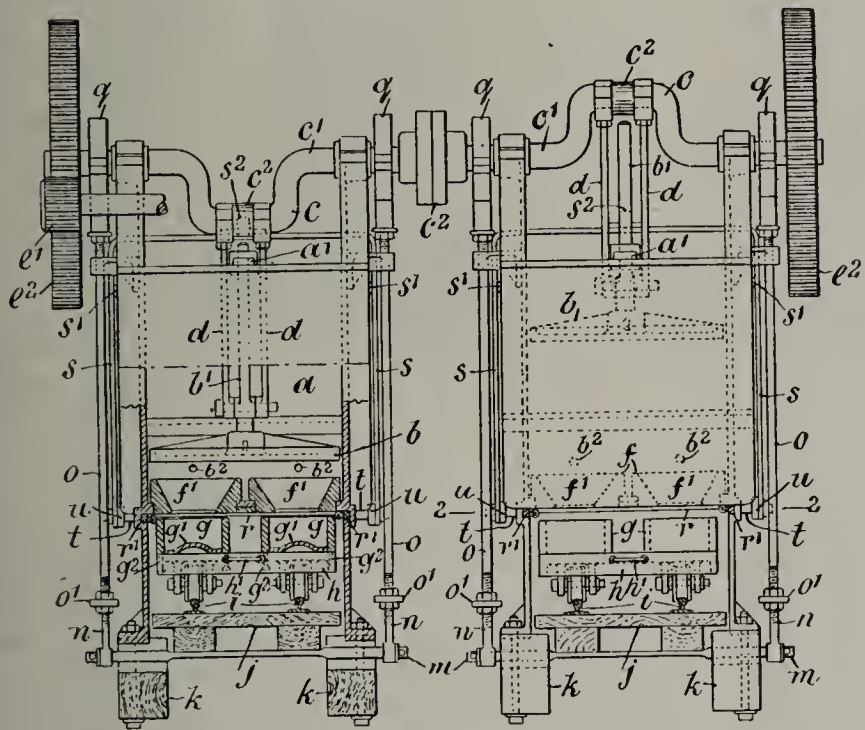
Suitable means are provided over the dryer duct walls and between the curtains for forcing the same away from each other and into contact with the sides of the pallets and the

piles of brick thereon. A means which I have found well adapted for this purpose is shown in the drawings in which 13 designate bars extending parallel to the curtains and which are pivotally connected by arms 14 with the roof supporting uprights 15. By dropping or forcing these bars down, the curtains may be pinned against the faces of the brick and pallets, thereby preventing the escape of any of the heated air laterally, causing it to pass upward through the entire pile of bricks.

Brick-Molding Machinery: Walter St. John Bricc, of Rochester, England. 1,027,315. Patented May 21, 1912.—This invention relates to brick molding machinery, and consists in improved mechanism for automatically effecting the lift-



1,026,558.



1,027,315.

ing and lowering of the mold platform at timed intervals relatively to the position of the plunger, and in improved mechanism for automatically operating the cutter during the period between the two stages of lowering the mold.

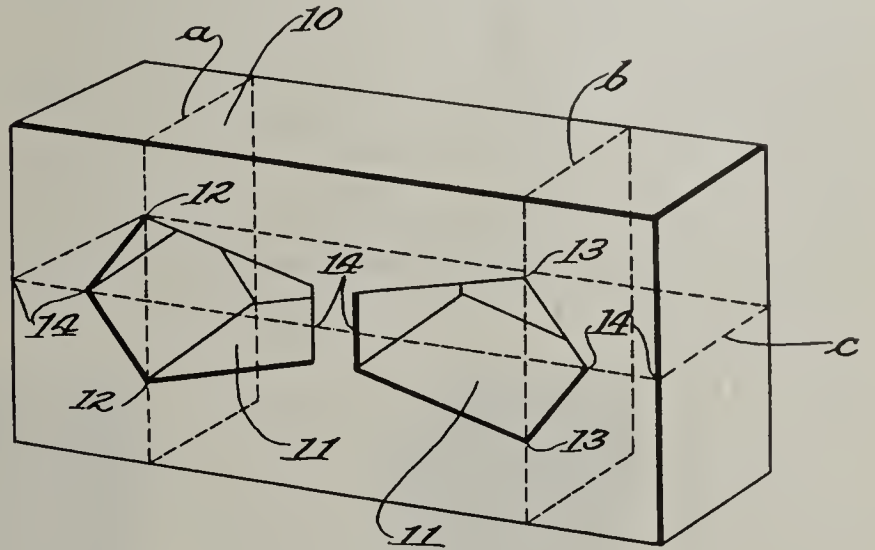
Moreover, a wheeled mold-carrying carriage being employed, the present invention also consists in so interconnecting the wheeled mold-carrying carriages of a pair of machines that when the carriage of the one machine is withdrawn by a handle, pedal or other means, the carriage of the other automatically returns to beneath its die and press.

The automatically lifting and two-stage lowering of the platform is effected by suspending the same from straps which embrace stepped cams, after the manner of an eccentric strap, which cams are secured to a crank-shaft, the crank

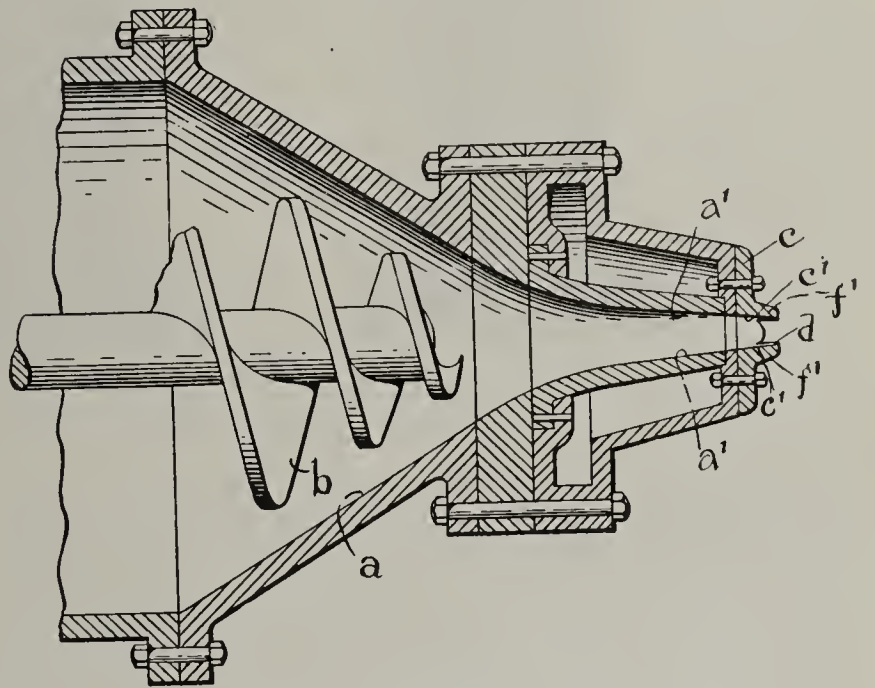
of which actuates the plunger. The crank during its upstroke also serves as a cam to rock a lever whereby the cutter is actuated.

A pair of interconnected machines embodying the above improvements is illustrated on the accompanying drawings, in connection with which certain details which are included in the present invention will be described.

Brick: George Hyde Emery, of Des Moines, Iowa, assignor to the Des Moines Clay Manufacturing Company, of Des Moines, Iowa, a corporation of Iowa. 1,027,407. Patented May 28, 1912.—My invention has for its object the provision of a brick so designed as to have planes of least resistance, so that the brick will break evenly when struck at points on these lines. The brick 10 is provided with cut-away portions in the shape of polygonal openings 11. The planes of



1,027,407.



1,025,133.

least resistance of a brick thus constructed will pass through the points 12 and 13, in one direction, and through the points 14 in the direction of the length of the brick. These planes are indicated in Fig. 1 by the dotted rectangles a, b and c. By striking the brick with an edged tool at points in any one of those planes the brick will break evenly in that plane.

Brickmaking Machine: James A. Dunning, of Aulander, North Carolina. 1,025,133. Patented May 7, 1912.—This invention has relation to brick, tile, hollow-block, pipe and other machines for forming plastic material into special shapes by forcing the material, such as wet clay, sand and lime, sand and cement, or other moist plastic material through an orifice or die, and having for its object the improvement of said die.

The particular cause of inefficiency common to such ma-

chines is the inequality of flow of the mass of plastic material in its passage through the die, resulting from the unequal friction lengthwise the direction of flow, in machines furnishing a rectangular or polygonal column of material, and depending in degree upon the departure in shape from the circular form and similarly affecting both inner and outer surfaces of a tubular column of plastic material; while transversely of the direction of flow there is likewise inequality of flow in the mass of material, in all cases, by reason of the friction between the surfaces of the moving plastic material and the stationary die, the part of the emerging column against which least frictional resistance is exerted being farthest removed from the contracting surfaces of the die and the plastic material. Because of these inequalities of flow the less plastic clays or other less tenacious materials are not successfully worked inasmuch as they require a larger proportion of water in the mass to render them sufficiently plastic, such addition of water rendering them too soft and tender to withstand the frictional inequalities before mentioned, so that the material passes through the die imperfectly formed; while even the extremely plastic materials have to be worked excessively stiff to obtain complete and continuous conformation to the shape of the die, thereby requiring much more power to operate and resulting in greater lamination of product by reason of lack of suffi-

Written for THE CLAY-WORKER.

CHIMNEY TOPS.

BY PROF. JOHN R. BELL, HUNTINGDON, PA.



THE CHIMNEY TOP is no doubt the most conspicuous and yet one of the most requisite essentials of modern residence construction, and yet a feature of construction very much overlooked and neglected. As the chimney top is, from the standpoint of architectural observance, of little importance to the business block, I will devote this article to this particular branch of brick work, particularly to buildings not having a flat roof, more especially residence construction.

The unsightly appearance of many of the chimney tops is not confined to one district, it is general, in city and village, and even on the farm house. As the automobile rounds the curve in the road or reaches the summit of a hill, and a suburban town or a large city is ushered into view, one of the first things we observe is the vast number of chimney tops which present themselves in a most conspicuous manner.

Who is at fault for this much neglected feature of brick

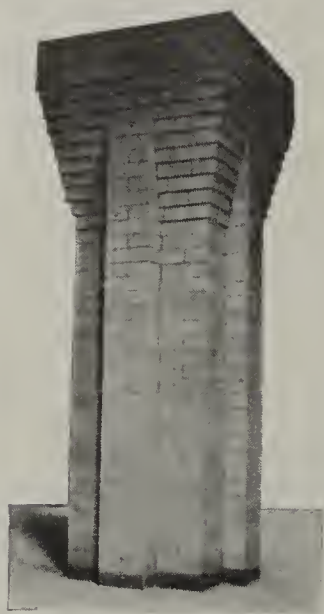


Fig. 1.



Fig. 3.



Fig. 2.

cient moisture in the material to secure an efficient binding of the particles. The resulting products from such die machines as are in general use are of unequal density and generally inferior in relation to quality, lamination and early disintegration; excessive loss from breakage both while passing through the various stages of manufacture and after the product is finished being especially common. Yet, excepting these disadvantages, for economy of manufacture and facility of producing various desired shapes, the column forming die machine is believed to possess superior advantages.

Labor Necessary for Brick Production.—In a brick yard with six million brick yearly capacity, equipped with two continuous kilns, there are employed the following number of men. The clay is hard shale. Six men are used breaking loose the shale, six men for loading and two men for moving the cars. On the brick machinery there are used four men, one man on the elevator, one man for the transfer of cars, and eight boys for the handling of the brick on the drying racks. The kiln takes six men for setting and drawing, besides the two burners. With the superintendent, the time keeper and the labor of loading wagons and cars, there are employed all told sixty-three men. The capacity of the plant is about 20,000 brick per day.—Tonind. Z. No. 144, 1911.

work? The architect, of course, for it is seldom that the chimney top gets any consideration at all.

There is no phase of brick construction more conspicuous. Especially is this true of the suburban town and the residence district of a city where the lots are narrow and, through necessity, most of the chimneys in these houses are located at the side of the house, so that the top usually commences at the eave of the house, and it naturally follows that we have a tall top of usually about twelve to thirteen feet. Many of these tops are positively ugly, when they could be made a thing of admiration.

Being the instructor of bricklaying as well as other building arts at the Pennsylvania Reformatory, I exert an effort to inculcate a desire for artistic and ornamental brickwork, first, in design; second, in teaching the art in a manner that will make boys leaving my school proficient to construct ornamental and artistic work, as well as the standard bonds, joints and all the intricacy connected with the business.

In behalf of brick construction and industrial education in bricklaying pedagogy, I submit the four following designs of chimney tops, which were built in my school and designed by me. I will state also that the drawings were made by the boys who built the work. In this way we enhance the mechanic's ability, which results in greater efficiency.

In selecting these drawings for publication, my purpose

has been to confine them to the traditional buttered joints only, therefore we will deal only with this joint in these drawings. I will deal with other joints in subsequent articles on other phases of brick construction.

Fig. 1. This top is, in my opinion, well designed and symmetrical. It was constructed of buff brick and red mortar, and can be laid out either square or diamond shaped. The size of the chimney is $24\frac{1}{2}$ inches square with 4x9 inch pilaster; the height is 8 feet and can be made whatever height is desired. And you will notice that the head projects 12 inches in 11 courses. A colored boy who had only six months experience at bricklaying, made the drawing and built this top.

In Fig. 2 we have a two-flued top constructed of white brick and buff mortar with a red brick hood. This color effect is very pleasing and well adapted for bungalows or cottage residences. A fact worthy of consideration in this top is that with the exception of the hood and several courses in head it necessitates no cutting of brick, which saves material and labor. This top can be constructed almost as fast as an ordinary top. I will also call your attention to the method of construction of the hood, particularly the corners. Relative to the red courses that I use as a foundation, its purpose is purely a matter of keeping the light brick from being defaced in sweeping the cement floor of my school. The boy who built this top had about four months' experience.

Fig. 3 is a three-flued chimney, and differs from Fig. 2 in that each flue is entirely distinct from the rest, only the corners of the middle flue touch two of the corners of the other flues; of course, the heads are bonded together. This top was built of white brick and white mortar and red hood. This color effect is also unusual and well pleasing, and well adapted for large resident construction. The brick in the hood are laid regular or running bond, and in this connection I will state that red cement mortar was used in all of these bonds.

The boy who constructed Fig. 3 had about five months' experience at bricklaying. These tops were constructed of the Kittanning brick.

In submitting this brief article on chimney tops as one subject of brick construction, I know the readers of THE CLAY-WORKER will appreciate the drawings used as illustrative of what is being accomplished in the evolution of the art through industrial training.

HOLLOW CLAY BLOCKS FOR BARNs.

THE HOLLOW BLOCK has won a place for building silos on the farm, and is now being adapted to the construction of other farm buildings. If any proofs as to the necessary strength of hollow clay block walls for barn construction were necessary they were found in the investigations of Prof. M. L. King, of the Iowa Agricultural College, at Ames. After establishing the adaptability of the hollow clay blocks to silo construction, Prof. King began a series of experiments and investigations in developing a masonry water tank to be built on the top of a block silo. Investigations have gone so far that the actual existence of a hollow block silo supporting a water tank furnishes indisputable proof.

Silos from 40 to 50 feet in height have been built with four-inch walls made of hollow clay blocks and have proved satisfactory.

Small farm buildings might be built of 5x4x12-inch hollow clay blocks. Larger ones should be built with eight-inch walls by using 5x8x12-inch blocks. Still better and more substantial buildings should be built with thirteen-inch walls by the use of a 5x4x12-inch and a 5x8x12-inch block side by side in the side wall. By alternately breaking joints, this will make a very substantial wall, cool in summer and warm in winter.

NATION PLANS FIGHT AGAINST "FIRE FIEND."

The value of the buildings destroyed by fire in the United States each year is almost equal to the value of the new buildings erected.

In that simple fact lies the foundation of a nation-wide fight that has been undertaken against the "fire fiend." Perhaps you have not heard much about it yet. Perhaps your neighbor hasn't. But before long you will, for the most powerful forces in the country—the United States Government, States and city governments, citizens' associations, leading architects and builders and fire-fighting experts—are lined up for the fray. And for those who want to help, but who have no official position, the National Fire Protection Association stretches out its welcoming arms.

"Some day—we don't know how far off it is—but some day," said one of the leaders of the movement recently, "it's going to be a disgrace for a man to build an inflammable house. He'll be classed as an 'undesirable citizen' just as if he made a pastime of hurling bombs or cultivating small-pox germs for free distribution."

To most men nowadays "fire-fighting" is a word that brings to mind clanging bells, glistening oilskin coats in rapid action, puffing engines, and heroic firemen snatching women from the jaws of death. But the new fire fighters go at the job in a different way. Their plan of campaign is based upon a condition emphasized by the following sentence from a newspaper account of the fire in Columbus, Ga., this spring:

"Many of the prettiest homes in Columbus went up in smoke and flames, and now all that is left to show where they once stood are the many blackened chimneys and one lone brick building that was in the path of fire."

"One lone brick building"—that phrase points the lesson. It is just another version of that old proverb, "An ounce of prevention is worth a pound of cure." The modern campaigners against fire start at the bottom. In the past the practice has been to put up flimsy frame buildings and then lavish money on showy fire departments. Now the question is asked, "Why not use a material that can't burn, so that you'll have no need for fire departments?" There's only one answer—and it's not one calculated to please the manufacturers of hose and hook-and-ladder outfits and firemen's helmets.

Two or three centuries ago, when a city was visited by a plague, the populace thought it was evidence of divine wrath. It never occurred to them that it had come because filth had been allowed to accumulate in streets and houses. The doctors—or leeches, as they were called in those days—did their best, but it was a poor best. In this age we don't wait for an epidemic and then expect doctors to drive it away—we put the sanitary expert "on the job" and tell him never to let disease get a start. So it will be in the future with the fight on fire. As perfect sanitation removes the cause of plagues, so will good construction remove the cause of destructive fires.

Though the campaign has not been under way long, the gospel is already spreading, and everywhere non-inflammable materials are being used instead of wood. Home builders are giving more thought to the subject of fire hazard, and the result is that thousands of them have turned to brick. As the building material with the longest history, and with a record of absolute indestructibility, it represents the readiest solution to the problem.

The brickmakers, with the same raw material that has been used for centuries, have made such advances in coloring and burning that they have brought about a veritable revolution in the architecture of the brick home. By a combination of the common brick, which is not often seen after the work is done, and the "face" brick for the visible surfaces, architects are able to design homes that are at once inexpensive, indestructible and highly artistic.

The United States Government, through the Geological

Survey, is taking a leading part in the campaign of education in favor of unburnable buildings, and it sets an example by making its own structures—its postoffices and court houses—fireproof not only in name but in fact. The government carries no insurance. It doesn't need to.

The campaigners have found that a large part of the flimsy construction is due to the false idea, widely cherished, that the cost of building a fireproof home is prohibitive. Of course, the experts know the absurdity of this, but there is a wide difference between an expert's knowing a thing himself and making thousands of other people know it. By literature, lectures and personal talks, however, the task has been well begun, and it is coming to be known that the difference in original cost between a fireproof and a non-fireproof home—between wood and brick—is very small, and that it is more than made up by the savings in repairs, insurance, painting, heating and doctors' bills. The brickmakers have joined the fire fight by forming an association known as the Building Brick Association, of which J. Parker B. Fiske, Flatiron building, New York City, is secretary, and which sends out particulars as to prices, design, etc., to whoever asks for them.

After the San Francisco fire the Government sent its experts to make an investigation of the burned-over area. They found that where the best materials had been used in sufficient quantities the fire had been successfully resisted. The ruins showed that brick had been triumphant. When Major John Stephen Sewell, of the United States Army, submitted his official report, he stated in it that, without doubt, the San Francisco fire had shown the safest of all materials to be "the right kind of burned clay."

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.

THERE HAS BEEN a decided improvement in business in the building line in the past month, and it is now stated that all building mechanics are expected to be kept busy for the balance of the year. A good many buildings are to be built this summer which were planned over a year ago. Brick men have been giving out bids on houses of various kinds on which they bid a year ago, but they are going ahead with the work now, and stopped it last summer before the contracts were let.

Local brick manufacturers are all busy and are making money, as the delivered price is based on the price asked for Kansas brick which are delivered here, on track, for \$6.50 per thousand, and this gives a good margin to the local manufacturer when he can dispose of all he makes.

Several of the local jobbers report some good contracts they have landed in the surrounding cities, showing that they are getting out away from home after a considerable part of their business.

The agitation started by the gas companies to have the price of gas raised, to cut down the consumption and make the supply last longer for domestic consumption, is a fair warning to the brick men of this section of the country to quit depending upon gas as a fuel, and some of them are taking the hint right along. Gas as a material for burning brick will soon be a thing of the past in this field, except where the brick companies own their own gas wells, and the tendency at the present time seems to be towards oil. A good many are figuring on oil as a fuel and some have already adopted it. The Standard Oil Company threw a bomb into the camp the other day, however, when it was announced that coal would be used as a fuel at their big refinery near this city, as they could better afford to buy the coal and sell the oil. It would seem that if the people who produce fuel oil and have it on their premises can better afford to buy coal and pay freight on it from the mines, the brick manufacturer could better afford to buy the coal where he has to pay freight on either oil or coal, for this matter

of freight certainly adds to the percentage of cost as figured by the Standard Oil Company.

Missouri towns are reported to be figuring on considerable paving this year, but over in Kansas the paving prospects are confined to only a few points, such as Topeka, Wichita, Manhattan and a few others. Plants turning out a first rate quality of paving brick, however, are not having any trouble in disposing of their product.

The Excelsior Springs electric line will be completed within a period of sixty days, and then it is expected the development of North Kansas City will be quite rapid. It is intended to fill the big flat bottom lying directly across the river from this city with manufacturing plants and then to build a big residence district on the hills to the north. A city has been planned for 100,000 inhabitants on the ground owned by the promoters, the Armour-Swift-Burlington syndicate. With the vast influence this syndicate can exercise in the matter of securing factories, there should be no trouble about getting the industries to make the population as great as they plan it, even if no one lived over on that side of the river except those employed there. Developments on this side of the river will be watched closely by contractors and building material men.

T. C. Jacoby, manager of the Fidelity Material Company, and for years in the brick business in this section of the country, being most of the time with the Hydraulic Pressed Brick Company, has announced his candidacy for the nomination for sheriff on the Republican ticket. He is a good mixer and ought to be able to get next to the voters with considerable ease.

The Eadie Building Supply Company sold the brick for the new Snapp hotel building in Excelsior Springs, Mo. About half a million common and face brick will be used, and the Coffeyville face brick will be supplied.

The Kansas City Material Company, of which C. H. Baird is manager, reports having disposed of a million common and face brick to the Kansas City-Excelsior Springs electric line, mostly to be used in the construction of car barns in North Kansas City. They also sold 250,000 brick to the Armour-Swift-Burlington interests to be used in constructing buildings in North Kansas City. Another sale reported by this company was of 600,000 common and face brick for the erection of a court house in Paris, Mo.; 125,000 for building a school house in Wetmore, Kansas, and 125,000 for the construction of a business building in Kirksville, Mo.

K. A. W.

INSTRUCTIONS FOR USING MORTAR COLORS.

The Ricketson Mineral Paint Works, Milwaukee, Wis., are sending to their patrons, present and prospective, a neat little printed leaflet giving the following instructions for mixing mortar colors:

The amount of coloring needed varies with the materials used and the shade desired. For mortar the following is approximate: For laying 1,000 brick with spread joints in red, brown, buff or purple, use from 50 to 60 pounds of color to 2½ bushels of lime and one-half yard of sand. For buttered joints use 35 pounds of color. For laying 1,000 pressed brick with spread joints, using black pulp colors, take from 40 to 45 pounds of black pulp to 2½ bushels of lime and one-half yard of sand. For buttered joints use 25 to 35 pounds of pulp.

Slaked lime should be allowed to cool not less than forty-eight hours before adding to the mixed sand and color in making mortar.

For cement, concrete, colored brick of all kinds—clay, cement, sand, lime, etc., stucco, wall tinting and the like, the amount of coloring matter will have to be decided by experimentation.

Always mix the colors with dry material. The more thorough the mixture the less coloring you will need.

For odd tints mix our standard colors as follows: Olive and moss green, mix buff and black; grays of all kinds, mix buff, purple and black; orange, mix buff and red; old gold, buff, black and a little red; golden brown, buff and brown; wine color, red and black.

Following the above instructions and using Ricketson "Never Fade" mortar colors insures the best of results.

BENEFITS THAT COME TO THE INDIVIDUAL MANUFACTURER FROM THE GENERAL ADVERTISING OF THE ASSOCIATION AND HOW TO FOLLOW IT UP.

BY JOHN W. SIBLEY, BIRMINGHAM, ALA.

THE PRIME SUBJECT of all the advertising of the B. B. A. is to convince the building public that burned clay brick is the most desirable of all building materials, because of its fireproof and weatherproof qualities, its convenient size and the beautiful and artistic effects that may be produced by use of same.

This campaign of education has already produced an increased demand and is bound to continue in ever widening circles.

As it is a well-known axiom that "the whole is the sum of all the parts," it follows as a corollary that whatever benefits the whole will have a reflex benefit upon the individual.

To fully appreciate the scope of what the association has done along these lines, it is necessary to briefly recapitulate.

We all know that in the building world, the architect is, so to speak, the "autocrat of the breakfast table," and our first efforts had to be toward enlisting his attention and interest. So a prize contest was conducted for plans for a "house of brick to cost ten thousand dollars."

This met with high favor from them and gave us the first foundation for our literature.

Then followed the contest for the small brick house to cost in the neighborhood of \$4,000, and now we have the still further amplification to the small bungalow.

I am proud to say that it was not so hard to win the architect to the use of brick, but the difficult problem is to get the owner to study the facts, which will win out for brick every time.

Our next step has been to conduct an advertising campaign in the leading magazines and periodicals, as a result of which many hundreds of inquiries have come to headquarters for literature, etc.

These have been sent in regular bulletins to all members of the B. B. A. to be followed up by them.

At this stage of the game it is up to the individual manufacturer to get the desired results.

Wherever it is possible, a personal visit should be made to the inquirer. In lieu of that a proper letter accompanied by such literature as you have to offer should be sent.

It has been the policy of many of the members of the B. B. A. to keep on hand for such cases a supply of the booklets and designs published by the association, and I have received a number of orders for brick as a result.

In several instances in Birmingham this literature has been the means of converting several plans from frame to brick.

Our company has also found it very profitable to conduct our own advertising along the general educational line, always concluding with a suggestion that the most perfect results can be attained by the use of our particular brand.

Last spring we had several disastrous conflagrations in our district, so we joined with our broadminded competitors and fellow brick manufacturers in running "Brick Talks" in one of our daily papers, offering the books on brick houses for sale at twenty-five cents and fifty cents. We got orders by mail and personal calls for same, and our company made two sales in the city and one in Tuscaloosa, Ala., as a result of this campaign.

We were so pleased with the results that we ran the

*Read before the Building Brick Association Convention at Chicago, Ill., March 7, 1912.

"Brick Talks" in the "Manufacturer's Record," the leading trade exponent of the south.

The style of this advertisement appealed so strikingly to them that they wrote a strong editorial on it. We have received a number of inquiries as a result of same.

Last summer one of my neighbors saw the B. B. A. advertisement in the "Saturday Evening Post" and wrote to headquarters for literature. His name was published in the bulletin to the members, and I wrote him a letter to call at our display rooms and see what could be done with brick. He did so and said to me: "That must be a very strong and powerful association you all have, and the members are certainly live wires, for I have received 165 letters from brick manufacturers all over the country as a result of my inquiry, and I told my wife Sibley must make a fine brick if he was in the same class with all those big concerns in the north and west."

So, fellow bricks, you see how essential it is for all of us to support the association which is conducting such a far-reaching campaign of education in behalf of our craft, and then let us as individuals follow it up systematically and it is inevitable our business will receive great benefits.

Written for THE CLAY-WORKER.

THE MAINE BRICK INDUSTRY.



WHEN BRICK were first made in this State is lost in the obscurity of a period which did not maintain its records with any too much detail and accuracy. It seems certain, judging from ruins of houses which were erected very early in the history of the State, that brickmaking must have followed the earliest construction. There was for a time what was known as the "cat and clay" chimneys which served the purpose during the log cabin days, but as soon as more permanent construction began, brick chimneys appear, and, inasmuch as nothing is said about importing brick, the assumption seems well founded that brickmaking was one of the earliest industries in the State.

Between 1760 and 1770 Boston began buying from Maine, and before the Massachusetts deposits were developed to any considerable extent the Maine yards were supplying Boston with material for the construction of many of the pretentious dwellings and business houses erected at that period in its history.

The first important yards were established upon the Sheepscot and Damariscotta rivers, at Bowdoinham and Hallowell, on the Kennebec; at Bangor and Brewer, on the Penobscot, and at Portland.

In 1800, so prosperous had the business become, the number of yards had increased to thirty, employing ninety men, who annually made and shipped 4,500,000 brick, 4,000,000 of which went to Boston.

Up to 1835 all brick were moulded by hand, but that year the Hobbs machine was introduced and speedily found its way into all the yards in the State, doubling the output per man in each instance.

In 1855, there were some 500 men employed in the State, with an output of substantially 50,000,000, of which 40,000,000 were exported, Boston taking the larger share, though New Bedford and Provincetown, Mass., and Providence, R. I., took a good many. About this time a demand developed in Newfoundland, and many millions were shipped to St. Johns. Unfortunately, this new trade was on long time credit and resulted in ruin to many brickmakers.

During the civil war the output fell to the lowest point in its history, but immediately after the return of peace the industry regained all it had lost and more, stimulated by the high prices and the increased demand from Boston.

By 1870 the yards were turning out about 60,000,000, of which 50,000,000 found a market outside the State. By 1885 the number of yards increased to ninety-six, employing 609 hands and turning out 93,000,000 brick, of which 50,000,000 found a market elsewhere. In 1905 sixty-six yards were in operation, producing a total of \$420,111. In 1910, the latest available statistics, there were forty-five yards, employing 630 hands and turning out 100,000,000, of which at least two-thirds were sold outside the State.

The distribution by counties is, according to the latest obtainable information, about as follows: Androscoggin, seven yards, sixty-eight hands; Aroostook, three yards, twenty-one hands; Cumberland, four yards, eighty hands; Hancock, five yards, twenty-eight hands; Kennebec, two yards, twenty-five hands; Knox, one yard, eighty hands; Lincoln, two yards, ten hands; Penobscot, five yards, ninety-seven hands; Piscataquis, two yards, twelve hands; Sagadahoc, two yards, ten hands; Somerset, two yards, nineteen hands; Washington, one yard, seven hands; York, nine yards, 173 hands.

The industry has passed through great fluctuations. For example, after the great fire in Boston, in 1872, demand so far exceeded supply that the price went up to \$22 per thousand. The yards put on extra forces and this premium was soon wiped out and the standard price, \$6.50 per thousand, was shortly restored. Like other localities, various influences have frequently operated to either increase profits or, on the other hand, reduce them to almost the vanishing point. The Bangor fire, for instance, was a source of largely increased profits for brickmakers. When building is dull in Boston and in their home State, makers suffer there the same as elsewhere.

Suitable raw material, both sand and clay, are found in inexhaustible quantities in the State, and most deposits are convenient to transportation lines, both by rail and water. Indeed, the prospect is that there will be a continuation of the prosperity which has characterized the industry since its inception. Further, so progressive are those in control that they will develop their enterprises as rapidly as conservative business prospects warrant. Maine will long be a profitable field for the brickmaker.

Some Busy Firms in Maine.

Peter M. Austin and George Oliver both operate brick plants in Danville, one of the enterprising towns of Androscoggin county. While they do not employ such a large number of men as some firms, they find their business profitable. A considerable proportion of their product is consumed in Auburn, near which town their works are located.

Horace Libby, the brickmaker at Lewiston, secures a good share of the business in that locality. He is the only one scheduled in the town and, consequently, has as a market one of the State's growing communities. He has maintained his business at about the same height of output for a number of years.

Louis Desjardins has a plant at Lisbon Falls which he operates to full capacity each year. He finds that his trade increases with the growth of the town and he has nothing to spare outside his home community.

The Mechanic Falls Brick Company, at Mechanic Falls, will probably increase its output somewhat this season, as heretofore it has often had to stretch a point to accommodate all those who wanted to buy. It makes an excellent quality of stock and finds no difficulty in disposing of it at profitable prices.

The A. M. Donnell Company, at Leeds Junction, will run about seventy-five hands at its plant this season. It is too early to predict anything regarding the market, excepting to compare probabilities with those in the past. This firm turns out considerably more than its community requires and some of its stock goes to Boston or to other Maine

cities. The plant is well equipped and only the best quality is produced.

C. A. T. Rafton, at Ashland, has a small plant which is chiefly engaged in supplying brick for its immediate vicinity. The business has increased somewhat in recent years with the growth of the towns nearby, and promises further increase in the future.

J. W. Clark, New Limerick, finds plenty of demand for the brick he makes at his plant. Demand increases naturally with the development of the region, and sales have improved proportionately.

The Aroostook Lumber Company, Presque Isle, will operate its plant to capacity this season. The indications are that considerable business will be done in building in that vicinity, and that means a busy time for the brickmaker.

The business in the city of Portland has been good the past few years and makers are looking forward to a continuation of the same satisfactory conditions this year. There are three firms whose output supplies a large proportion of the brick used about the city. Some are brought from elsewhere when occasion requires it, but for the most part the home makers are able to care for the demand. Samuel B. Densmore, 505 Portland street, employs fifteen men; Melvin Hamblet, 57 Douglas street, has thirty men at work, and William Lucas, 328 Brighton avenue, has twenty-eight men busy. This makes a total of seventy-three in Portland and affords sufficient help to turn out a large quantity in a year. The surplus goes to Boston or nearer towns along the Atlantic coast.

H. B. Phillips has a plant at Ellsworth where he makes sufficient brick to satisfy the home market and occasionally has a surplus for shipment elsewhere, though as a rule his output is used at home. Building has been largely of wood until within a short time, but considerable brick has been used notwithstanding this. He will operate to capacity this season.

A. W. & A. B. Hutchings, Orland, will operate their plant to full capacity this season, unless something occurs to spoil the profitable outlook which characterizes the situation now.

Elery F. Leach and Otis Leach have plants at Penobscot and expect to do a good business this season. They have increased their output somewhat in recent years and expect to do even more.

George B. Patten, at Sullivan, is preparing to run his plant full this year and will, unless something occurs to prevent, increase his output somewhat to keep pace with the growing demand in his locality. He has developed a profitable business during the past few years and intends to take advantage of all building development in his vicinity the coming season.

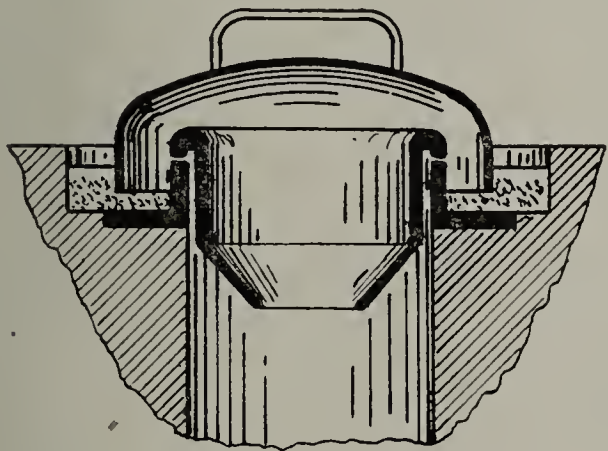
The capital of the State has many brick buildings and the tendency is toward that class of structure. The Newbert-Noyes Company has a good sized plant which is kept continuously making brick for the needs of the city, and the Purinton Brothers Company has shared in this prosperity to some extent in addition. They are both anticipating good demand and profitable business this season. Brick structures will be more numerous than ever in that city this year, according to the present outlook.

The Thomaston Brick Company, Thomaston, employs eighty men in making both common and face brick. The firm has a steadily increasing demand for face brick because not many in the State manufacture that grade. The demand for common brick increases, also, though perhaps not as rapidly as the other, largely because there is more competition. Both grades are as good as can be made, and the best prices are obtained in each instance. The business has increased measurably during the past few years and the present season promises the best results of any yet passed. The growth of the firm's business has been coincident with the development of the town in which the plant is located and the immediate vicinity. YANKEE.



Discovery of a Large Clay Deposit.—In the vicinity of the Eiffel mountains, close to the village of Bergweiler, near Wittich, there has been discovered very extensive clay deposits which have been traced from Speicher to Binsfeld. A short time ago some old Roman kilns were uncovered at Speicher, which shows that there was a large clay works at that place at the time of the Roman government. According to experts the new beds are of a very extensive character.—Tonwaren Fabrikant No. 8, 1912.

Firehole Cover for Continuous Kiln.—The fire holes in a continuous kiln are always a source of trouble, inasmuch as they do not close tight enough, and much cold air comes in the kiln through these covers. In order to overcome this trouble the Graefl Arnimsche Brick Company, in Weiszwasser, had for over a year a new cover in use. According to carefully prepared data this company has saved about



Fire Hole Cover.

\$0.15 per 1,000 in fuel in burning their brick.—Tonind. Z. No. 17, 1912.

The Brickyard Situation Around Berlin.—The brick situation around Berlin is not very good. Many of the brickyards are only working half time, and several will not be in operation at all this year. Two of the largest yards, the Sumpf brickyard, in Parey, and the Hahn yard, in Derben, have been abandoned altogether and they are torn down. This makes ten brickyards which have been closed down in the last few years.—Der Tonwaren Fabrikant No. 8, 1912.

Power for a Brickyard.—Extensive experiments have been made in France with different power equipment in order to determine the cheapest power possible for brickyard purposes. The tests were made with a regular steam equipment, with a gas motor using anthracite, a gas motor using lignite, and further with a Diesel motor. The power used was 80 horsepower and it was found that in every case the cost per horsepower hour was about 0.05 francs (one cent). It was found that the steam equipment was really the cheapest in as much as the first cost of installation was the least of any. The yard on which these experiments were conducted worked from March to October and made four million brick. In as much as the figures were obtained regarding the cost of manufacturing they are given here also. The cost of clay digging was 7 cents per cubic yard, the cost of making brick was 62 cents per 1,000. This was for common brick. The cost of making face brick was \$1.21 per 1,000

brick. The cost of fuel for common and face brick was the same, it being 52 cents per 1,000 brick. When all office expenses, interest, taxes, depreciation and all manufacturing costs are taken into account, the cost of common brick ready for shipment was \$4.64, and \$5.60 for face brick.—Le Mois Scientifique No. 148, 1912.

The Influence of Lime in Clay.—When lime is present in clay it can only be made harmless by the washing of the clay, but this process is too expensive for brickmaking. The only other way is by fine grinding of the material and hard burning. The lime will burn dead by high temperature and will not slack afterwards. If this can not be done, and the lime is only burnt partially, all bricks should be submerged in water right after they leave the kiln; this procedure will also make the lime harmless. The fine grinding of the material has given good results, as it gives the lime an opportunity of combining itself while burning with the silica in the clay and form a lime-silicate, which does not slack upon exposure to the weather.—Deut. Topf. & Z. Z. No. 29, 1912.

Brick Setting in Continuous Kiln.—In a continuous kiln which has a kiln burning space of over 300 feet, it has been observed that the lower courses of the brick would be melted

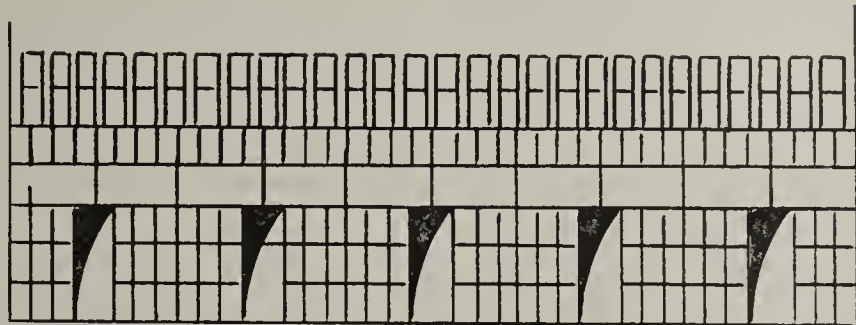


Fig. 1.

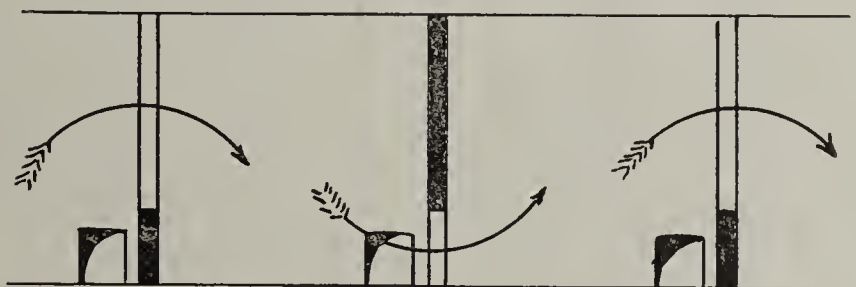


Fig. 2.

down, even after the fire has been advanced. It was found upon examination that the clay contained some lime and that the vitrification point of the clay and its fusion point were very close together. It was first thought that an admission of cold air right behind the fire would overcome this trouble, but no results were obtained. The setting was then changed with better results, and now every other space between fires is set with an open canal or flue, which will give better circulation of the fire, as shown in the cut. This method of setting has overcome all trouble with melted arches and can be recommended for this trouble. Besides it has been found that this arrangement will save some fuel in the burning.—Tonind. Z. No. 41, 1912.

Manufacturing Defect in Salt Glazed Stoneware.—In a stoneware pottery in Westerwald, manufacturing steins and jugs, it was found that nearly all the tops of the ware had a small rim of a brown glaze. It was first thought that the trouble was in the salt used, but after some investigations and analyses it was shown that the salt would not produce such effect. By making a composition body according to the raw materials used, it was found that the defect did not come from the body clay used. Even steins made from white clay showed the same defects. The next step was the in-

vestigation of the clay and sand used, and in this material it was found that the same carried a streak of yellow ochre clay, which was readily dissolved in acid, showing considerable free iron. The salt of the glazing attacked this iron at once and formed crystalized iron glaze. When this clay and sand was changed to pure stoneware clay and white quartz sand, the trouble stopped at once. Chemistry and chemical knowledge of the clayworking industry helped greatly to solve this difficult problem.—Sprechsaal No. 11, 1912.

Piece and Contract Work or Day Labor on Brickyard.—The methods of employing labor on brickyards has been studied in its different forms, and while any of the methods employed has its good points, there is always something which does not go according to schedule. Mr. Fritz Ruecker has devised a merit system which he claims has given excellent results and seems well worthy to be tried. He has taken a certain daily capacity as standard and any of the production above this point is figured in percentage and the wages of the men are increased accordingly. The first table shows the daily production, its minimum quantity and the percentage increase per day to which each brickyard man is entitled. The second table shows the time and the increase percentage credited to each man and shows the total increase entitled to for the period illustrated. This method has been worked out satisfactorily and the clay pit men and the machine men are all sharing alike. If the hourly capacity is 1,000 brick, and the daily increase 3,500 brick, the labor is entitled to 3½ hours extra time. If the man in the clay pit gets 20 cents per hour, he is getting that day 70 cents more for his work.

—Amount of Brick and Tile Made from August 24 to 29.—

Date	Amt. made	Kind of ware	Hours	Normal hourly capacity	Excess per day	Per-cent-age
24	13,000	Brick	10	1,000	3,000	3
25	6,000	Brick	5	1,000	1,000	1
25	8,000	Small brick	5	1,400	1,000	0.7
26	18,000	Small brick	10	1,400	4,000	2.8
27	10,000	Floor tile	10	750	2,500	3.8
28	4,800	Floor tile	4	750	1,800	2.4
28	7,200	3-in drain tile	6	920	1,720	1.9
29	16,000	3-in. drain tile	10	920	6,800	7.4

—Weekly Time and Piece Work Record.—

Name	24	25	26	27	28	29	Total normal hours	Extra hours total	Rate per hour	Total extra pay
No. 1	10	10	10	10	10	10	60	....	.25	.....
Extra hours	3	1.7	2.8	3.8	4.3	7.4	....	22.5	...	\$5.62
No. 2	10	10	10	10	10	10	60	....	.24	.....
Extra hours	3	1.7	2.8	3.8	4.3	7.4	....	22.5	...	5.40
No. 3	10	5	10	10	4	10	49	....	.24	.....
Extra hours	3	1	2.8	3.8	2.4	7.4	....	19.9	...	4.77
No. 4	10	10	5	10	10	2.5	47.5	....	.22	.....
Extra hours	3	1.7	1.4	3.8	4.3	1.8	....	15.5	...	3.41
No. 5	..	5	5	...	...	7.5	17.5	....	...	.....
Extra hours	..	1	1.4	...	...	5.6	....	8	.20	1.60

—Tonind. Z. No. 29, 1912.

The Use of Fuel Containing Water.—Fuel which contains water, like wood, peat, lignite, sawmill refuse and sawdust, contain, according to their qualities, from 40 to 60 per cent of water, while good coal contains from 7 to 25 per cent water. It is a fact that no fuel will start to generate fuel gas until all the water which it contains has been driven off, and this takes place at the expense of the fuel itself. In order to evaporate one pound of water at 212 degrees it takes 1,146 heat units. If the fuel used contains 50 per cent water it will take about one-third more fuel than when it had been used in the dry state. All the steam generated from such fuel has to travel through the kiln and the clayware. They take up a great quantity of heat units from the kiln, and it

is only natural that a great deal of fuel is used. It should, therefore, be well determined beforehand if it is not cheaper to use dry fuel in place of wet fuel, even if the first one is much higher in price. Experience has shown that it will be a great saving to use dry fuel.—Keramische Rundschau No. 16, 1912.

GROWING IN POPULARITY AND USE.

The increase in sales reported by the Mathews Gravity Carrier Company, whose display page appears elsewhere, of their gravity brick conveyor, indicates that it is becoming recognized as standard equipment among brick manufacturers who keep abreast of the times and who are prompt to avail themselves of up-to-date methods for cutting costs.

One of the most gratifying features connected with the increasing interest manifested in the Mathews gravity brick conveyor is the numerous inquiries from persons who have seen the conveyor at work in other brick yards. This is not surprising, however, as the company has extended its sales into every brickmaking State in the Union, and nearly every county in these States has one or more plants where the conveyor is being used.

Among recent sales the company reports the following, which have been made since January 1:

- Schneider Brick Company, West Detroit, Mich.
- Herbert E. Ross, New South Wales, Australia.
- American Clay Machinery Company, Willoughby, Ohio.
- Riverside Builders' Supply Company, St. Paul, Minn.
- Erie Contracting Company, Buffalo, N. Y.
- Terpening Brick and Tile Company, Farmington, Ark.
- Clermont Sewer Pipe Company, Clermont, Pa.
- Bush & Percival, Corry, Pa.
- A Lyth & Sons Co., Buffalo, N. Y.
- P. M. Johnson Brick Works, St. Elmo, Ill.
- Alex. A. Scott Brick Company, Knoxville, Tenn.
- Bessemer Limestone Company, Youngstown, Ohio.
- Texas Press Brick Company, Ferris, Texas.
- Home Brick Company, Canton, Ohio.
- Lone Star Brick Company, Ferris, Texas.
- Keystone Clay Products Company, Huff Station, Pa.
- Beaver Clay Manufacturing Company, New Gallilee, Pa.
- Boston Building and Material Company, Boston, Mass.
- Fred T. Ley Company, Springfield, Mass.
- Zeeland Brick Company, Zeeland, Mich.
- Rochester Composite Brick Company, Brighton, N. Y.
- Fulton Fire Brick Company, Fulton, Mo.
- Athens Brick Company, Athens, Ala.
- Latrobe Brick Company, Latrobe, Pa.
- Union Mining Company, Mount Savage, Md.
- Busse Brick Company, Cincinnati, Ohio.
- Tift Silica Brick and Stone Company, Albany, Ga.
- Waltham Coal Company, Waltham, Mass.
- City Coal Company, Hartford, Conn.
- George E. Sykes, Hartford, Conn.
- Cleveland Vitrified Brick Company, Oklahoma City, Okla.
- Sykesville Clay Products Company, Sykesville, Pa.
- Mechanicsville Building Brick Co., Mechanicsville, N. Y.
- Ringle Brick Company, Wausau, Wis.

The agitation conducted by manufacturers in and about New York has resulted in a more general use of brick, but with this difference, the frames of the buildings are of steel and there are more or less ornate decorations of terra cotta and other forms of burnt clay. The buildings are handsomer and they contain what are thought essential features of improvement and convenience, but aside from this the mere question of using brick as it should be used, as a general purpose building material, is now no different from what it was years ago. It is well for the city and well for property owners that brick is again coming into such general use. Without it there is increased danger from fire. With it the city is virtually fireproof and the question of protection is reduced to a minimum.

PUBLICITY WORTH WHILE.*

A Fine Example of the Power of the Press in Boosting the Brick Business.

THE BRICKMAKERS of the land are awakening to the need of "live wire" publicity. Hardly a day goes by that we do not receive a newspaper clipping showing an advertisement or an article boosting clay products. In all sections of the country the farmer, the business man and

the fact that here was a field he had shamefully neglected. Now, were you to ask him the advantage of publicity work he would tell you that it is so beneficial that he could not do without it.

Effective publicity work is a great boon to the average brickmaker, and many who have given it little attention heretofore are now awakening to the great possibilities. This is proven by the fact that many of the leading papers in the country are now carrying, from time to time, advertisements displaying brick work and boosting clay products.



"When You Build—Use Brick"

Isn't That A Pretty Home?

Would you like to have people say this about YOUR HOME?

If it looks good to others it will look good to you, too, and the greater your pride in your home the greater the enjoyment of living there.

Out of the tens of thousands of homes in Cleveland there must be something distinctive about a house when people stop in passing to say, "Isn't that a pretty home?"

Draw the line close between a Conspicuous House and a Distinctive House. You do not want one with forty colors or "noisy" contrasts, but one in which there is a harmony of design and coloring.

Such effects are produced permanently by the use of Modern Face Brick. Every possible shade and texture suitable to the purpose may be had in brick. A competent designer is able, with the use of Brick to give your home the appearance of having grown in its surroundings.

Best of all it doesn't cost any more to have such a home than it does to have the "one-of-thousand" type.

Let us help you attain the best effect in your home building. Visit our show rooms and ask for our Free Booklets on Brick.

The Cleveland Face Brick Association

Organized for the purpose of advertising, developing and promoting the increased use of face brick

THE HYDRAULIC PRESS BRICK CO., 9th Floor Schofield Bldg. THE QUEISSER-BLISS COMPANY, 12th Floor Schofield Bldg. THE CLEVELAND BUILDERS' SUPPLY CO., 9th Floor Hippodrome Bldg.	R. L. BEOK, 231 The Arcade. THE STOWE-FULLER COMPANY, 12th Floor Rockefeller Bldg. THE CUYAHOGA BUILDERS' SUPPLY CO., 6th Floor Schofield Bldg.
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A Forceful Advertisement That Appeared in the Cleveland Leader June 2.

the merchant is hearing or reading of the wonderful possibilities in brick work.

It is a case of profiting by the example of a competitor. The campaign of the cement men was a great shock to the average clayworker and it took some time for him to realize that he could do more with his product through live wire advertising than any other building material man could do, but the fact has been proven that it pays to advertise brick as well as other things. With a few trial tests of the placing of advertising in the local papers he was soon convinced of

One of the best clippings we have received in the last few weeks was sent to us from Cleveland, Ohio. The accompanying illustration, an advertisement of the Cleveland Face Brick Association, appeared on one of the two facing pages of a supplement devoted to the news of the real estate and building trades in the Cleveland "Leader," Sunday, June 2. This occupied a quarter of a page. On the opposite page appeared a good publicity article headed "Variety in Brick Brings it to the Front," and an illustration of a brick house, together with the floor plans. On this same page

were several smaller advertisements of the local brick concerns.

The Cleveland Face Brick Association writes that this advertising campaign has proven very profitable and that they hope to continue it, running large ads and more of them as their means will permit. Brickmakers themselves all know that a good clay brick is the best building material possible. Does the average builder realize this fact? It is up to the brickmaker to make sure he does and keep the fact foremost in his memory. Get busy, Mr. Brickmaker, and boost your product as it well deserves.

THE CLAYWORKING INDUSTRIES OF THE STATE OF OREGON.

BY S. GEIJSBEEK, PORTLAND, ORE.

HERE has just been issued a bulletin of the Oregon State Bureau of Mines, under the name of "The Economic Geological Resources of Oregon," which is of great interest to the clayworkers. The Oregon State Bureau of mines was established only last year, and this is the first publication issued. The mineral resources of the State are only \$4,000,000, in spite of the fact that Washington, adjoining us on the north, has an annual production of \$17,000,000, and California, to the south, a production of \$86,000,000. Until recently Oregon has never spent any money for investigating the mineral resources, while Washington has spent annually nearly \$28,000, and California \$30,000. It is illogical to think that no relation exists between the mineral production of a State and the funds spent in investigating the same. Mother Nature certainly did not discriminate against the State of Oregon by cutting off the mineral resources at a political boundary line of State territory.

The bulletin deals with coal, oil, gas, stone, lime, cement, gypsum, sand and gravel, clays, mineral water, gold, silver, copper, lead and minor mineral products. The chapter on clays is of special interest. Clay deposits are found all over the State but are not developed to any great extent. Western Oregon and the Willamette Valley are well supplied with clays of various qualities. Clays are found varying in thickness to fifty feet. The Bureau of Mines has not had opportunity as yet to make any detailed survey to determine the qualities of clays in different sections. This, however, is contemplated in the near future. In this connection it can be stated that the new school of mines at the Oregon agricultural college will establish next fall a course in ceramics, and this department will be under direct supervision of Prof. H. M. Parks, the director of the Bureau of Mines.

The total production of clay and clay products in Oregon in 1910 was only \$912,016, the different products being common brick, front brick, drain tile, pottery, sewer pipe, terra cotta and fire brick—common brick, \$482,333; sewer pipe, \$178,918; front brick, \$137,040; drain tile, \$51,516; pottery, \$34,000. There were sixty-six plants in operation in 1910, well distributed over the State. Clay products were produced in all but eight counties in the State. Portland, with Multnomah county, had the greater production, producing alone \$519,285, with fourteen different plants. This was about forty-two per cent of the entire State production. Yamhill was second with five plants, and Marion was third, also with five plants.

Investors looking to the Pacific Northwest for opportunities along the clayworking lines, will, of course, go there first and get reliable information as to the location and quality of the particular materials which they are seeking. Brick, tile, pottery, terra cotta, sewer pipe, and paving brick can all be manufactured in Oregon, and it will only be a short time, when the locations are better known, until this State will have very promising clayworking industries.



ST FRANCIS VALLEY (ARK.) CONTRACTS LET.

Contracts for draining 242,000 acres of swamp lands in St. Francis valley, Ark., have been awarded. The total amount of these contracts is \$979,950.49, and the work contemplated includes about 14,000,000 yards of excavation. When completed it will restore some of the richest agricultural territory in the world. It will be cut up into small farms and sold to immigrants.

It will take 292 miles of canals, averaging from 14 to 50 feet in width at the bottom and from 8 to 15 feet deep to drain this land. Work on every contract must begin within six months from date awarded. They shall be completed within two and one-half years.

The soil has an estimated depth of 40 to 50 feet. Part of the territory was drained about five years ago. That portion was opened for farming purposes and the yield of corn, cotton and potatoes has been remarkable, corn averaging from 80 to 90 bushels per acre, Irish potatoes from 150 to 300 bushels per acre and a bale and a half to two bales of cotton per acre. In some instances a crop of peas were grown in the same field with cotton.

Drainage and Soil Moisture.

Chief among the factors promoting soil conditions favorable to activity, I mention first those of soil drainage and soil aeration, humus, and moisture content, and richness in the elements of plant-food in the form available for plant use.

A water-logged soil, that is to say a soil upon which water stands for any length of time, either on the surface or in the first two inches of surface soil, can not be in a condition favorable to the welfare of most kinds of plant life.

Soils that are exceptionally fertile are filled with minute organisms, whose office is to work upon the plant-food in the soil, bringing about certain chemical changes whereby this food becomes available for plant use.

To thrive, these micro-organisms must have air, moreover, in order to properly functionate, the roots or plants must have free access to air.

Water excludes air. Hence, the presence of water (not soil moisture) in a soil is inimical to the welfare of both soil and root growth.

The first essential in soil productivity, then, is proper drainage.

Humus in soil is essential, that friability may be promoted and the moisture capacity made large to its full capacity.

That crops must have water (soil moisture) is generally known. No plant can prosper to its fullest degree unless the soil, in which are located its feeding roots, contains the maximum water content, or an amount sufficient to supply, on demand, every need of the plant.

The reason of this is plainly evident when the manner of plant feeding and growth is understood.

Not only is moisture required to supply the needs of plant respiration which takes place on all leaf surface and is the construction of plant and fruit tissue as well, but soil moisture is needed as a carrying agency for plant-food.

In the absence of soil moisture, plants must starve, though the soil be exceedingly rich in every necessary element of plant-food. On the other hand, plants can not thrive in a

soil depleted of its plant-food resources, even though it contains a maximum moisture content. To secure results in plant growth, these two factors must be properly combined.

The moisture content of a soil is influenced and determined by several agencies. Aside from the factor of precipitation, the moisture content of a soil is influenced by the character of the soil, humus content, drainage, and tillage given.—M. N. Edgerton in *Farm World*.

THE DRAINAGE PROBLEM OF THE UNITED STATES.

Extracts From an Address Delivered Before the Association of Drainage and Levee Districts of the State of Illinois at Springfield, Jan. 10, 1912.

IN THE United States, exclusive of Alaska and our island possessions, there are seventy-four million acres of overflow and swamp land, a larger area than Illinois and Iowa combined, all of which is now worse than useless, being a serious menace to the health of neighboring tracts, and yet most of it when reclaimed will be land of great fertility. But the reclamation of these lands is so great a task and involves so many distinct and often diverse interests that it is quite beyond any other power than that of the nation to effect it.

Economic Value.

The economic values recovered from worse than absolute waste by such reclamation almost stagger the imagination by their magnitude.

It is well recognized that the larger portion of such areas, when reclaimed, have soils of the most fertile and lasting character. They are located, too, not like much of the lands reclaimed by irrigation, at vast distances from the centers of population, but very close to these and often up against the very borders of large cities.

In California such lands rent freely for a term of years from \$15 to \$40 per acre.

Suppose that the yearly net value of such lands be but ten dollars per acre, we have a yearly sum—picked up out of the water—of seven hundred and forty million dollars, an amount nearly or quite equal to the total cost of reclamation.

Whatever, then, tends to make it easier to supply the fundamental daily needs of the great masses of the people affords large relief to the whole body of society; and in proportion as such relief is large and permanent the nation prospers.

In my judgment no other thing can contribute so greatly to such peaceable evolution of industrial society as the plans for opening wide the doors of opportunity for the occupation of these fertile acres, to be reclaimed from the waste waters of our commonwealth.

The Newlands Senate Bill.

A bill has been introduced into the United States Senate by Senator Newlands of Nevada, which has received the most unqualified endorsement of those who have carefully examined it and who are most capable of determining what sort of an organization is needed for achieving so great a work. This is Senate Bill 10,900, and a request sent to your senator will quickly procure it for you.

It has had the advantage of the best judgment of the most capable men in every department of the government in any way connected with the work to be done, as well as the critical judgment of great engineers and masters of affairs, and that now it seems so completely to provide the organization necessary for undertaking this great work that the whole people may safely demand action upon it by the present congress without further dangerous delay.

At the last session of the Irrigation Congress it was unanimously resolved to press upon our congressional rep-

representatives the substantial enactment of the Newlands bill, a course also approved by the National Drainage Congress.

The bill provides for the co-operation of every interest concerned—States, counties, municipalities, corporations, districts, associations and individuals; also, a board of river regulation that will co-ordinate all these, as well as the great departments of the government—the Engineer Corps of the Army, the Geological Survey, the Reclamation Service, the Bureau of Plant Industry, the Forestry Bureau and the Smithsonian Institute, being constituted by the heads of the above departments of the government, and in addition to these, one civil engineer, one sanitary engineer and one hydro-electric engineer to be appointed by the President.

It is provided that a fund shall be set apart for this work of \$50,000,000 annually for ten years, either from unappropriated funds in the treasury or by the sale of bonds bearing three per cent.

SATURDAY EVENING POST EDITORIAL ON GLADES.

The Everglades of Florida are going the way of that Great American Desert whose waste aridity was described in the school geographies of our fathers; but the transformation is much more rapid. Lake Okeechobee—the largest body of fresh water, except Lake Michigan, within the boundaries of the United States—is twenty-one feet above sea level. It has low, marshy banks on the south, and during the rainy season it overflows, flooding the 'glades. Florida is digging five main canals, each fifty feet wide, from the lake to tidewater. When completed—a year from next summer—these canals will lower the level of the lake four feet, prevent its overflow, and thus reclaim a large part of the everglades. When lowered, the lake will still cover half a million acres—a great reservoir from which water will be let into the canals and impounded by gates and locks for irrigation purposes as needed during the dry season. The soil of the Everglades is muck, two to fourteen feet in depth. The climate, of course, is sub-tropical, with frost almost unknown.

It should be understood, however, that the Everglades will not be ready for cultivation when the State's job is done. Lateral canals and farm ditches must still be constructed by the landowners. It should also be understood that anybody who buys land in the Everglades with his eyes shut is liable to the same disappointment which awaits a blind investor in the frosty north.

THE TESTING OF CLAY REFRACTORIES, WITH SPECIAL REFERENCE TO THEIR LOAD-CARRYING CAPACITY AT FURNACE TEMPERATURES.

Under the above title the Bureau of Standards has just issued a bulletin of seventy-eight pages, illustrated by thirty figures, by A. V. Bleining and G. H. Brown, which deals principally with the testing of fire bricks from the standpoint of refractoriness. In this paper the work of the German investigators along this line has been summarized and made available to English speaking clay-workers. A number of analyses are given of representative American fire bricks, together with the results of physical tests involving the softening temperature, the load-carrying capacity at two furnace temperatures, the cold crushing strength, the porosity and the specific gravity. The bulletin should be of interest to all who wish to know more about the properties of clays and fire bricks. The publication concludes with some tentative specifications for fire brick. The pamphlet may be had free of charge by writing to the director, Bureau of Standards, Washington, D. C., asking for the technologic paper No. 7.

CLOSED SHOP UNIONISM.

BY ANTHONY ITTNER, ST. LOUIS, MO.



CLOSED SHOP UNIONISM is my theme, but might it not more appropriately and truly be named "Lawless un-American Unionism?" Yea! may I not justly go still further and characterize what is known as "closed shop unionism," as conducted and enforced under the federation headed by "the master of a million minds," as the worst curse that ever befell this fair land of ours, not excepting earthquakes, cyclones, pestilences and all manner of scourges that befall the human race.

This characterization may seem extremely harsh and unjust, and may need some explanation which I am entirely willing to make (especially to those who are not intimately acquainted with its workings), as follows: It causes one class of God's children to apply to another class of God's children, the most opprobrious names that the mind of man could possibly think of, such as "scab," "rat," "skunk," "snakes," to boycott preachers of the gospel for marrying non-union men—God's children; to enter the house of the dead and compel the grief-stricken mourners to take the corpse of their loved one out of a coffin made by non-union workmen and place it in one bearing the union label; to compel carriages driven by non-union drivers to pull out of a funeral cortege while on its way to the cemetery; to cut the tongues out and the ears off of non-union workmen and send them through the mail to their sorrowing relatives; to go into the stables of an employer in the dead of night and kill poor dumb animals by chopping them on the head with an axe because their owner did not see his way clear to accede to their arbitrary and un-American demands; to assault in cold blood, and murder, free, independent American citizens for having accepted employment from which they had withdrawn; to dynamite and blow up, by wholesale, structures built by non-union men, and establishments wherein non-union men were employed; to kill human beings by the score; to place a ban upon the Boy Scouts and refuse to furnish music should they be permitted to participate and take part in a movement to receive and do honor to the President when he last visited the city of St. Louis; by rules to limit, and in some cases place outright proscriptions on the American boy's right to learn a trade, to the extent, in some cases, of preventing a father from teaching his own son the trade in which he is engaged. The great and grievous wrong of preventing our young men from learning skilled trades is deemed by some to be worse than the killing of a non-union man, since the killing of a non-union man in a case where he has no family depending upon him for support, is the end of him, and, besides, he might be better off in the future world than in this, while the boy who is deprived of the advantages of a skilled trade and who has not had the advantage of a high school education, or, for that matter, a primary school education, is more or less apt to drift into the ranks of the indolent and criminal class, a condition many fold worse than death. These and many other infamous acts too numerous to mention are, it is claimed, done in the interest and furtherance of "a principle." In fact, some of these fanatical union zealots, through their environment and surroundings, are impregnated with the idea that they are doing God a service when they are persecuting and killing non-union men; hence it is that one is justified in characterizing "closed shop unionism" as the worst curse that ever befell this fair land of ours; it is un-American, inhuman and barbarous; it should have no place

in this country, but should be exported to the countries across the salt water whence it came.

The question is not as to the right of a working man, a wage-earner, to organize—they have unquestionably the same right to organize that any and every other class of our population has. An employer for fifty-three years, belonging to many employers' associations, local, state and national; an ex-president of two national employers' associations, in all my rubbing of shoulder to shoulder with employers I have yet to hear the first one to say that he was opposed to organization among the wage-earners, skilled or unskilled. It is wholly and solely the arbitrary, un-American and unchristian methods of "closed shop unionism" to which objection is made and will continue to be made so long as America remains "the land of the free and the home of the brave." Yet, at the same time, we must confess that under "closed shop unionism" ours is not "the land of the free and the home of the brave."

Speaking from both age and experience, having worked as a wage-earner for some twelve years, and then as an employer for some years before "closed shop unionism" made its appearance, I am acquainted with conditions before and since its advent. I know of concerns in the city of St. Louis that were boycotted forty-five and fifty years ago—this is long before the word "boycott" was coined, but what is



Anthony Ittner, St. Louis, Mo.

now known as "boycott" was then known as "ban."

The article which appeared in the December number of "The Editorial Review" from the pen of John Kirby, Jr., president of The National Association of Manufacturers, entitled "The Nation's Greatest Peril," is as true as gospel. Some people think Mr. Kirby is too "intense" in his statements, but he never made a statement, verbal or written, on the industrial situation, that has come to my notice, which I could not endorse without mental reservation.

It has always been a mystery to some of us how and why the American people, and especially those in power, stand for the lawlessness of "closed shop unionism."

Since the confessions of the McNamara brothers, a number of people have petitioned the President to have a Federal Commission on Industrial Problems appointed to take into consideration the industrial situation in this country in relation to employer and employe, and, in turn, the President has recommended to Congress the passing of a law to authorize the appointment of such a commission—all of which is sheer nonsense. Had these same people petitioned the President to enforce existing laws against criminal, militant "closed shop unionism" it might have meant something and have been productive of good results. The denial of the

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right to American boys to learn skilled trades; the denial of the right to an American workingman to work at his trade, which rights are guaranteed to them by the laws of God and man, is a crime, and all that is necessary to protect them in this right is to see that the laws are enforced. The authorization and appointment of an industrial commission would be a farce and add to the prevailing confusion.

The December, 1911, issue of "The Survey," in inviting comments on the outcome of the McNamara case, has this to say: "In asking a representative group of men and women for constructive suggestions, 'The Survey' put this question: 'What should be demanded of organized labor in putting its house in order?'" To this question twenty-nine answers are published, one of which is from the Rev. Charles Stelzle, who has charge of the labor department of the Presbyterian churches, who, as he informed the writer on one occasion, carried a machinist's union card in his pocket, and sees fit and proper to give his answer to said question thus: "First: a house," and then begins his answer as follows: "The radical tendency in the present-day labor movement is the direct result of the unreasonable and unreasoning attitude of some employers' associations with reference to trades unions." With this as a starter, let the reader draw his own conclusions; many of the answers are in keeping with the above—some few are in line with reason and common sense, as, for instance, that of H. E. Miles, of Racine, Wis., who is the honored chairman of the committee on industrial education for the National Association of Manufacturers, which association, it may be reasonably inferred, is one of those to which the Rev. Charles Stelzle refers when he mentions "some employers' associations," and of which the writer feels honored in being a member.

It is indeed sad to think that we have preachers of the gospel who sponsor and stand for "closed shop unionism," some of them carrying "closed shop union cards" in their pockets and proclaiming that it is now only a question of whether the church will capture labor, or labor capture the church. Of course, union labor is not mentioned, but that is what is meant, as the fealty of one to his union is greater than that to his God or his country; the nature of the oath they take on joining the union requires that their obligation to their union shall be paramount to all else, human or divine. As was stated by the McNamara brothers in their confession, what they did was done in the furtherance of "a principle" and the principle consisted in fealty to their union to the extent that they justified themselves in the wholesale slaughter of human beings not affiliated with "closed shop unionism."

The pastor of the leading Unitarian church of New York City, according to several reliable trade journals, is reported as justifying the blowing up of the Los Angeles "Times" and the murder of twenty human beings.

Gompers was in St. Louis at the time of the blowing up of the Los Angeles "Times," and the newspapers reported him as saying that it was a "frame-up" on the part of the employing interests to put organized labor in a bad light before the country. On the occasion of the arrest of the McNamara brothers he was in St. Louis again and substantially repeated what he had said on the former occasion. If the man has made any apology to the employing interests of the country since the confession of guilt of the McNamara brothers, the fact has not reached St. Louis yet.

Forty-five years ago the writer said to his employes that if they would do away with their "closed shop" feature and their limitation of apprentices, and after having done so would accept him as a member of their union, he would be glad to join them and would endeavor to get every bricklayer that ever came to work for him to join their union, but that it would have to be done through friendly approach and intelligent argument. But no, their rules, as mentioned, have undergone no change—they are the same today as they were at that time, with others as bad added.

Some seven years ago the American League of Inde-

pendent Workmen was incorporated under the laws of Spokane, Washington, and adopted as a part of their constitution the civil liberty clause of the constitution of the United States, and also incorporated a clause admitting employers to membership, and wishing to encourage such organization among wage-earners, application was at once made for membership, which was duly accepted. The membership was continued until some six months ago when this League was absorbed by the Trades and Workers' Association of Battle Creek, Mich., of which I was at the time a member, the purpose being to show that I was favorable to organized labor, when it was of a proper kind and in keeping with the laws and institutions of our country, and to estop, if possible, their saying of me when I pass away, as they did of that grand and noble man, the late James W. Van Cleave, "He was an enemy of organized labor."

As previously stated, in all my long and varied experience as an employer, never did I hear an employer say or even hint that he was opposed to the wage-earners organizing into associations for their own betterment and self-protection. All that is asked and expected in that wage-earners' organizations, by whatever name, shall be formed along lines that are safe and sane and in harmony and keeping with the constitution and laws of our country.

It will be in order here to make mention of such an organization of wage-earners that was formed not long after Gompers' federation was formed, that of the Brotherhood of Locomotive Engineers, which is the most successful and respected organization in the country today. During its entire history it has been conducted on the "open shop" method; in fact, it is an organization of which no self-respecting locomotive engineer can afford not to be a member; it is indeed a reflection upon such a one not to be a member, since all who are members have passed the examination of a scrutinizing committee. It is doubtful whether there is an active locomotive engineer in the country today who is not a member of the brotherhood. No need of force to secure membership in this worthy and commendable organization of wage-earners; in fact, their greatest advantage was owing to the fact that their organization was conducted on the "open shop" principle.

Were Gompers' federation conducted along similar lines, it would, of course, carry with it equal respect and commendation, and instead of a membership of 1,750,000, a majority of whom were secured through force and intimidation, it would have four or five times as many and would be an honor to itself and the country, instead of a reproach, as it is now.

The Trades and Workers' Association of Battle Creek, Mich., of which mention has been made, organized some two years ago and incorporated under the laws of the State of Michigan, has for the first declaration in its preamble that "This association shall at all times stand for the peaceful solution of all labor problems," and for the last utterance in its constitution, the following, namely, "To working earnestly for the establishment here and now of the brotherhood of man." This, of course, means all mankind—not only union and non-union, but all of God's children throughout Christendom.

Mr. C. W. Post, of Battle Creek, Mich., who was largely instrumental in bringing this new wage-earners' and employers' association into being, took it upon himself to address a most courteous and respectful communication to Mr. Samuel Gompers, under date of December 11th last, inviting "the master of a million minds" to visit him and be his guest at Battle Creek, or, if he preferred, to be the guest of Mr. Joseph W. Bryce, president of the Trades and Workers Association, and remain a week or ten days at his (Mr. Post's) expense, so as to permit the methods and workings of this association to be fully explained to him, and if, after a full and thorough examination of its workings, he was sat-

isfied with its methods and would thereafter model his federation along lines in harmony with the Trades and Workers Association, he would be willing to contribute a quarter of a million dollars to the new movement. To this letter and princely offer "the master of a million minds" did not condescend to make a reply. Were his federation modeled in harmony with the Trades and Workers Association, he could not long hope or expect to remain "the master of a million minds," and, accordingly, his occupation would be gone—yes, and gone forever.

I may here be allowed to refer to a sermon delivered December 24, 1911, by the Rev. David James Burell, of the Marble Collegiate church, Fifth avenue and Twenty-ninth street, New York City, as in striking contrast to the Unitarian minister previously mentioned. He took his text from Galatians, sixth chapter and second verse: "Bear ye one another's burdens and so fulfill the law of Christ," and introduced his sermon as follows:

"I have nothing to say against the labor unions as such; but I am opposed to their revolutionary schemes. The right of organization for lawful ends is universally conceded. Let us go a step further and say that it is not only right but expedient. First, for benevolent purposes, such as mutual insurance and sick benefit, the relief of the unemployed and the care of widows and dependent children. Second, it is wise and prudent to combine for mutual protection and defense against all encroachments. The Good Book says: 'Two are better than one; for if one fall the other will help him up.' Our Dutch fathers used to say: 'Een dracht maakt macht,' that is, 'In union there is strength.' Even the strike, when rightly understood and fairly conducted, is quite justifiable. Third, organization is both wise and necessary for the betterment of conditions, particularly as to suitable hours and equitable wages, and safety and sanitary conditions for working men."

Then he went on to speak of the mistakes they have made and some of the strange and unwarrantable things they have done, such as having practically signed away their freedom to unwise and incompetent leaders. The resort to violence during strikes and lock-outs, such as mobs and dynamite, and all manner of lawlessness, carrying placards such as "Do not patronize thus and so—they employ non-union men;" he quoted the civil liberty clause from the Declaration of Independence and asked "What does that mean?" He quoted from Longfellow's "Village Blacksmith" in order to draw a contrast with the industrial conditions of today.

He further quoted the Scriptures to the effect that "God hath made of one blood all nations of men, to dwell upon the face of the earth;" and from the Golden Rule of Jesus, "Do unto others as ye would be done by;" and from Jacob, in speaking to his sons, "Ye be brethren; see that ye fall not out along the way." In referring to the iniquity of "closed shop unionism," the reverend gentleman in his condemnation and denunciation thereof did not spare words, but sought most emphatically to make himself understood, as follows:

"This is one of the most unjust, unreasonable, unrighteous and desperately wicked and suicidal principles ever formulated by any association of civilized men. I make this statement advisedly, and in sustaining it I propose to make an appeal to the calm reasoning of laboring men."

He supported this utterance by forcible argument.

What a blessing it would be if every union man, affiliated with Gompers' federation, could have the opportunity to read this sermon; I mean those who are open to reason—as I feel confident three-fourths of its membership are.

Gompers, Darrow and some of these "closed shop union" ministers of the gospel should be held to a stricter responsibility than should the McNamara brothers, who committed the murderous crimes to which they have confessed,

as it is impossible that they could have been ignorant of what was going on.

The New York "Times," in the concluding paragraph of an editorial of its February 17, 1912, issue, says: "The closed shop is inconsistent with the fundamental principles of humanity and our system of government."

The New York "Sun," under date of December 6, 1911, has a four-column editorial on the confession of the McNamara brothers, headed "The Principle," which treats of the industrial situation from an intelligent and lucid standpoint, in which it asks: "What was the principle that could cause the cowardly slaughter of defenseless human beings, and who is responsible for it?"

An extract from the Anthracite Coal Commission appointed by President Roosevelt in 1892 to arbitrate and settle the anthracite coal strike in full sway under the leadership of John Mitchell at the time, says, speaking of the coal miners' union:

"Its history is stained with a record of riot and bloodshed culminating in three murders, unprovoked save by the fact that two of the victims were asserting their right to work, and another as an officer of the law was performing his duty in attempting to preserve the peace. Men who chose to be employed or who remained at work were assailed and threatened and they and their families terrorized and intimidated. * * * In several instances the houses of such workmen were dynamited or otherwise assaulted and the lives of women and children put in jeopardy. The practices which we are condemning would be outside the pale of civilized war. In civilized warfare women and children and the defenseless are safe from attack, and a code of honor controls the parties to such warfare which cries out against the boycott we have in view. Cruel and cowardly are terms not too severe by which to characterize it."

In closing, I may say that the confession of the McNamara brothers was the best and most fortunate termination of the trial that could have happened in the interest of industrial freedom in the United States—no other possible ending could have been so convincing and unquestioned, and, therefore, conclusive.

BRICK IN BROOKLYN.

FIFTY, or even twenty-five, years ago, brick was even more commonly used as a building material in and about New York than it is now, though during the past year it has come again into its own. Brooklyn, for example, at least the older portion, which was built within the past half century, is almost wholly of brick. As one sails up the upper bay and looks out over Brooklyn, as it lies on the southerly slope of the hill which pitches toward the harbor, one sees practically nothing but brick buildings. Here and there one of some other material is noted, but as a whole there are none but brick in all that older portion of the city.

The architectural features of these structures would not bear close scrutiny when compared with the different ones erected today, but they are still in a good state of preservation. They may lack the modern improvements and conveniences but they are still useful. There are whole streets of four-story brick dwellings, for example, none of which are decorated with any degree of proficiency, but they have served their purpose and are still comfortable and in a fine state of preservation.

This would seem to indicate that when the building of both these cities was going on, brick was better known than it has been in recent years up to within a short time. Probably it was considered cheaper in the long run and the question of fire protection was also important. The development of the past twenty years, the past ten particularly, has been in the direction of steel frame buildings, which enable a more profitable occupation of a given plot of ground. The older structures were rarely more than four or five stories, but the walls were solid brick and there was little attempt at the introduction of features which are thought important now.

Written for THE CLAY-WORKER.

A SOUTHERN SEWER PIPE PLANT.



NE OF THE important new manufacturing enterprises of Macon, Ga., an effective addition to the clayworking interests of the Macon district, is the Bibb Sewer Pipe Company, the plant of which

is the most up-to-date in the entire country for the manufacture of sewer pipe.

The Bibb Sewer Pipe Company was recently organized with \$100,000 capital, W. Jordan Massee being president; O. J. Massee, Jr., vice-president, and J. P. Stetson, secretary, three widely-known and deeply-experienced operators in the clay-products line.

The company will manufacture the various kinds of terra cotta products, making a specialty of sewer pipe, drain tile and railroad culvert tile. The plant is situated within the city limits of Macon, and every railroad entering the city has a siding in the yards, where the leading tracks are depressed



The Bibb Sewer Pipe Co.'s Plant, Macon, Ga.

so as to bring the bottom of the cars below the surface of the storage grounds.

The main building of the Bibb Sewer Pipe Company's plant is 165 x 250, three stories in height, constructed of brick made by the Bibb Brick Company, some of the leading stockholders of which are likewise interested in this concern.

The equipment consists of twenty 30-foot kilns, constructed of steel jackets, instead of the formerly popular steel bands on the outside. All electrical apparatus, with silent-chain-drive from individual motors for each machine, with an electrically-operated shovel in the "pits" and the most modern dumping mechanism, gives the operation end of the company a minimum expense charge.

Since the completion of the plant, an illustration of which shows the buildings and down-draft kilns, a clay shelter 75 x 150 feet in dimension, large enough to store a month's running of raw material, has been erected.

The company owns extensive beds of fine clay within 200 yards of the plant, and the output of the pits is handled by gravity, while the finished product is handled by locomotives and on cars owned by the Bibb Sewer Pipe Company.

Agencies have been established for the output of the

plant in Atlanta, Mobile, Birmingham, Pensacola and Jacksonville, Fla., and shipments have been steadily made ever since December 15th, the date the plant was formally declared "open for operation," with 125 men on the pay-roll, by L. S. Russell, the engineering specialist in charge of its construction.

This company's organization and operation makes Macon one of the leading factors in the Southland's clayworking districts.

HENRY F. BEAUMONT.

Written for THE CLAY-WORKER.

BALTIMORE BRICK NEWS.

THE BUILDING ventures of the Monumental City exceed those of several past years. The summary of operations from January 1st to April 30th amounted to \$2,590,573. More than \$1,000,000 of this was expended during the latter month for the making of greater Baltimore. If the same average, 886 building operations during four months, is continued, the figures will reach little short of 3,000.

Architect N. M. Loney has been commissioned to draw plans for a modern factory on the west side of Luzerne avenue between Hudson and Boston streets. The structure will be of brick with stone and iron trimmings, slag roof and concrete foundation. The contract has been awarded to John Cowan.

The handsome apartment house to be erected at southwest corner of St. Paul and Chase streets, near the Beldere, will be a structure of Indiana limestone with brick, terra cotta and marble trimmings. The apartment house will be one of the handsomest and most modern in the city. Contracts not yet awarded.

The Burns & Russell Company has a contract to furnish 5,000,000 bricks for the construction of 600 homes.

The annual meeting of the Builders' Exchange was held Tuesday, June 11, at the exchange headquarters, 15 East Fayette street. The ticket nominated for election was as follows: Wm. H. Morrow, president; Wm. D. Gill, vice-president; Herbert J. West, second vice-president; A. J. Dietrich, third vice-president; B. F. Bennett, treasurer; Isaac H. Scales, secretary; directors (to serve three years), F. S. Chavannes, Theodore F. Krug, A. F. Gilbert, C. Morgan Marshall; (to serve two years) M. C. Davis, to fill unexpired term of H. J. West; P. J. Cushen, to fill unexpired term of A. J. Dietrich. Following the election of officers, the meeting was held on the mezzanine floor of the Hotel Emerson at 6 p. m., after which a dinner was served on the roof garden. The speakers were Walter Drew, of New York, a commissioner of the National Erectors' Association, and J. P. Bird, general manager of the Manufacturers' Association of America.

M. E. T.

FUEL OIL FOR CLAY PLANTS.

"The burning of clay wares with oil means a higher quality of goods and a lower cost of production," says John J. Moroney, president of the Chicago Brick Machinery Company. This company, after thorough investigation and much varied experience, has added an oil burning department to its business and put the same in charge of a liquid fuel expert of long experience in the making and burning of brick with all kinds of fuel. The system they have developed for pumping, heating, measuring and regulating the oil works without a flaw, putting the entire process absolutely under the control of the operator, and their oil atomizing burner (patent pending) is a revelation in economy and efficiency. Their printed matter will soon be out and ready for distribution to the trade. It would be well for the up-to-date brickmaker to look carefully into the oil burning possibilities if, as claimed, he can shorten the burning time, improve the product and turn out the same amount with less labor. In these days of keen competition it does not behoove any manufacturer to overlook a possibility of cheapening his product. Drop a card to Mr. Moroney, Great Northern Building, Chicago, and get his dope. See ad. on page 949.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Hoosier Brickmaker Running to Capacity.

Dear Mr. Randall:

Enclosed find remittance covering my dues for current year in the N. B. M. A. We are very busy making builders and pavers. It will push us to clean up all the orders which we have on our books at present.

N. V. TRAUTMAN,
President Medora Shale Brick Co.

Wants to Make Darker Brick.

Editor CLAY-WORKER:

We use a plastic clay that burns buff; our trade demands a dark shade of brick. Could you inform us of a way that we can produce from the same clay a dark red or mottled brick without adding much to the cost? Thanking you for information, we are,

Yours truly,
CENTBAL SAVAGE BRICK COMPANY.

Good Book for the Busy Clayworker.

Editor CLAY-WORKER:

I received a copy of "Effect of Heat Upon Clays," and it is certainly the best thing on the subject I have ever read; for the everyday busy clayworker it is a treat. The copy of THE CLAY-WORKER also to hand and enjoyed it as usual. Enclosed find money order for year's subscription and would ask you to send me the dictionary offered as premium on page 720 of May issue. With thanks for your courtesies, I remain,

Respectfully yours,
F. H. WILDE.

National City, Cal.

Trade Best in Years.

Editor CLAY-WORKER:

We are glad to say that trade with us is good—the best it has been for some years—and we see no reason why it should not continue to be good for some time ahead. This spring we tore out the steam drying apparatus which we have been using and have made our dryer over into a Justice radiated heat dryer. The dryer has not as yet had a complete test, but it looks as though it was going to be all that was expected by us, both in the manner in which the brick are dried and also in the cost of doing same.

Yours very truly,
EASTERN TOWNSHIPS BRICK & M'FG. Co.
Lenoxville, Que.

Business Booming in the Corncracker State.

Editor CLAY-WORKER:

Things are certainly booming down in Georgia. I wish you could come down and look over the State. We haven't much of anything in the "mushroom" variety of prosperity, but everything is a steady, progressive growth in all lines of business—manufacturing, mercantile and agricultural. Our State is destined to be the greatest in the south, or, rather, to hold its position as the greatest in the south, and we believe will compare favorably with any other State.

Georgia's future is very bright. Our brick yard is run-

ning full capacity, we are getting fair prices for our output and our customers are well pleased with the quality of our product. As you know, we manufacture common brick in large quantities, also face brick and some fire brick, though our fire brick outfit is not what it might be.

With kindest regards, I remain,

Yours very truly,
W. E. DUNWOBY.

Macon, Ga., May 31, 1912.

A New Virginia Brick Plant.

Editor CLAY-WORKER:

We have just completed the erection of our new plant at this place, where we will make shale, face and building brick. Our plant is equipped with two Walsh & Weidner boilers, 100 horsepower each; one 175 horsepower Atlas engine, which was furnished by C. McClung & Co., Knoxville, Tenn.; one Stephenson nine-foot dry pan; one Freese brick machine and pug mill combined, and one size 20 automatic side cutter. This machinery was furnished by E. M. Freese & Co., Galion, Ohio. The kilns and dryers are of our own make. We are located on the L. & N. railroad within a few miles of one of the largest coal fields in southwest Virginia, and have an excellent market for our product. The company is under the management of W. B. Kincaid, and Joel Booth is superintendent.

Thanking you for past favors, we are,

Yours very truly,
B. F. KINCAID & SONS.

Boones Path, Va.

The English Viewpoint of the Kiln Question.

Editor CLAY-WORKER:

Referring to the able article in your February number on "The Choice of a Kiln," by W. D. Richardson, it may be of further interest to some of your readers to have a few notes on the subject from this side of the water.

Fuel being very much dearer in most parts of Europe than in the United States, the continuous kiln of some type or other is the only kiln that would be considered at all in the establishment of new works or the remodeling of old works over here.

The choice of a kiln, therefore, simply resolves itself into a question of what type of continuous kiln to adopt for the particular class of ware that it is intended to burn.

Our continuous kilns in use consist of the following types, each of which is designed for a particular purpose; these types are: (1) The ordinary continuous annular kiln, with or without a preheating arrangement; (2) the continuous chamber or compartment kiln; (3) the tunnel and car kiln. All these types can be either coal fired, gas, oil, wood or peat fired. The purposes for which these various types of continuous kilns are used are as follows:

1. The ordinary continuous annular kiln without a preheating arrangement is used to burn common bricks and fire bricks and hollow ware and any other class of goods where color is no object. With a preheating arrangement, this kiln is used for burning the best face bricks, roofing tiles, etc. Coal fired, these kilns will turn out quite ninety percent of first class goods. They will also burn vitrified bricks and some classes of pavers, provided that these do not require a very strong reducing fire. Gas fired kilns of this type are used principally for burning clay goods where very high temperatures are required, also for the finest class of terra cotta; also in all cases where the fuel available is of very poor quality.

2. The continuous chamber or compartment kiln is used for burning goods like silica bricks, which require very slow cooling off, and also for those classes of vitrified goods which it is desired to burn completely with a reducing fire; also salt glazed pipes.

3. The tunnel and car kiln is, under certain conditions,

the kiln of the future, provided the material is not unduly sensitive; that is to say, will stand fairly rapid heating up and cooling off. If the material is not unduly sensitive, then there is no doubt that the tunnel and car kiln is the most economical kiln yet designed. In summing up the advantages and disadvantages of the continuous kiln, Mr. Richardson says the disadvantages are: (1) It must be operated continuously; (2) it is uncomfortably hot; (3) good burners are hard to find; (4) not so easy to control where flashed bricks, pavers and salt glazed ware are desired.

As regards (1), this is inevitable, but these kilns are very elastic and the output, when desired, can be reduced to one-fourth of the normal.

As regards (2), this was undoubtedly true of the oldest patterns of the original Hoffmann kilns, but if designed of proper length and with an ample preheating arrangement, a continuous kiln is not uncomfortably hot.

As regards (3), good burners are, I imagine, hard to find in most places, but the burning of a continuous kiln is, in any case, not nearly such a skilled job as burning an intermittent kiln. Any man with reasonable common sense should be able to learn how to fire a continuous kiln in a fortnight. What is wanted is a steady man. By using automatic telltales, an excellent check can be kept on the lazy and careless.

(4) The continuous chamber or compartment kiln gives perfect control for such goods as flashed brick, pavers and salt glazed ware, and for these classes of goods this type of kiln is now being very extensively used.

The cost of repairs in a properly designed and built continuous kiln should be practically nil. There are plenty of continuous kilns here that were built upwards of forty years ago and which have never been out. I quite agree with Mr. Richardson that the most valuable features of continuous kilns are not those which are patented or even patentable. The principle of the continuous kiln is nowadays common property, but what is not common property and what can not be found out by either looking at a patent specification or at a continuous kiln itself are the correct dimensions of the chambers, flues, ducts and valves, as well as the correct size of the chimney or fan.

Nearly every clay requires a special kiln, designed for its most successful and economical burning, and no firm of kiln building engineers of any repute would think of selling stock plans of kilns, like you might sell a pound of cheese over the counter.

I had in my early days personal experience with a continuous kiln built by a foreman who had a lifelong experience in brickmaking and the working of continuous kilns. He assured me that he knew all there was to be known about continuous kilns and that it was simply a waste of money to employ a firm of kiln building engineers to build the kiln. The result was that the kiln took from 400 to 500 pounds of coal per thousand and the proportion of facings was small. I had the kiln reconstructed by a well-known firm of kiln builders, and the kiln now burns with less than 200 pounds of coal per thousand bricks, and practically all of the bricks are No. 1 face bricks.

If I may use a simile, it does not follow because a man has worn a pair of boots all his life that he can go and buy the materials and make a pair of satisfactory boots himself. Of the many pitfalls in the way of the unfortunate brickmaker, certainly the one which entails the most painful financial shock is to run into the amateur kiln builder. High class kiln building engineers certainly may appear to charge heavily for their services but, as in most other things in this world, you get what you pay for, and if you pay a cheap price you get exactly your money's worth and no more.

Yours faithfully,

T. G. MAXWELL.

England, April 10, 1912.

Paving Problems—Lug or No Lug—Why Experiment and Other Queries.

Editor CLAY-WORKER:

Referring to my article published in a recent issue, on the subject of brick paving, I am still of the same opinion on the subject. I notice that there is a great deal of argument being put forth in favor of the use of the "block" sized brick, but I do not notice that any one has discovered, at this late day, that even the block should not be repressed on account of its bringing out the laminations, with no other possible excuse.

Now, it seems to be a question of "lugs or no lugs." It is said that the lugs permit the flushing in of more grout. What does this "more grout" mean, anyway? If we have more grout between the brick we naturally have more wearing surface on the grout. If the wearing surface of grout is equal to the brick, why not pave the entire street or road with grout and dispense with the brick?

Does any person undertake to tell us that any wire-side-cut brick laid on edge in the street on a cushion of sand can be laid so close that grout can not be flushed clear to the bottom of the brick? If he does, then the sooner his friends look after his mental condition the better. The question of space filled with grout adds nothing to the object being sought, which, if I understand it right, is to hold the brick in place.

What puzzles me the most is that after all these years, the ceramic engineers and manufacturers having demonstrated that they can and have been able to manufacture the best wearing material for street or road paving, and that it is possible to be laid in condition for use at a less price than any other material, that some person, generally interested financially in keeping it in that condition, should be coming forward with something new, which invariably adds to the expense with no visible improvement.

They were not long in putting wood block "to the bad" as then being used for street paving, but now someone has "treated" his wood block with creosote and is "back in the ring" with a very broad smile and more or less noise. While the use of creosote may prevent their decay, which was the least of the troubles, there can be no questioning the fact that it does not add anything to their wear, but it does add a good round per cent to their cost.

But they all have to come in contact with the laymen and it is they who, as a rule, have the least to say. If his ideas run to wood blocks and he is told that they have received a certain kind of treatment, he at once thinks they have been vastly improved, otherwise they would not have been "treated." On the other hand, if he is told that the brick blocks have been provided with a "lug," he imagines that they have been improved, otherwise the "lug" would not be there.

Now as to the facts. The ceramic engineers and manufacturers have succeeded in demonstrating to the world that they have, without question, been able to furnish the best wearing and most satisfactory material for use in the paving of roads and streets, and that, all facilities and conditions being at hand, it is much the cheapest. If now we let "well enough alone," instead of trying to find something better by adding to the cost of manufacture and construction, won't we have a "down hill pull" until such time as some one can demonstrate that he has a better and cheaper material?

If the interested reader will read my former article he will plainly see just what my ideas are along the line of cheapness, and when acted on and carried out he need not be afraid of the asphalt, wood blocks, bitulithic or tarvia man. The cement people are right now working hard to get their product introduced as a wearing material for street pavements, and I am sorry to say that there are instances where they are succeeding in a small way, but it is all well enough to say that "no person or community will ever try it the second time," but it must be granted that even a cement surface will last long enough to see many a brickmaker in his grave, as well as the persons who furnish the cement.

Respectfully yours,

P. F. BARR, C. E.

Written for THE CLAY-WORKER.

THE NEW YORK MARKET.



WING TO unfavorable weather which delayed operations from ten days to two weeks, an unsettled condition of the market, owing to the investigation still in progress and a strike in the Newburg district, the brick market in and about New York has been in a highly nervous condition of late and prices have gone as high as \$7.12½, and \$6.75 has been obtained for what might be termed inferior quality. Some consumers got an impression that a shortage would prevail before the new brick were ready for distribution and this created a condition which disturbed the market somewhat, and good cargoes were bid up. As this is written nothing can be obtained under \$6.75 and as high as \$7.00 is paid for anything which shows reasonably good quality.

Meanwhile, arrivals are relatively light. Several days ago only one or two barge loads of brick came in. Other days normal arrivals were the rule. The price has gone so high that Connecticut hard stock can be shipped to this market at a profit, and some cargoes are now on the way here. Only when prices are unusually high can Connecticut manufacturers afford to send stock to the New York market. The expense is higher than it is to ship from New York points and this, of course, shuts out shippers who must come within a certain figure or else not ship.

Some consumers have been nervous about the supply, but according to figures which are given out by authorities there are now substantially 90,000,000 brick left in sheds and in other storage in the Hudson river district. This is ample to satisfy all requirement until new brick is ready for shipment, while there are other markets like the Raritan district which still have some brick. It would seem that even though the season is two weeks late there is no reason to fear a famine.

The high quotations have stopped speculative buying and all sales are based upon present actual requirements. Conditions have not changed materially in that respect during the month. The outlook is not unpromising, as some persons would like to have the trade think, though, of course, there are certain phases of the general business situation which are not favorable for the sale of brick, at least upon a speculative basis. It is quite as well, most of the conservative interests think, that speculation be postponed for the present at least, and they are hoping that no large buying of this character will be done this season. In the highly nervous state of the market they fear serious consequences.

There has been, and probably is, considerable unrest among the workmen. In the Newburg district they went out in a body the last week in May, but the difficulty was settled and they are all back at work again. In view of the high price of material and the increased cost of operating their plants generally, manufacturers declare it is impossible for them to pay any higher wages. The sooner workmen understand this and cease to bother about higher wages under present conditions the better it will be for the industry. As this is written the labor difficulties have been settled and manufacturers hope for peace during the remainder of the season. It is observed in a general way that most workmen were glad that the season opened at all and seemed content to go on as they were without attempting to coerce the makers into paying increased wages before they were fairly in operation.

The manufacturers held a meeting at Newburg the latter part of May and went over a number of important questions. The suit against the Greater New York Brick Company was one topic for discussion, the question of compensation for labor and the prices which may be obtained for brick in the market was another. There was a disposition shown to maintain their position upon all these points. No feeling

favoring recession was expressed and there seems to be a determination to stick to what they have begun to do. They hope for a better market and, according to the drift of the talk, it seemed probable that the output this year will be greatly reduced as compared with last year. To what proportion this reduction will go it is impossible to say, but that it will amount to considerable seems almost certain. This is with no intention of influencing the market, but rather as a matter of protection against possible troubles in the future.

ANOTHER CONCRETE FAILURE.

Hardly a week goes by that we do not hear of a concrete collapse or failure of some kind. The long list of fatalities



Failure of Concrete Pier No. 4, Union Bridge, Pittsburgh, Pa.

due to concrete collapses increases monthly, and failures without loss of life are reported more frequently. We realize that cement in its rightful use is an excellent material, but know that where unskilled labor is employed and little attention given to right mixtures and proper materials, concrete is a dangerous thing to use, being treacherous at its best.

We illustrate our contention with two views of the cracks which ruined the center pier of the new Union bridge connecting Point District of the city of Pittsburg with the lower north side. It is believed that the men, in laying this pier, did not reach a solid foundation, and when the great weight of the concrete mass fell on the center of the pier the weight broke it in two, causing the crack to show in the middle. It was necessary to take the entire work out and

reconstruct it, which caused much delay in the completion of the structure.

Every concrete failure teaches a lesson, and certainly does not do the cement trade any good. The concrete collapse of the Prest-O-Lite plant at Indianapolis, which cost the lives of several men, turned a concrete contract into one of brick when the Louisville Hospital contract was let. The clay product manufacturer has little to fear in concrete competition when all the facts in regard to it are known and materials are selected on their merits.

Written for THE CLAY-WORKER.

BRICK NEWS OF PITTSBURG AND VICINITY.

The National Hydro-Carbon Company, of Pittsburg, has purchased from W. B. Goucher, receiver for the American



This Concrete Failure Caused the Rebuilding of Pier No. 4.

China Plate Company, at Toronto, Ohio, the china plant and will install machinery to operate it at full capacity. This work will be undertaken soon. Several hundred men will be employed in manufacturing rubber novelties, roofing material and paint. The purchase price was \$50,000.

A certificate of incorporation has been issued to the McInnes-McCleary Company to operate a foundry and machine plant at Wellsburg, W. Va. The authorized capital of the new corporation is \$10,000. The incorporators are E. M. Moody, of Pittsburg; Colin McInness, J. P. McCleary, S. George, James H. Mathews and G. W. McCleary, of Wellsburg.

The work of razing the old Second Presbyterian church, at Seventh street and Penn avenue, has been completed, and Golden & Crick, 3512 Fifth avenue, will erect on the lot a

theater to cost in the neighborhood of \$250,000 for the Penn Avenue Real Estate Corporation. The structure will be 110 x 120 feet and will be of terra cotta, brick, steel and hollow tile. Subcontracts are being placed now.

J. Charles Wilson, of 451 Third avenue, has been awarded the contract for building a two-story brick fireproof school building for the board of education of West View to cost \$20,000.

Monessen Lodge No. 773, B. P. O. E., has purchased ground for the erection of a handsome two-story brick temple to cost \$30,000. The basement is to be used as a grill room, bowling alleys and billiard hall, the first floor for lodge room purposes and the second floor for a dancing hall.

A three-story brick high school is being built at Freedom, to cost \$50,000. L. V. Kirker & Son are the general contractors, while the brick masonry contract went to W. C. Kinsley, both of Beaver Falls.

A. SMOKER.

THE EDGAR ALLEN AMERICAN MANGANESE STEEL COMPANY HOLDS SALESMEN'S CONVENTION.

The annual convention of the salesmen of the Edgar Allen American Manganese Steel Company was held in the company's offices at Chicago from May 14th to 16th, inclusive.

The first day was devoted to a general discussion of the various subjects which make for the progress of the company. The second day was spent in thoroughly inspecting the company's plant at Chicago Heights, where all were given an opportunity to witness the actual production of "Stag" brand manganese steel castings. Great interest was taken in the many improved methods used throughout the foundry and in the operation of the splendid equipment of the company's new machine shop. After the trip through the plant the party was entertained at an enjoyable luncheon given in the company's lunch room, at which an interesting address was made by Mr. W. G. Nichols, vice-president, in charge of operations.

On the following day the meetings were continued at the company's offices, when several interesting and instructive addresses were made. In the evening the salesmen and officers of the company were royally entertained at a banquet held in the English room of the Blackstone hotel.

Those in attendance at the sessions of the convention were as follows: W. S. McKee, vice-president, in charge of sales; W. G. Nichols, vice-president, in charge of operations; S. T. McCall, treasurer; H. A. Hunt, eastern sales agent, New Castle, Del.; J. W. Plant, San Francisco, Cal.; F. E. Johnson, Salt Lake City, Utah; P. M. Vilas, Minneapolis, Minn.; A. L. Maeder, Portland, Ore.; J. D. Hull, Seattle, Wash.; W. H. K. Bennewitz, Kansas City, Mo.; E. L. Pemberton, New York City; A. H. Sherrerd, Scranton, Pa.; A. Whitcraft, Rochester, N. Y.; W. F. Irish, Boston, Mass.; E. S. Black, Chicago, Ill.; E. E. Crane, Chicago, Ill.; W. H. Evans, Chicago, Ill.; J. Dunlap, Chicago, Ill.; J. O. F. Clark, Jr., Chicago, Ill.; B. F. Clark, Jr., Chicago, Ill.; M. B. Myers, Chicago, Ill.

IT IS GETTING INTO THE PAPERS.

The following item, clipped from a newspaper, gives another instance that is only one of many already reported:

DENVER ASPHALT PLANT BEGINS.

Denver, Colo.—The municipal asphalt plant resumed operations for the season on March 19. The plant now is turning out material and a large amount of repair work will be done on the paved streets through the spring and summer.

Who ever heard of a paving brick plant running to supply material needed for "a large amount of repair work?"

Our talc and soapstone production now runs over a million and a half dollars a year, but there is still room for it to grow, for the demand is greater than the supply.

GOOD ROADS IN PENNSYLVANIA.

Bradford Gets in Line With a Rousing Meeting—More Brick Roads Will Result.

THE GOOD ROADS MOVEMENT was given a big boost at Bradford, Pa., June 6th, a successful county convention being held for that purpose. Bradford is noted for its boosters, several of whom are identified with the brick business there, chief among them being E. F. Knight, of the Bradford Pressed Brick Company, and W. H. Hodges, of the Pearl Clay Products Company. These two hustlers and their associates joined forces in a worthy effort to promote the cause of good roads in the Bradford district. Invitations were sent out to the township highway officials throughout the county, and they responded almost without exception. A number of good roads enthusiasts were induced to be present and deliver lectures on the importance of good roads, how to build and maintain them, etc. The first session was called to order by E. F. Knight, who bade the visitors welcome and invited them to participate in a complimentary dinner. The first formal address was delivered by C. P. Mayer, of Bridgeville, Pa., vice-president of the National Brick Manufacturers' Association. He urged in a most forceful way the importance of building permanent roadways in place of the temporary macadam roads, which, he claimed, in the long run cost more than a good brick paved highway, owing to the continual cost of repairs. Macadam roads are really an expensive luxury rather than a low-cost roadway. Mr. Mayer congratulated the Bradford brick manufacturers upon the high class product which they are placing on the market.

A most interesting address was delivered by the Hon. R. P. Habgood, who said it was refreshing to discuss a question on which the people of all parties, denominations, creeds and nationalities and localities can unite, as they can on the good roads question. He said good roads is a twin to good schools, and that both were essential to progress and prosperity. Mr. Jesse Taylor, of Jamestown, Ohio, complimented the local committee on the success of the meeting, predicted that much good would result, and urged the county officials to besiege their congressman and insist on Federal aid in road building. A permanent organization was formed, known as the McKean County Good Roads Association. The following officers were elected: President, L. E. Mallory; treasurer, S. G. Coffin; secretary, E. F. Knight; vice-presidents, R. P. Habgood, W. H. Hodges and others, all of Bradford.

An illustrated lecture was delivered by L. E. Boykin, of Washington, D. C., who came as a representative of the Good Roads Department of the National Government. Will P. Blair, secretary of the National Paving Brick Manufacturers' Association, also delivered an illustrated lecture, describing the most approved method of constructing brick roadways. The local committee on entertainment was untiring in its efforts and contributed a number of amusement features, including a band concert preceding the morning and evening sessions. The following resolutions were unanimously adopted:

The McKean County Good Roads Association, fully realizing the need of good roads in this community, seeks to awaken and keep alive a public sentiment which will result in the speedy improvement of the highways of McKean county. It requires no argument to convince all that good roads add greatly to the wealth of the community by providing means of efficient transportation for wagon or automobile between principal cities and towns; and,

Whereas, The public funds may be conserved by putting down roads of a permanent character; and,

Whereas, That when the road improvements are made they shall be constructed in the most approved manner; and,

Whereas, The people of McKean county are to be congratulated upon the fact that their locality produces the best known wearing material for road surfacing in the form of vitrified brick which, to the largest extent, eliminates, even on the most excessively used highways, the incessant burden of repairs common with other road materials; it is therefore

Resolved, That in the improvement of our excessively used highways, vitrified brick be used as the surfacing material in the interest of economy, lack of maintenance charges and the general satisfaction which will result.

WOOD BLOCK PAVING FAILS.

THE MUCH PRAISED wood block has at least two drawbacks. Its advocates will not admit this, but an observer who uses his eyes need not be long in doubt. He will find them regardless of the denials which are so liberally handed out from the headquarters of the company and circulated by its friends.

West Broadway in New York City has been paved with wood block in common with other streets, some with less traffic; none, however, with more. Where Hudson street comes into West Broadway and Chambers street crosses, has been shown by actual count to be the most congested corner in New York. The number of vehicles which pass in a day far outnumber those which pass any other important corner in the city. It is, therefore, an excellent point at which to test wood block paving, and there it has been tested and has failed lamentably.

On the east side of West Broadway, next to the elevated railroad stairs, the blocks disintegrated and split into slivers as fine as matchwood. For a good many feet up and down the street the blocks simply went to pieces and for weeks there was a hole in the street which made it very difficult to pass with a loaded truck, or even with a light outfit, while automobiles and motor trucks had to give the place a wide berth. It has been repaired now and once again the street is smooth.

All the way up Warren street, a cross street with a heavy traffic, the same failure has been repeated, only in smaller places. They were cared for before they became so large and troublesome.

Probably the same observations would apply to other places all over the city where wood block is used, but the writer has not had an opportunity to make a thorough investigation of this character. In these instances, however, he knows his assertions are correct because he saw these places himself and can testify to their truthfulness.

Wood block fails in another way by "humping" when rains are prolonged. That is, the water soaks into the blocks until they swell sufficiently to cause them to rise in high "humps." One on Whitehall street, near the foot of Washington street, seen some weeks ago, was at least two feet high. It extended over probably fifteen or twenty square yards and all traffic had to shun the place. One whole course had to be taken out to allow the rest to drop back level, and then when the dry weather came and the blocks shrunk, it was necessary to replace the course to fill up a troublesome crack.

The same thing has been seen on other streets, though not quite so pronounced, and it was necessary to remove a portion of a course before the "hump" would drop into place, and then when the dry weather returned it had to be replaced.

It is said that the city government is going to test some sort of paving used in the large cities of Europe. In fact, preparations are in progress now to lay new paving of that type, whatever it may be, where traffic is heavy. Those who advocate it are assuring the men who want to be shown that the real thing in paving has now been discovered and that New York will shortly have pavements as good as those in Europe.

Perhaps, but it is probable that those who have objected

to various sorts of paving heretofore because they foresaw it would not stand the test of usage under traffic conditions which exist in New York, will have to be shown something better than the much heralded varieties which have been tested and failed to come up to specifications or expectations.

Maybe some genius will rise in the future who can convince the New York city authorities that brick meets all requirements and does not cost a fortune to put down; but so far New York has been singularly careless of the claims of brick as paving and in some instances has sought to lower its status as a building material. Gradually, however, brick is coming into its own and the time will come when there will be a reckoning. Asphalt and wood block and half a dozen other substitutes for real paving material will have to go and in their place will come burned clay, the only permanent paving yet devised.

Written for THE CLAY-WORKER.

MILWAUKEE AND WISCONSIN BRICK NEWS.



THE BUILDING SEASON in Milwaukee and about the State has been delayed somewhat by the extensive and excessive rains which have been received, but the weather is again favorable and operations are being pushed. Nearly three weeks of rain caused a decided setback in the building field, although it allowed brick manufacturers to get their stocks in shape for the later rush. Figures at the office of the Milwaukee building inspector and reports from about the State indicate that despite the weather hindrance, the total amount of building to be carried on this spring will be considerably in excess of that of a year ago. The unusually large number of big downtown structures which are going up in Milwaukee this season is one of the most favorable features of the situation.

Announcement has just been made that the Postum Cereal Company, of Battle Creek, Mich., will erect a large plant in Milwaukee this season, which will be an exact duplicate of the big establishment in Battle Creek. This will be only one of the many big factory buildings which are going up this year. C. L. Post, vice-president of the Postum Cereal Company, was in Milwaukee a few days ago arranging for the location of the big plant.

"We have been considering a branch factory in Milwaukee for some time," said Mr. Post. "We believe Milwaukee has a great many facilities foreign to other cities in this part of the country. The factory to be established in Milwaukee will be almost an exact duplicate of the Battle Creek plant."

Another scathing arraignment of the type of asphalt paving laid in Milwaukee last year by the Socialist administration, then in power, has been made by Street Construction Superintendent Blodgett, an expert paving engineer who was appointed recently. Superintendent Blodgett charges that fifty per cent of the Socialist paving, laid at an approximate cost of \$1.40 per square yard, is already going to pieces.

"I make this statement with the support of Professor Leonard Smith, of the University of Wisconsin, who accompanied me on an inspection tour," said Superintendent Blodgett. "The specifications were not right and much of the concrete base was affected by frost. Professor Smith is the man whom the Socialists quoted as authority for their work last year until he disagreed with them. Then they circulated the report that he was 'knocking' because he wanted Superintendent Mullen's job."

An entirely new type of paving specifications have been prepared by Superintendent Blodgett. It contains a binder course which costs practically nothing. Instead of eliminating the binder course entirely, as did the Socialists, thus allowing the asphalt running surface to rest directly on the

concrete, the new specifications provide for a thin coat of asphalt paint spread over the concrete base, which binds the running surface and the base and prevents the running of the upper course. Finer grading of sand and more asphalt will be used in the new type.

Indications are that the brick shortage in Racine, Wis., will be relieved within the near future and that contractors will not have to go to Chicago for a portion of the season's building brick. The three leading yards in the city are now operating at full blast and the managers say that the outlook for a good season was never more promising. The F. H. Haummerson & Sons and the Baumann and the Hilker yards installed various improvements during the past winter and have increased their output as a result.

Brick manufacturers of Wisconsin are highly interested in the fact that the Wisconsin Industrial Commission, the body which administers the new Wisconsin workmen's compensation law, has formally adopted thirty orders relating to the safeguarding of machinery and elevators. They affect practically every manufacturing industry and are regarded as highly important in the campaign for the prevention of accidents. The orders became effective on June 13. They require guards on all emery wheels, belts, belt shifters, clutches, fly wheels and all parts of machinery which menace workmen. The dangerous set screw, which has caused so many fatal accidents, is ordered eliminated. The orders, formulated by a special committee, representing practically every industry, and working with C. W. Price, safety expert, formerly with the International Harvester Company and now with the commission, are regarded by brick manufacturers as fairly drawn.

Brick manufacturers are also interested in the three exhibits which have been prepared by the Industrial Commission, each including more than 1,000 photographs and blue prints of safety devices. One of these exhibits has been located permanently in Milwaukee, one has been placed at Madison, the capital city, while the third will be used as a traveling exhibit to be taken all over the State.

The Ringle Brick Company, of Wausau, Wis., of which John Ringle, president of the Wisconsin Clay Manufacturers' Association, is at the head, has accepted the provisions of the new Wisconsin workmen's compensation law. More than 400 firms, individuals and corporations have gone in under the law, affecting nearly 75,000 employees.

A. BADGER.

CLEVELAND BUILDERS AND ARCHITECTS DINE.

A meeting of considerable importance to the building industry of Cleveland was held on May 16th, when a joint luncheon was conducted by the Builders' Exchange of that city and the Cleveland Chapter American Institute of Architects. Upwards of twenty members of the Chapter were in attendance and about 140 building contractors had seats at the tables. The luncheon was the result of conferences between officers of the two organizations who proposed working out some reforms in the dealings of architects and builders with the public and with each other. The presiding officer was J. C. Skeel, president of the Builders' Exchange, who welcomed the architects to the meeting and expressed the hope that good feeling would characterize the discussion. Addresses were made by Benjamin S. Hubbell, former president of the Chapter of Architects, and by Albert E. Skeel, the present head of the Chapter, as well as by C. W. Hopkinson, a former president. The contractors were represented by Henry F. Walker, a mason and general contractor, who served recently as president of the city council of Cleveland and as vice-mayor. The outgrowth of the meeting was a decision to establish a joint committee on conference between the architects and the builders, this committee to consist of six members equally divided between the two elements in the building industry.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.



THE DIDIER-MARCH Brick Company's plant at Keaseby was burned last month, entailing a loss of approximately \$1,000,000. The fire caught from an explosion in the gas producing plant and before anything could be done to curb it the entire plant was doomed. The business has been a large one, employing two hundred hands and turning out a great quantity of fire brick during the season. The plant was equipped with every modern appliance to facilitate manufacture, and orders on hand insured a good business throughout the season. The plant was insured and according to present plans will be rebuilt immediately. The plant was operated exclusively on fire brick and made an excellent quality, which was asked for by builders after they had once used it.

B. H. Reed & Brother, of Hightstown, are running to full capacity this season. They are turning out repress brick and some hollow building brick. Their plant has been kept up to a high state of efficiency and their business has grown with their improvement in output. Sales this year have been all that the plant could make.

Applegate & Co., of Pennington avenue and Prospect street, Trenton, are operating with some sixty or seventy hands, running on front, paving and common brick. They have found a ready market for all they could make and in numerous instances have had contracts for their output ahead. The firm is progressive and endeavors, so far as possible, to maintain a high quality of product and thus extend their trade among consumers who want the very best procurable.

The Hanover Brick Company, of Whippany, is the only company in the State credited with making vitrified sewer brick. Something like sixty hands are employed and, together with the variety named above, the output includes common brick, front brick and hollow building brick. The company had some financial difficulty a few years ago, but it has been reported that the troubles have been adjusted and work is going on as usual this year.

The New York and Philadelphia Brick Company is another firm in the same town employing approximately seventy hands. Its product is shipped to distant points. Whippany itself is not a large town, scarcely more than 1,000 inhabitants, but the McEwan brothers are important factors in the business life of the place and have succeeded in developing commercial interests out of all proportion to the size of the town. It is remote from centers of population, but is reached by a railroad which is owned by these men and is operated as a branch of the Erie. The combination is such that the manufacturer is assisted in various ways. Undoubtedly the brick industry could be greatly developed there. The nearest large railroad station is Morristown, one of the most important and wealthiest suburban towns in Morris county or in New Jersey.

Donahoe & Nolan, Calhoun and Kirkbride streets, Trenton, are the only manufacturers of moulded and ornamental brick in the State. They turn out a product which finds ready purchasers. Moreover, they will make special designs upon order. In addition they are one of the two manufacturers of red pressed brick and they make front brick as well. From sixty-five to seventy-five hands are employed. The output goes to Philadelphia and New York, as the case may be, with occasional orders to fill at home.

The Hydraulic Press Brick Company, of Winslow Junction, is employing two hundred men upon its product this season and finds difficulty in filling its orders even with this large force. The demand for front brick has increased rapidly of late, these people say, and they have been forced to crowd their plant to capacity to fill their orders as

wanted. Front brick goes into so many of the newer buildings that those who make them are kept steadily busy maintaining the required supply.

The Bridgeton Brick Company, of Bridgeton, makes an excellent quality of red pressed brick and finds a ready market for all it can turn out. In some sections the company finds that more of this grade is being used than formerly and the result is increased orders for the companies who turn it out.

The demand for architectural terra cotta is much larger this year than ever before. The only firm which makes it an exclusive business in New Jersey is the Atlantic Terra Cotta Company. It operates two plants, one at Perth Amboy, employing 1,000 hands, and one at Rocky Hill, employing three hundred hands. Special designs are provided for every sort of work and an effort is always made to make the work as distinctive as possible. Decorations for numerous large buildings in and about New York which have been designed and executed by this firm are among the best ever sent out. There is an artistic touch to the work which they do which it is hard to describe, but gives it an individuality which can not be overlooked once it is seen. Probably those who have seen their decorative pieces will testify to their excellence and to their singular appropriateness for the purpose for which they are intended. The business is increasing steadily and each year it is necessary for them to extend their works. This season both plants are running to capacity and orders are sufficient to keep them going for some time to come. The growth in the use of this handsome material for decorative purposes has kept pace with the improvement in the output. This firm can be credited with much of the effort which increased the demand. Excellence of product has been the principal factor and that is one of the tenets of the company.

The Great Eastern Clay Company, South River, makes a variety of clay products, all of surpassing excellence. It is the only firm which makes chimney brick in New Jersey. Some six hundred hands are employed in its works and they are all busy throughout the year. The demand for what it terms the chimney brick is increasing and sales have been much larger the past year or two than previously. Perhaps the construction of a number of new and extraordinarily high stacks throughout the State has had something to do with this increase. The demand for the firm's other products is equally gratifying.

The United Porcelain Faced Brick Company, of Newark, is making porcelain faced brick and finds a ready market for all it can turn out. The city of Newark is growing rapidly and there are many uses to which this brick can be put. The company has crowded its plant to capacity for the past two years and finds it even more necessary this season. The highest price is paid for its product, with orders ahead for more of the same material.

The Sayre & Fisher Co., of Sayreville, is working 1,500 men this season. They find their hollow brick department becoming more important each year. The growing use of hollow brick for construction purposes has developed this business beyond the expectation of manufacturers. The situation this year is promising. Indeed, there seems to be likelihood of a necessity for increasing the force still more. Business has grown very rapidly in this department during the past few years, and the enterprising manufacturers who have kept pace with the demand are now reaping the benefit of their progressive methods.

The National Fireproofing Company is operating all its New Jersey plants this season and finds that its orders about consume its output. It ran seventy-five to eighty per cent of its plants all winter, but demand was so active that it accumulated very little stock for future distribution, and this spring the increased call for all its products, particularly its fireproofing, has developed its business more

rapidly than was anticipated. The company has adopted a very progressive advertising policy of late and this is having its effect in developing its business. Very many of the better class of residences are now constructed entire of "Natco" products, with the result that its business steadily increases, while the builder is satisfied with his investment. The company understands the value of fireproofing, particularly where the fire hazard is of moment, and its products are calculated to solve this problem at the least possible cost for effective usefulness. The present agitation of the questions of fire protection and prevention are likely to bring about an increased demand for this company's products in the future.

BURTON.

AN ATTRACTIVE DISPLAY ROOM.

The American Fire Brick Company, of Spokane, Wash., has a most interesting display of clay goods in their new salesroom, as our readers may see from the accompanying photo. All of the products exhibited are made in the Spokane district and include high grade fire brick, drain tile, paving brick, wall coping, mica, white and cream face brick,



A Corner of the Salesroom of the American Fire Brick Co., Spokane, Wash.
Model Design Interlocking Tile House on Right.

building brick and Dennison interlocking tile. The chief feature of the display is a model house built of Dennison interlocking tile. The tile is very much in demand, so much so that they recently installed a complete outfit of the J. D. Fate & Co. brick machinery, consisting of a "Fate Special" machine and an automatic cutting table. This outfit will be used exclusively for the manufacture of their interlocking tile. In a recent communication the American Fire Brick Company stated that business is very good and the outlook bright.

BUILDING OPERATIONS FOR MAY AND FIVE MONTHS.

Building operations in some fifty cities regularly reported by the "American Contractor," Chicago, show an aggregate gain of twenty-one per cent for May, 1912, as compared with May of the past year. The first five months of the year scored a gain of 9 per cent as compared with the same months of 1911. Gains of 50 per cent and over were made for May as follows: Atlanta, 63 per cent; Buffalo, 102 per cent; Chicago, 127; Harrisburg, 81; Hartford, 51; Salt Lake City, 88; San Antonio, 129; Toledo, 412.

Written for THE CLAY-WORKER.

AMONG PHILADELPHIA BRICK MEN.

IN ORDER to get all the revenue possible from the State's brick, tile and pipe manufacturing plants without damaging the industry, a special committee of the legislature is addressing inquiries to the manufacturers asking for information to guide the legislature in a revision of the State's revenue laws. It is desired to revise not only the laws, but the system of administration of tax collection, so as to increase the State's income. Some of the brick manufacturers believe a tax on gross revenue would best fit the case, while others, objecting to a statement of earnings, hold to the more simple method of an assessment of the real estate and personal property, and a definite percentage of tax thereon.

L. R. Channel, 313 Bailey building, has the contract for the new Recreation park and gymnasium to be erected at Twenty-sixth and Jefferson streets. The material furnished will be the product of the American Enamel Brick and Tile Company.

The Independent Brick Selling Company, 1002 Crozier building, has received an order from the Victor Talking Machine Company for 1,000,000 bricks to be used in the erection of a new building at the plant in Camden, N. J. The

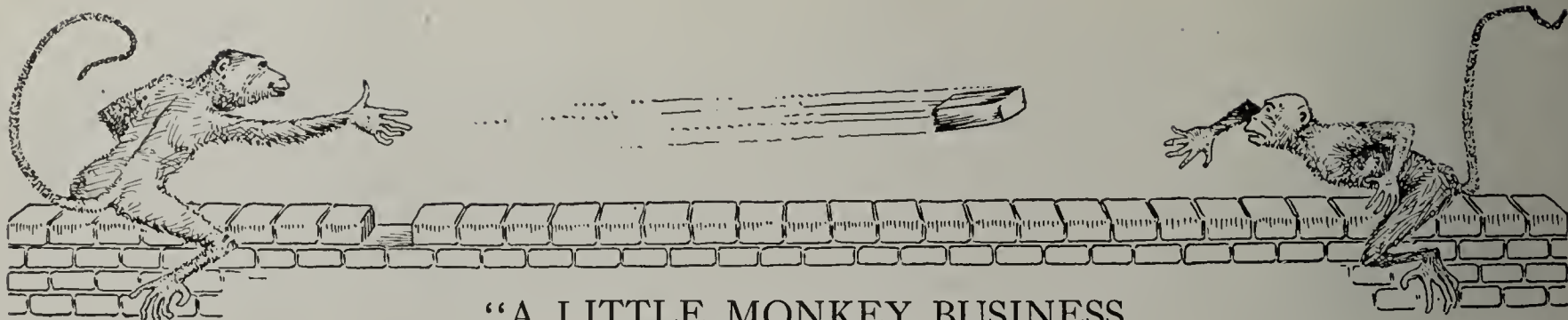
same company has a large factory job at Riverside, N. J., for the Wescott & Wingate Co. and a very large public school building in Trenton, N. J. Manager Brady says that he is figuring on some very large jobs in the south and that business is better now than at any time during the past year.

A new brick plant is being erected at Barnegat, N. J., by Engineer Samuel Davis, of Lock Haven, Pa. This plant will be known as the Barnegat Brick Company.

The Mack Manufacturing Company and the Hamburg Brick Company, formerly located at 2032 Land-Title building, are occupying larger offices in the Fidelity building, Broad and Arch streets. Both companies report business to be in a better condition than for the past two or three years.

Edward C. Stokes, 1208 Harrison building, has a State contract to furnish sewer pipe for the work in Cresson, Pa., and a contract for part of the 108 cars of pipe for the city of Salem, N. J. Mr. Stokes says that he has received more inquiries and is actually figuring on more work now than at any time in the history of the establishment and that the prospects for a busy summer are exceedingly bright.

J. Parry Lukens, 346 Mint Arcade building, finds business in the southwestern part of the State to be in a very healthy condition, although the demand for the soft glaze vitrified sewer pipe has kept Mr. Lukens very busy in all parts of the State, particularly the immediate territory.



"A LITTLE MONKEY BUSINESS NOW AND THEN IS RELISHED BY THE BEST OF MEN."

ITS NATURE.

Judge—"Do you know the nature of an oath?"

Witness—"Yes, your honor; it is generally ill-natured."—
Boston Transcript.

HONK! HONK!

"I simply can't stand the toot of an automobile horn!"

"How's that?"

"A fellow eloped with my wife in an automobile, and every time I hear a horn toot I think he's bringing her back."—
Minnesota Minnehaha.

WHAT HE HAD PREACHED.

Blox—I saw by the paper that Jim Ghorner was buried yesterday.

Knox—So did I; and I hope he's satisfied now; you know, he was always preaching "Back to the land."—Chicago Daily News.

CLASSIFIED.

A patriot is a man who successfully hooks his wife's clothes.

A martyr is a man who makes the endeavor and fails.

A hero is the man who refuses to try.

A coward is a man who remains single to avoid it.—
Judge.

TRY IT.

"Mary," said a mother to her quick-tempered little girl, "you must not get mad and say naughty things. You should always give a soft answer."

When her little brother provoked her an hour afterward, Mary clenched her little fist and said, "Mush!"—The Watchword.

NO DISAPPOINTMENT HERE.

A man who had been convicted of stealing was brought before a certain "down East" judge, well known for his tender-heartedness, to be sentenced.

"Have you ever been sentenced to imprisonment?" asked the judge, but not unkindly.

"Never!" exclaimed the prisoner, suddenly bursting into tears.

"Well, well, don't cry, my man," said his honor, consolingly; you're going to be now."—The Lumberman.

MORE TO COME.

Recently in Seattle in a cigar stand appeared the sign, "We give \$15.00 for 1909 Lincoln pennies." No less a person was attracted by this than Judge Watson. He walked up to the counter and, laying down a penny, triumphantly asked for \$15.00. The clerk took the penny, examined it

closely, asked if it were genuine, and after several minutes sighed and said he guessed it was good.

"Certainly it is," answered the Judge. "Where is my \$15.00?"

"Where," said the clerk, "are the other 1908 pennies?"—
Life.

THOUGHTLESS.

Talkative Passenger (trying to get into conversation)—
"I see—er—you've lost your arm."

Gentleman (trying to read)—"So I have! How careless of me."—Tattler.

TOO TALKATIVE.

It was a beautiful evening and Ole, who had screwed up courage to take Mary for a ride, was carried away by the magic of the night.

"Mary," he asked, "will you marry me?"

"Yes, Ole," she answered softly.

Ole lapsed into a silence that at last became painful to his fiancée.

"Ole," she said desperately, "why don't you say something?"

"Aye tank," Ole replied, "they bane too much said already."—Success.

FICTION AND FACT.



Burned Clay the Safest Material.

Written for THE CLAY-WORKER.

CLAY IN ILLINOIS.



ILLINOIS CLAY MEN should make a better showing this fall at the Illinois State Fair and not leave the field entirely to the cement men. Last year the exhibit was pitifully small. A Springfield contractor had a nice show of brick, tile and mantels; the White-Hall Companies came on the spur of

the moment with a few drain tile and vitrified tile blocks for silos, and an Indiana company had a block silo. Nearly all the big cement companies had booths with something to attract the visitors and some tracts to read after they left.

A trip through central Illinois on the Illinois traction system is a trip through a drainage center. All along the line one sees piles of clay tile heaped in the fields and the sidings are lined with the electric company's coal cars filled with clay tile. The writer saw dozens of cars and countless field-piles, but none of concrete.

The Rockford Register-Gazette and the Galesburg Republican-Register have come out for vitrified brick pavement as the best material for paving in Illinois.

Concrete advocates are to be represented among the speakers at the meetings of the Illinois Farmers' Institute in hundreds of Illinois towns this fall. The cement manufacturers themselves are sending representatives to these meetings and getting some desirable advertising. Nobody ever heard brick mentioned at one of these sessions. Yet, there is a great field for boosting clay tile, vitrified tile silos, brick for rural roads and for general farm work.

The step of the Rockford park board in constructing driveways in Sinnissippi park has been proved a wise one, and after three years of heavy pleasure traffic there are few advocates of other material. The members had to hold out against criticism to secure the innovation, but there has been no consequential repairs on the mile of roadway. The board of Lincoln park, Chicago, has been investigating the use of brick for this purpose, studying the Rockford park especially.

D. M. Marquis will retire from the tile manufacturing business at Milford.

Many brick and tile plants in Illinois have decided not to operate under the new workmen's compensation act which made the employer automatically liable for injuries to his workmen. Those who have filed exceptions with the State Labor Bureau are as follows: Roberts Brick and Tile Company, Roberts; Sheldon Brick and Building Supply Company, Champaign; Springfield Drain Tile Company, Springfield; Universal Brick Company, Utica; Waverly Brick and Tile Company, Waverly; White Hall Drain Tile Company, White Hall; Woodland Clay Company, Woodland; Bloomington Pressed Brick Company, Bloomington; Carey Brick Company, Chicago; Colchester Brick and Tile Company, Gem City Pressed Brick Company, Quincy; Hydraulic Pressed Brick Company, St. Louis; P. M. Johnson Brick Works, St. Elmo; Jacksonville Brick and Tile Company, Jacksonville; Monmouth Brick and Tile Company, Monmouth; National Pressed Brick Company, St. Louis; National Drain Tile Company, Streator.

Among Illinois towns which will do some brick paving soon are Aurora, where South Broadway will be improved; Hillsboro, where Tilson and other streets will be surfaced, and Jerseyville, where it is proposed to improve Arch, Olive and State streets.

Evanston is about to pave some streets, and as macadam pavements have not shown durability, the press of that city points to the service given by the brick pavements and urges a careful investigation.

Sherman Eckley, commissioner of public works at Peoria, announces that a thorough test is to be given paving brick in Peoria.

The new 160-foot stack at the Richards plant in Edwardsville was completed just in time to fly the most conspicuous flag in the city Memorial Day.

The school board in Urbana has been authorized to issue

\$75,000 in bonds for the erection of a new school building.

The building committee of the East St. Louis school board will open bids, July 1, for a brick school building to cost about \$30,000. Riester & Rubach are the architects.

Following several meetings of the stockholders of the Western Stoneware Company it was announced that the financial difficulties of the concern would end and that June 15 would see the potteries at Monmouth and Macomb in operation. The company now owes nothing but its bond issue of \$550,000. The capital stock has been reduced from \$1,750,000 to \$1,000,000, which has been divided into 10,000 shares. The stock was divided into \$750,000 preferred stock and \$250,000 common. Stockholders paid in cash \$250,000 for bonds subscribed for and the concern now has a working capital of \$250,000, the wares in the factories and storage houses and the outstanding accounts. The stockholders have elected the following directors: Charles D. Clarke, Peoria; P. E. Elting, Macomb; Horace Clark, Peoria; J. W. McIntosh, J. S. Brown, L. H. Hanna and W. W. McCullough, Monmouth, and W. J. Spencer, Canton. The board of directors elected the following officers: President, Charles D. Clarke, Peoria; vice-president, Joseph W. McIntosh, Monmouth; secretary, E. S. Smithson, Monmouth, and treasurer, Wallace J. Ralston, Monmouth. S. P. RING.

IMPROVED MACHINERY FOR REFRACTORY MATERIALS.

Chambers Brothers Company, Philadelphia, Pa., manufacturers of clayworking machinery, report business in their line only moderately active this spring, but they are working full time and to about 70 per cent of capacity. They have been utilizing the comparatively quiet period of the last few months to make some improvements in their designs and patterns, and feel much gratified with the results achieved with their machinery in making large refractories material, blocks for lining steel furnaces, etc. This is a comparatively new field for them and their special heavy pattern auger machine, with No. 5 rotary side cutter, together with their special Keystone repress, has given most satisfactory results. The Olive Hill Fire Brick Company, in Kentucky, has installed an outfit of this machinery, as a result of which two additional outfits have been ordered for other plants belonging to the General Refractories Company.

Chambers Brothers are working now upon an outfit for briquetting machinery for New South Wales. Some of their customers in the south have replaced the older original patterns of Chambers end-cut machines with the later "Chicago Special" design.

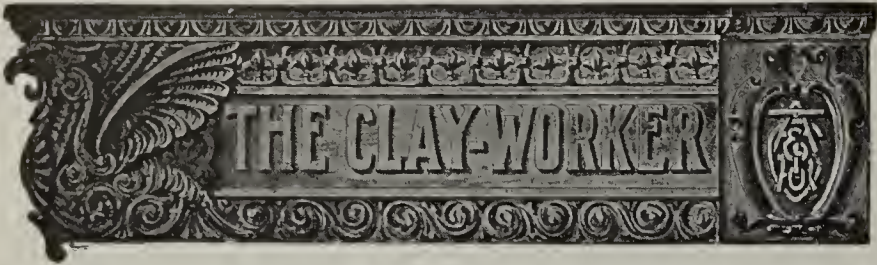
OBITUARY.

Prominent Brick Manufacturers Answer Call of Grim Reaper.

Archibald B. Bonner, secretary of the Bonner-Marshall Brick Company, and son of Mr. Charles Bonner, died at his home in Chicago May 24th. He was ill only a short time, his death being the result of an operation, and was entirely unexpected.

Evan Jones, a widely known contractor and brick manufacturer of Pittsburg, Pa., died at his home in Oakland, a suburb of Pittsburg, May 28th, of rheumatism of the heart. Mr. Jones was in excellent health, apparently, when he retired the evening before and his death came as a great shock to his family and friends. A widow, four sons and three daughters survive. Mr. Jones was an old time member of the N. B. M. A. and a familiar figure at the national conventions.

Charles E. Walsh, for many years a brickmaker at Hackensack, N. J., died early in June from the effects of cancer, from which he has been suffering for a number of years. He was active in the brick industry along the Hackensack river for over twenty years. He sold his interest in the company with which he was connected some years ago to the Hackensack Brick Company, a concern which is operating it now with success. His death is mourned by all the older brickmakers who knew him well during the years he was busy with his trade.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-NINTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

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Six copies, "	10.00
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Subscribers when ordering a change of address should give both the old and new address.

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Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to 226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis

Vol. LVII. JUNE, 1912. No. 6.

CURRENT COMMENT.

The political Ananias Club seems to be taking in many new active members these days.

One thorough test of new clay may be a good guide to its qualities, but half a dozen separate tests make a safer working rule.

Electric cooking is becoming so popular in the home that about the next thing we know it will be advocated for "cooking" clay products.

When the farmers all get to using motor wagons then will begin the real wholesale work of good road building. And it looks like the day is not far off.

Motor trucks for brick delivery are not only things of the future. They are here now and the progressive brick manufacturer is either getting them or getting the notion to.

High speed line shafting and small pulleys, making the turnover and friction load of the plant lighter, is one of the new ideas in mechanics that is finding wide favor these days.

It is the man with a good stock of brick on hand that is in the best shape to fill rush orders—and to get the best prices for his product if he will just hold it in readiness and not get anxious to unload.

A brick plant is not an easy proposition to make into a thing of beauty, but just the same some things can be done to make the surroundings more attractive, and the more you beautify them the more pride you will take in your business, the better men you will be able to keep around you,

and the more you will have to be proud of in the product of the plant itself.

It is coming on time now for county and State fairs. Are you going to be on the job showing and boosting clay products?

The oil trust may be dissolved, but Standard Oil stock seems to be a mighty good thing to have, as the price is still considerably above par.

Those rustic face brick are not only being used just for bungalows, but they are showing up right in the midst of things, making the front of some of the big buildings in the hearts of cities.

Fields that are well drained are always ready for work, because the soil is in better condition and warmer than if saturated with water. There is no waiting for the low places to dry. Drainage is the solution of larger producing farm lands.

The annual crop of school and college graduates looks bigger this year than ever before, which shows that the spirit of education is working well. And the crop is more diversified, too, with more from trade and special schools, which shows that the specializing spirit is also at work and producing good results.

Some idea of the ignorance and prejudice existing about fire clay flue linings may be had from the fact that recently a builder asked his trade paper for information on the subject, saying that he had been told that lining in flues made them liable to crack and unsafe. This sounds like it is time for the makers of this product to get together and wage a general campaign of educational advertising.

POTTERY AND THE PREMIUM GAME.

Evidence of enterprise and a determination to get their share of the premium trade of the flour mills and bakers was furnished by a group of Ohio potteries at the recent meeting of millers in Louisville. In connection with the meeting, which lasted all the week of June 3 to 8, there was given a great machinery exposition in the armory, and it was here the pottery people got into the game. There were four concerns—the Ohio China Company, East Palestine, and the Limoges China Company, the French China Company, and the Sebring Pottery Company, all of Sebring, Ohio. They made a splendid showing of chinaware for premium purposes and certainly did good mission work in the way of putting the American ware on the map in the minds of that part of the public visiting the exposition. This is some of the spirit that all the clayworking industry needs more—this being on the job every time there is a chance to show and boost clay products.

THE COST OF ROADS.

Some interesting figures and comparisons are given by Secretary Blair, of the Paving Brick Association, on concrete roads and what they cost, in a contribution in this number. Read it; it is not merely estimates and figures from theory and deduction, but the record of some actual experiments; and the experiments show, as has been shown in the use of concrete for other purposes, that when it is cheap it is not good, and when it is good it is not cheap. And we might add that even the best and most expensive of it does not compare with good vitrified brick for road making.

This thing of the cost of roads is a thing that has to be looked at in the light of future service and maintenance to get at it right. There has been too much balking at the

first cost of good roads in the past, and too much paying for it afterwards on the installment plan. There has been enough spent keeping up and repairing dirt roads all over the country to have built and kept up paved roads. It were better, therefore, to use bonds, build good brick paved roadways and pay them off in the course of time than to keep paying out enough each year in road work to amount to more in the end than the bonds and their interest. It is time to arouse country interest and get this thing in the public mind right—it is simply another case of the best being the cheapest in the end.

NEW YORK'S NUMEROUS BRICK AND TERRA COTTA TOWERS.

One of the most striking features of New York's tremendous building growth is its towers. The Metropolitan Insurance Company's tower and the Singer tower have been familiar for some years. The new Woolworth tower, which will overtop any of them, is fast going up. This will be faced with terra cotta above the third story, supplied by the Atlantic Terra Cotta Company. In other words, forty-nine stories will be thus faced. The designs were made especially for this building and it will be very effective when completed.

On Thirty-ninth street, E. W. Browning is to erect a building on a small plot which will be wholly in the form of a tower. This is to be of brick, but is not stated who will furnish the material.

Throughout the city are other buildings which are in reality towers, though perhaps none are quite so pronounced as these. The effect, as one looks out over New York from a distance, is to make it appear as though the city was overlooked by a series of watch towers placed at irregular distances. Most of these towers are of brick, wholly or partly, though a few are of stone. They have steel frames, brick is used for filling and the trimming is terra cotta. Indeed, the present development of burned clay enables the construction of such towers. If it was necessary to use other material they would never be built.

REDUCING THE OVERHEAD LOAD:

The habit of systematic cost keeping has taught us some things about what is called overhead and nonproducing expense and its relation to the actual productive cost of doing work, and now we have a new idea along this same line in connection with the machines of the plant. It is reducing the turnover or friction load so as to have employed in actual producing work a greater percentage of the power used. It takes on the form of eliminating heavy lines of shafting, big pulleys and belts, and substituting for them electric motors and light high speed shafting with small pulleys and light belts.

An illuminating instance of this was seen recently by the writer in a woodworking establishment. They were using 300 horsepower, and yet there was only one pulley in the plant over twelve inches in diameter, and it was made a little larger simply to clear the belt from the machine, and the largest belt was only eight inches wide. Some of the machines used perhaps thirty horsepower or more each, and part of these were driven direct with motors, but even where there was a belt it was generally light, running over small high speed pulleys. The line shafting, of which there was a fair amount in the plant, had a speed of 900 revolutions a minute—just about three times the old speeds for line shafting. As a result the weight of all the line shafting and pulleys was but a fraction of what would be found in an old time establishment of the same size and character.

Of course, it was electricity that was primarily responsible for this, but now that we have the idea, and realize

what a saving it means, we will likely use it whether electric transmission goes along with it or not. And we can use it just as effectively in one kind of a plant as in another. We have been carrying such a burden of pulleys and shafting that in many instances the friction load from these has required as much power to carry it as is required to do the actual work at the machines. So if we can cut this overhead load in half or reduce it in any material quantity by using lighter shafting, running it at higher speed, with smaller pulleys, it means effecting a saving both in the first cost and in the operating expense of the plant. Surely this is an idea worth taking in by any power user, for it is not so often that we get something that is more economical both in first cost and upkeep.

IT DELIVERS THE GOODS.

Both the business world and the general public has a wholesome respect for the man that "delivers the goods." Speaking either literally or figuratively, it is the man that is successful, makes good his promises, and manifests sterling qualities in times of stress and trial that is universally admired, and he is admired and respected even though he may have some objectionable traits. He may be a hard bargain driver, and cold-blooded in business dealings, yet if he delivers the goods he is not only respected, but people have confidence in him.

Clay products stand in the building material world where this type of man stands in the business world. It delivers the goods. Some may kick about the additional cost and some may claim that this or that material will do practically as well, and this other material does not require as expensive help to put up, and all of that, but, after all is said and done, it is clay products that "delivers the goods."

The man that builds a brick house never regrets it, but the man that builds with lumber or concrete often wishes he had built of brick. The man that has the regrets is the one that balks at the price or at the cost of the skilled labor involved in laying up brick work, and thus fails to get it. The man that recognizes it for what it is worth and insists on using it never has to nurse vain regrets, because it delivers the goods, and the satisfaction of a job well done remains with him long after the price is forgotten.

There is right in this a splendid line of argument to use on the prospective home builder who is straddling the fence and is halting and hesitating about whether he will strain a point and build with brick, or whether he will strive to get along with lumber or some seeming cheaper material that proves more expensive in the end and fails to give satisfaction or "deliver the goods" like brick.

PRACTICAL PATRIOTISM.

A patriot, according to one of the standard dictionary definitions, is one who loves his country and zealously supports its authority and interests. This is made mention of here and now for the reason that we are coming close in the calendar to the Fourth of July, whereupon we are wont to turn loose a riot of noise and smell, work the ambulance and the doctor overtime and then call it patriotism. And some of the things we might call fireworks are inflammatory speeches by spellbinding orators.

This keeping the Fourth of July is one American institution that somehow has not kept up to date. We still cling to the roar of guns and find joy in the sight and smell of the smoke of powder. This is romantic and more or less inspiring, but it is not up to date. The smoke and noise of guns is one thing scientists have been getting rid of, till today the army uses smokeless powder that makes very little noise, and there is a noise-killing mechanism put on the modern guns. So, to be in keeping, we should not seek

for noise, smell and smoke and general fireworks display on the Fourth; and to cut out the riot of noise is to cut out a lot of the old inspiration.

What we need for this annual patriotic expression is a new inspiration, and here is the thing for the subject if we can just get enthusiasm aroused over it—make it a home-building proposition. That is the true and substantial way to show love of one's country and to manifest zealous support of it; it is the taking of a proper interest, and it is the one best way to what we need more of, and that is practical patriotism.

So let us do honor and pay respects to our dead heroes, and let our orators eulogize them to their hearts' content, but why not persuade the orator of the day to cut out the fireworks—both kinds, the real and the wordy—and talk about home building as the highest manifestation of patriotism. It is the homes that make a country, not the few big remarkable homes here and there, but the homes of the masses, and the better these homes the better and stronger will be the people that grow up in them. Moreover, given homes of the right kind, there is no need to urge people to stand up loyally for them—they will just naturally do it anyway. The good home begets the right kind of patriotism, and oratory is not needed every year to foster the spirit. The oratory might better be used to foster home building, not the building of shacks and makeshift quarters, but permanent homes of durable and, as near as practical, fireproof material, for no matter how long we may argue, nor how far we may wander off on other paths, we must accept as a fact in the end that the best and most practical patriotism is that which manifests itself in good home building.

SMILES WORTH WHILE.

The "Book of Smiles" for June is just out, and contains the usual number of funny stories, wise saws, and also some practical suggestions about drying brick, all of which affords a half hour's pleasant reading. If you appreciate a good thing, write for a copy. It is published by the Standard Dry Kiln Co., Indianapolis, Ind., whose ad. will be found on page 874 of this journal.

AN EXCELLENT SOUVENIR.

One of the most acceptable gifts we have received in many months is that of the pocket memorandum book sent to us with the compliments of Gladding, McBean & Co., San Francisco, Cal. On the inside of the leather-back case are calendars for 1912 and 1913. Removable pads are placed in the pocket of the case, making it very convenient for the making of notes and the jotting down of points for reference on short notice. Gladding, McBean & Co. is one of the best clay product manufacturing concerns in the West. Its plants are located at San Francisco, Oakland and Lincoln, Cal.

LITERATURE ON ENGINES, FANS AND BLOWERS.

The American Blower Co., of Detroit, Mich., believes thoroughly in publicity work, and is constantly circularizing the trade, having excellent ammunition for that purpose. Their numerous bulletins on "A. B. C." Vertical Self-Oiling Engines, "A. B. C." Twin Variable Speed Steam Engines, Sirocco Fans and Blowers, "A. B. C." Cast Iron Blower and Exhaust Fans, "Detroit" Steam Traps and "Venturia" Disc Ventilating Fans are exceptionally well printed and contain information of value to the average reader. This company has made an enviable reputation in its field and is known throughout the clay trade as a producer of high-grade engines, fans, blowers and brick dryers.

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has been given as a definition of good en-
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[See page 947.]

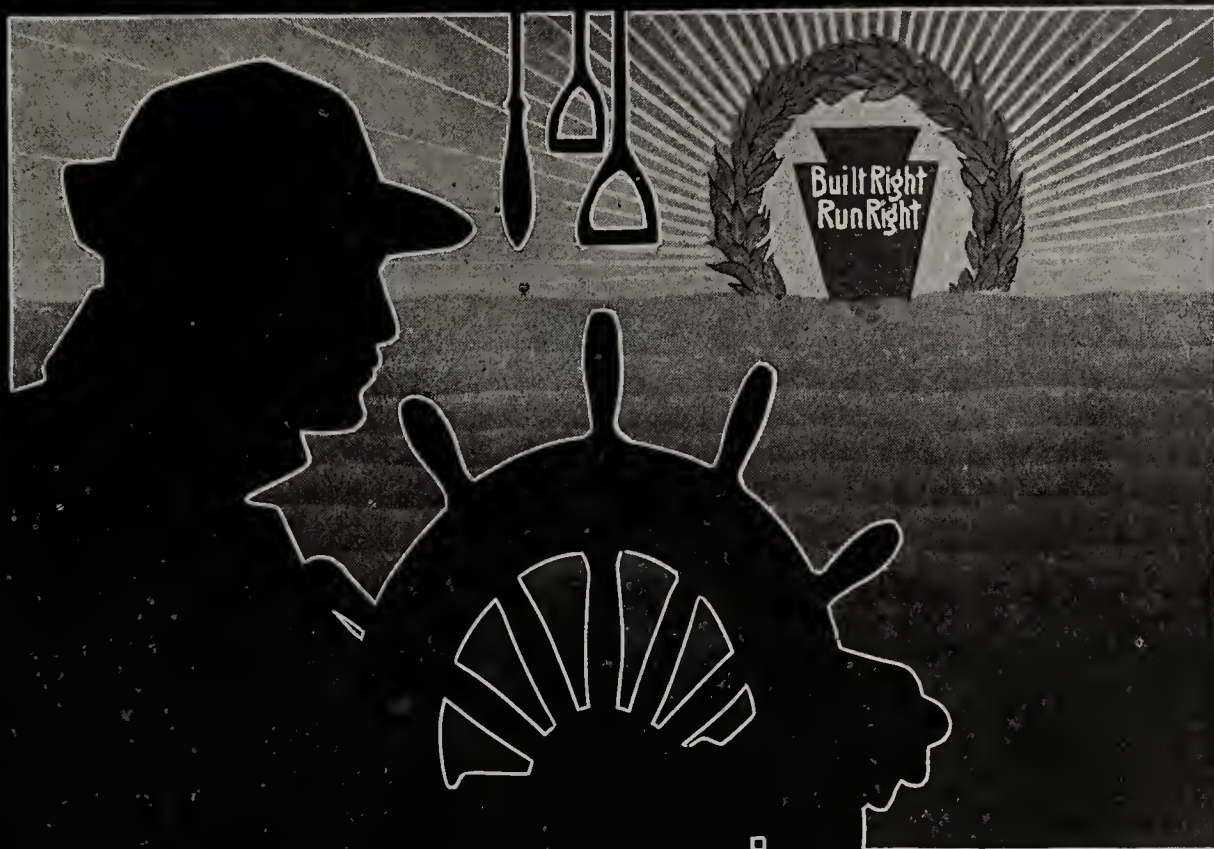
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FOR SALE.
Two hundred steel brick cars, 20,000
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20 tons of T iron.
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A FINE BRICK CLAY AND TILE
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With trackage to two railroads and
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For Sale, Wanted, Etc., Ads Continued on
pages 937, 938 and 939.

A QUALITY OF MACHINERY ABOVE ALL OTHERS.



THE TITANIC DISASTER.

All nations of the world have risen in wrath at the Titanic disaster and have sought to place the responsibility for the loss of 1,500 lives and fifteen millions of dollars. The loss is deplorable and not to be condoned, and yet each year in the United States we sacrifice twice as many lives and burn up thirty times the money through needless fire losses. Knowing that the annual loss will be repeated each year, the people sit idly by and do nothing. Their negligence is more reprehensible than the neglect of those responsible for the Titanic wreck. Clayworkers should hammer home these facts. Clay products are the only fireproof building material.

In your own business there is no safer pilot to success than we are offering you. A particularly dangerous shoal is your Engineering and Drying problems. We are the largest manufacturers of clayworking outfits in the world. Naturally, we have engineered more successful plants and have installed more dryers than others. We are, therefore, best qualified to serve you because of past successes.

Our Waste Heat Dryers are correctly designed to meet your special needs and conditions, and are built in our own factories. If your conditions are such that you can successfully enjoy the saving opportunities offered by the Waste Heat System, we install it for you. If one of our other dryers would be more successful in your plant we install it. While we are Waste Heat Dryer experts, we are also equally competent on all dryers, which is to your advantage. We want you to get the right dryer and we work to that end.

Our new catalogue, which is just out, tells a lot about the world's largest line of Clayworking Machinery.

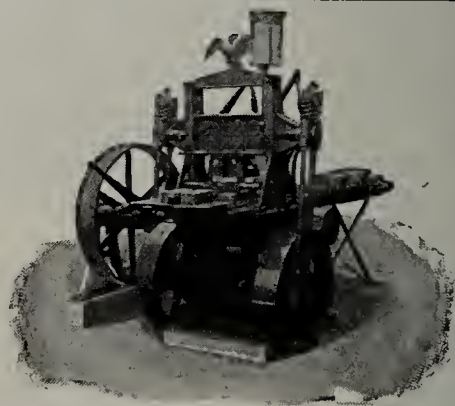
The American Clay Machinery Co. Bucyrus, Ohio

A QUALITY OF MACHINERY ABOVE ALL OTHERS.



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You can speedily determine what
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success—and yours.



We build every machine and appliance re-
quired for the manufacture of every class of
Clay Products. Our new catalogue. Just out.

THE AMERICAN CLAY MACHINERY CO.
Bucyrus, Ohio

Much the largest manufacturers of Clayworking Machinery in the world. And much the best.

A QUALITY OF MACHINERY ABOVE ALL OTHERS.

THE HAIGH NEW SYSTEM CONTINUOUS KILN



To successfully and economically burn your product are important features in the operation of your plant.

The Haigh Continuous Kiln is particularly adapted for burning all kinds of clay products. Because of the advantageous principles embodied in the Haigh Kiln, your products can be more economically burned than in any other kiln. The economy applies not only to the fuel required but also to the high percentage of No. 1 Product and the economy in handling the ware in and out of the kiln. The advancing heat feature of the Haigh Kiln makes it possible to burn a kiln with not over sixty per cent of the fuel required in other kilns and the finished product is much superior. The Haigh Kiln is in daily successful operation on hundreds of yards in this and other countries. Persons interested will be furnished names of satisfied users of the Haigh Kiln. Plans and estimates of this best of all burning systems will be furnished.

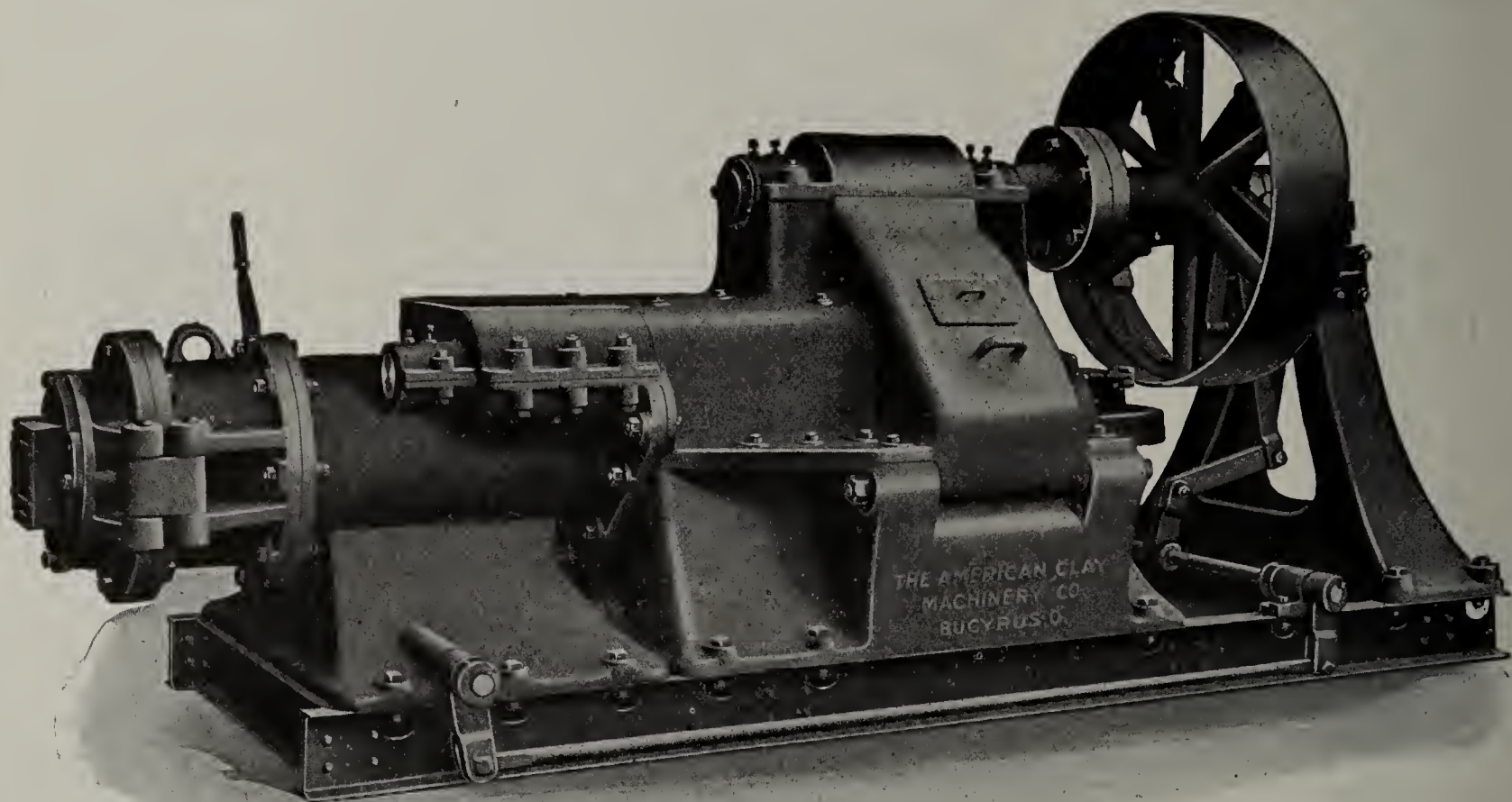
We also build waste heat dryers which are admirably adapted for economical use in connection with the Haigh Kiln. We are the world's largest manufacturer of Clay Making Machinery and appliances, our line including everything required for the manufacture of every class of Clay Products by all processes. Our new No. 90 catalogue, just issued, is a peerless piece of printing and is a veritable Clayworkers' Encyclopedia. Nothing in any way approaching this catalogue was ever before issued to the Clay Trade of the world.

Messrs. H. Haigh and L. Haigh are a part of the American Clay Machinery Company organization and will be pleased to consult with you about your burning problems.

The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.

No. 231 Auger Machine



This machine is designed for the manufacture of fireproofing and will produce fifteen tons per hour. It is designed for large capacity, great strength and high efficiency, and will prove equally satisfactory in the manufacture of brick and tile.

The gear frame is in two parts; the lower portion, which contains the large and ample bearings for the auger shaft, also forms an oil reservoir providing means by which the main gear is kept running in oil; this also keeps the driving pinion constantly supplied with oil, insuring long life and ease of operation. The upper portion of the gear frame forms a cover which excludes dirt from the gearing and oil bath. The bearings are bored and bushed with reservoir bushings which will contain sufficient oil for several days' running and also furnish a means of renewal when worn, which will place the shafts in the same perfect alignment as when the machine leaves our factory. The advantage and importance of this feature should not be overlooked.

The shafts are forged and turned from steel in our own plant and are of generous proportions. All gearing is cut from steel blanks and is very large in proportion to the work to be performed. The hopper is provided with a feeder which insures a positive feed to the augers and prevents bridging of the clay.

The screws and augers are made from our latest formula, which guarantees the highest possible efficiency, and the metal from which they are made has proven to be more durable than anything heretofore used for this purpose. The clay cylinder and screw case are lined throughout with hard iron bushings which, together with the augers, may be inserted and removed from the front end of the machine. The expressing auger is tapered and we furnish sectional tapered bushings which will keep the auger tightly cased until worn out and maintain the maximum capacity of the machine. This bushing system provided for various sizes of augers for wares of varying areas.

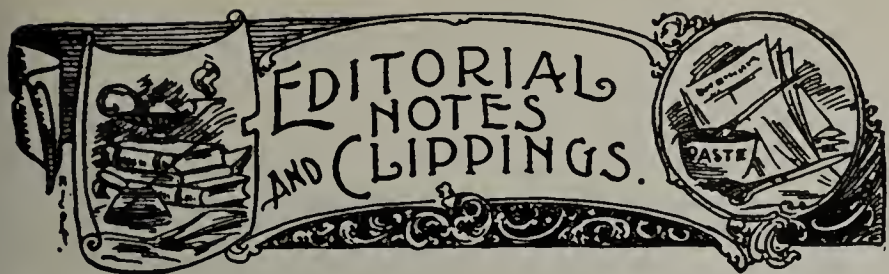
The machine is mounted on a substantial frame made of "I" beams and is entirely self-contained. Its capacity for brick is 7,500 per hour, and for fireproofing is 15 tons per hour, and may be speeded according to capacity desired. This machine is especially adapted for making the medium and larger sizes of fireproofing. The workmanship is of the highest class throughout and the material used is the best obtainable.

We build every machine and appliance required for manufacturing clay products. Our new catalogue of 515 pages is just out.

The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.





Arthur Pratt contemplates the erection of a drain tile factory at Athens, Tenn.

The Rogers Clay Company, of Rogers, Ohio, has been incorporated with \$20,000 capital stock.

Thomas C. Moulding Brick Company, of Chicago, recently purchased a tract of five acres of fine clay land.

Marion M. Allen Supply Company has purchased the business of the Newport Brick, Coal and Supply Company.

The New England Brick Company, Boston, Mass., recently closed a contract for 4,000,000 brick to be used in the construction of the Art Museum.

Z. T. and J. T. Northcutt, of Wildorado, Texas, are installing a drain tile plant at Plain View, Texas. The plant will be known as the South Plains Tile Company.

The Bradford (Pa.) Brick Company recently booked an order calling for 600,000 tons of paving block to be used in the improvement of country roads in the State of New York.

The Canada Brick Company, Ltd., has been incorporated at Toronto, Ont., with a capital stock of \$1,000,000, of which \$400,000 is seven per cent preferred and \$600,000 is common stock.

The brick manufacturing plant of Gray Brothers, at San Francisco, was damaged to the extent of \$10,000 by fire which started from an overheated kiln. A large part of the loss was caused by damaging the green brick.

Fire of an unknown origin destroyed the sand-lime brick plant of the Savannah Brick Works, at Savannah, Ga., causing a loss of \$50,000. It is probable that the plant will be rebuilt at an early date. H. B. Skeeel is president of the company.

After being shut down since last December, the plant of the Bartlettsville (Okla.) Vitriified Brick Company resumed operations the middle of May. New machinery was installed and a number of other improvements made which materially increased the capacity of the plant.

The plant of the Farr Brick Company, near Forest City Park, Cleveland, Ohio, was totally destroyed by fire at midnight of May 26th. The fire is believed to have been caused by an explosion of natural gas. The loss is estimated at \$25,000, and the plant will be rebuilt at once.

The Bonnot Company, Canton, Ohio, has secured the order of the Columbus Contractors' Supply Company, Columbus, Ohio, for machinery to replace that which was destroyed by fire recently. The "Canton Special" brick machine and rotary automatic cutting table will be used in the new plant.

The Corry Brick and Tile Company, of Corry, Pa., recently booked an order for 400,000 wire-cut-lug blocks for paving, to be laid at the plant of the General Electric Company at Erie, Pa. The brick will be used to pave the streets running through the company's plant, as well as a large portion of the residence sections east of the plant.

The Rankin Brick and Clay Company, of Denver, Colo., which was organized some time since, has started the construction of a \$250,000 plant which, when completed, will have a capacity of 70,000 paving brick and 130,000 common brick per day. The officers of the company are H. S. Rankin, president; F. A. Chaney, vice-president and treasurer, and L. B. Cannon, secretary.

The State of Iowa may go into the industry of working up clay products and making brick and tile. Clay has been found in Marion county not far from the State inebriate institution at Knoxville, and it is now being tested at the State College at Ames. If it is found good, the board of control will probably establish a plant for the making of brick and tile at the institution and utilize the labor that is now going to waste. The board has had available a small appropriation for starting any industry at the Knoxville institution, but has been unable to find anything that is suitable. The men are given some employment in stone quarry

work, but not all can be used in this way and they can not be used all the time.

The Warner B. Ferris Brick Company, of Cleveland, Ohio, will supply "Mingled Shade Velvet" brick for the new Carnegie library building at Princeton, Ill.

George H. Bontecou & Co. are arranging for the establishment of a new brickmaking plant at Dutchess Junction, N. Y., where they will manufacture sand-lime brick.

The H. Kane brick plant at Portsmouth, Ohio, was badly damaged by fire the first of the month, which started in one of the kiln sheds. The loss is fully covered by insurance.

The Clarksburg Pottery Company is a new concern recently incorporated at Clarksburg, W. Va. The incorporators are Jos. L. Ruhl, John A. Keenan, H. W. Dickey and R. S. Douglass.

Col. Frank O. Lowden, of Oregon, Ill., recently was at Creston to inspect the plant of the Creston Tile Company, prior to building a plant upon his Arkansas land for the manufacture of drain tile to be used by himself and associates.

L. F. Craig, of Sioux Falls, S. D., has purchased an interest in the Sioux Falls Press Brick Company and will take an active interest in the management of the concern. Plans are now under consideration for enlarging the plant, which will make it one of the largest brick plants in the west.

The plant of the Newfield brick yard, owned by J. C. Lincoln, of Berlin, Conn., was damaged to the extent of \$6,000 by fire recently, which was supposed to be of incendiary origin. New buildings are now under course of construction and new machinery will be installed as soon as possible.

John Kulp, the senior member of the firm of John Kulp & Sons, brick manufacturers of Columbus, Ohio, died at his home in that city June 3rd, following an illness of six months' duration. Mr. Kulp was sixty-seven years old and had been a resident of Columbus for twenty-five years. A widow, two daughters and five sons survive.

Frank P. Pohlman has sold his brick yard at Davenport, Iowa, to the Northwestern Brick Company. The latter concern will make a number of improvements in the plant. The company has been incorporated with \$35,000 capital stock and the following officers have been elected: John H. Pohlman, president; M. Riedmann, vice-president, and Martin Schupp, secretary and treasurer.

The Bonnot Company announces that they have opened an office in Chattanooga, Tenn., which will be in charge of Mr. W. Crow. He will devote his entire attention to southern trade and the interests of southern clayworkers. Mr. Crow has the advantage of having had considerable experience in the manufacture of clay products, as well as in the sale of machinery. He is, therefore, well equipped for the work.

The brick road is advancing in Illinois. Hoffman, Townsend & Co., of Mt. Carmel, Ill., were awarded the contract to build about three miles near Danville for \$62,300. The twelve-foot roadway is to be of square-edged paving brick with a stone curb set in brick. The work must be completed by October 1. As evidence of the attention paid by contractors to this class of work, there were seven bidders. The bankers of the State, the automobile clubs and the good roads committee of the Illinois Commercial Federation all are calling attention to the brick road near Newman, at their meetings and through publicity work. Another pleasing feature for the clay men is that all these organizations are advocating more liberal use of drain tile for roads where it is not possible, at present, to make permanent improvements.

The main building of the Central Brick and Clay Company's plant at Orviston, Pa., comprising the engine room, the drying room and the grinding department, was destroyed by fire recently. The remainder of the plant was saved only by the hardest kind of work on the part of a bucket brigade consisting of employes of the plant and the men from a neighboring plant. The loss is estimated at \$30,000. Almost before the ruins had cooled, plans were under way for the rebuilding of the burned portion. The building will be much enlarged and will be equipped with up-to-date machinery and appliances. The work will be pushed to completion as rapidly as possible, for the company has a number of large

(Continued on next page.)

EDITORIAL NOTES AND CLIPPINGS—Continued.

orders on their books which they are very anxious to fill without any more delay than is absolutely necessary.

The Denton Pressed Brick Company, of Denton, Texas, has made a number of improvements in its plant which has doubled the capacity to 100,000 brick a day.

The Hartford Brick Company, of Hartford, Conn., has been incorporated by L. L. LeClair, of Berlin, and J. H. Woodford and H. C. Woodford, of Avon, Conn.

The Hannon Brick Company, of Pendleton, S. C., has filed application for a charter. T. J. Hannon, S. T. Buchanan and John A. Huggens, of Piedmont, are the interested parties.

Morris E. Gregory, proprietor of the Corning Brick and Terra Cotta Works, of Corning, N. Y., recently presented a handsome terra cotta fountain to the Corning Cemetery Association.

The New London Development Company, at Greensboro, N. C., contemplates the erection of a brick and tile plant at that place and will be glad to receive literature and price lists, etc.

The Lahey family, of Newburg, N. Y., has incorporated the East Windsor Brick Company, of Newburg, N. Y. The company includes Joseph A., William F., Annie A. and Sarah M. Lahey, of Newburg, and Nora O'Mera, of Kingston. The capital stock is given as \$36,000.

The Jamestown Shale Paving Brick Company, Jamestown, N. Y., is installing a new outfit of machinery to replace the one destroyed by fire a few months ago. The new plant will have a capacity of 100,000 daily. The Bonnot Company, of Canton, Ohio, furnished the machinery for this plant.

G. M. Boyd Brick and Tile Company, of Knobnoster, Mo., has recently been incorporated with \$175,000 capital stock. The company was organized for the purpose of taking over a large plant now owned by George M. and John Boyd. The plant will be thoroughly overhauled and equipped throughout with modern machinery.

A number of sewer pipe companies in the Akron, Ohio, district have signed an agreement providing for a merger of all of the concerns. Those interested are the American Sewer Pipe Company, the Buckeye Sewer Pipe Company, the Granite Clay Company, the Robinson Clay Products Company and George W. Crouse. The combined capital of these five companies is \$10,000,000, and the new company, it is said, will be capitalized at a much larger figure.

The Nova Scotia Clay Works, Ltd., Halifax, N. S., has recently been organized for the purpose of taking over, enlarging and extending a half-dozen or more brick yards in that province. The majority of the company's plants are situated on tidewater and can ship both by water and rail. The production of the company's plant at Pugwash, N. S., is being greatly enlarged, and a new plant with every modern facility is being erected at Annapolis, N. S.

We are in receipt of announcement from the Baltimore Brick Company, 708 Maryland Trust building, Baltimore, Md., stating that Mr. Samuel R. Busey has severed his connection as general manager of the company, and that Mr. Warren Griffiss has been appointed to succeed him. The officers of the company are Carroll Van Ness, president; Richard Cromweel, Jr., vice-president; Harry A. Remley, secretary and treasurer, and J. Guild Cook, assistant secretary and assistant treasurer.

The Star Clay Products Company, of Elmendorf, Texas, which was formerly known as the Star Pottery Works, has discontinued the manufacture of pottery entirely, and is now devoting its entire attention to the manufacture of "Star" fire brick. The company has acquired two thousand acres of clay land and has recently purchased a press brick equipment, as they contemplate making press brick in addition to the fire brick. Adolph Waggener is president of the company and J. R. Martin, secretary and treasurer. The main office of the company is in the Central office building at San Antonio.

The brickmaking industry in Bangor and Brewer, Me., is now enjoying the greatest prosperity in many years, all five yards being busy. About 10,000,000 bricks will be used in building operations in Bangor this year, which closely approximates the capacity of the local yards, but, as the local makers have some outside contracts to fill, it will be necessary to purchase several millions of bricks elsewhere to supply the home demand. An order for 600,000 was recently

placed in Augusta, and another considerable order in Waterville.

The South Michigan Brick Company has been incorporated by John J. Jackson and E. D. Church, of Saginaw, Mich. The capital stock is given as \$40,000.

The River Brick and Tile Company, of Stanton, Ky., has been incorporated with \$10,000 capital stock. Those interested are H. T. Derrickson, G. W. Conlee and others.

F. Z. Bishop, MacManns, Corpus Christi, Texas, wants to purchase a plant for making building brick, fire brick and tile. He would prefer second-hand machinery.

The Bay City (Tex.) Brick and Tile Company, of which J. E. Kneisell is manager, has purchased fourteen acres of land on which they will establish a stiff mud brick and tile plant.

The Findlay Red Brick Company, of Findlay, Ohio, composed of E. Jackson, David Kirk, Jr., Wilbur Ewing and others, contemplates the erection of a brick plant to have a capacity of 30,000 daily.

The Dawson Brick and Tile Company, of Springfield, Ill., is to install electrically driven machinery in its plant near that city. An order has been placed for motors which will aggregate 165 horsepower.

The plant of the Lamberton tile factory, at Lamberton, Minn., was completely destroyed by fire early in the morning of May 24th. The plant will be rebuilt and equipped throughout with modern machinery.

A landslide at the brick plant of Corwin & McCullough, at Coeymans, N. Y., put one brick machine out of commission entirely and filled up the tempering pits. It took the company nearly a week to get the yard in condition to run again.

The Shepherd Brick Company's plant at Canonsburg, Pa., has been purchased by Donley Brothers, of Washington, Pa., who will operate it on an extensive scale after making improvements. Special machinery is to be installed. The plant is more than twenty years old.

Fire, on the night of May 12, caused \$50,000 damage to the factory and warehouse of the Woods-Lloyd Company, manufacturers of glasshouse supplies at South Thirtieth street, Pittsburg. Lightning caused the blaze. The warehouse covered an area of 110 by 300 feet. The side walls collapsed.

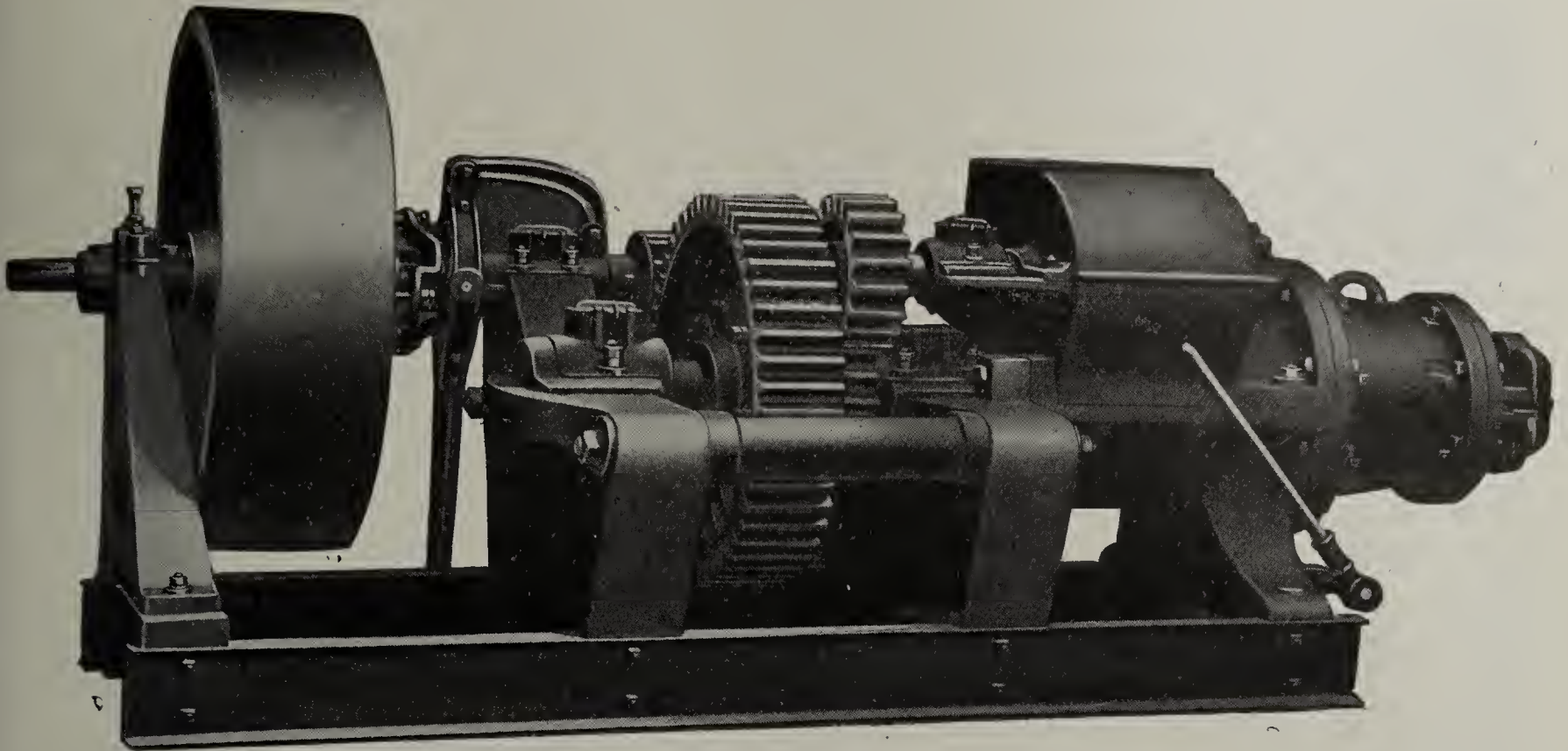
The Collinsville (Okla.) plant of the Coffeyville (Kan.) Vitrified Brick and Tile Company have, we are reliably informed, installed a large Bonnot rotary automatic cutting table to take the place of a machine of a certain widely advertised line which was by no means worn out but simply failed to give satisfaction.

The Spahr Press Brick Company, of Maysville, Ky., has decided to abandon the manufacture of brick, and the plant will either be sold outright or dismantled and sold. The company claims that competition from surrounding towns has been so keen as to cut down profits to a point where there was no money in the business.

According to late information, New Jersey brickmakers and clayworkers were never busier than they are now. The fireproofing for the big Woolworth building, furnished by the National Fireproofing Company, is all ready for delivery, and the terra cotta for the same building, furnished by the Atlantic Terra Cotta Company, is in the same satisfactory condition.

The Tregillus Clay Products Company, of Calgary, Alta, Can., has placed the order for machinery for their modern plant with the Bonnot Company, Canton, Ohio, and included their "Canton Special" brick machine, rotary automatic cutter, large pug mill, dry pans, elevators, etc. Mr. W. J. Tregillus and his engineer, W. G. Worcester, made a trip through the States inspecting various plants before placing the contract. The new outfit will be one of the largest in Canada and will have a daily capacity of 100,000 brick.

Something approaching 100,000 tons of clay are being taken out in the New Jersey district daily, and so great is the demand for the products that some experts seem to think it is not allowed to season sufficiently to be in proper condition before it is worked up. Indeed, the plants are running to their capacity almost everywhere and there are complaints that it is slow work getting orders filled, even under such circumstances. It looks like a prosperous year all over the State. It is a long time since brickmakers enjoyed such a steady demand this early in the season.



Model "GA" Auger Brick Machine

In general design, this machine is similar to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and avoiding the use of high speed gears. The result is less wear and tear on gearing, less noise, less power lost through gear friction and consequently less expense for maintenance. Owing to the slow speed, the operation is unusually smooth and quiet. There is very little vibration to work loose nuts and keys. It is a reasonable conclusion that an almost noiseless machine will require less care and last longer than one which is continually shaking itself to pieces.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled for the foundation bolts, thus providing a very rigid construction. The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

This type of machine is built in several sizes—further particulars on request.

E. M. FREESE & COMPANY, Galion, Ohio

Written for THE CLAY-WORKER.

BRICK NEWS FROM NORTHWESTERN OHIO.



TOLEDO is not experiencing a boom, but there has never been a time in the history of the city when so much building has been done as now. It is estimated that at the present time there are 500 houses under construction in Toledo, and an unusual number of structures, especially small residences and bungalows, are of brick. Toledoans have been slow in appreciating the brick house and what it means in endurance and beauty, but conditions are changing and brick is the coming material here. Toledo brick men have been giving this portion of the business some thought and publicity and are reaping some reward for the work done. Besides the residence structures going up in Toledo, there is an unusual quantity of industrial and investment building. During May, 1912, 282 permits were issued for a total value of \$1,392,054, as against 186 permits with a valuation of \$271,671 issued during May, 1911, an increase in building operations during the month of May alone of more than \$1,000,000. During the week just passed, \$55,075 worth of permits for residences were issued and \$583,200 worth of industrial permits given out. The industrial structures are nearly all brick structures and will furnish some nice brick contracts for local concerns. All the local concerns are now running full time and capacity and a fair amount of brick is at hand, although there has been something of a shortage of building brick in Toledo recently owing to the large quantities of brick which have been shipped out of Toledo to near-by towns in Ohio and in Michigan. The yards are all running well now and there are more brick to be had. Prices are holding well and conditions are altogether satisfactory with brick men generally.

Road building has been quite active in northwestern Ohio this summer and there is a strong tendency to build good roads, which in many instances means brick roads, and farmers in various sections of this vicinity are favoring brick country roads, holding that they are the more economical in the end, although costing a little more in the beginning. Investigations have been carried on freely and in nearly every instance have resulted in enthusiastic adherents to the brick road proposition. Paving brick are in good demand and are selling at \$18.50 or \$13 f. o. b. at the plant.

The Collingwood Brick Company reports a good line of orders, with the plant running full time and at full capacity. Orders have been heavy and some difficulty has at times been experienced in finding enough brick to take care of trade. The concern is now pretty well caught up on its orders.

Charles Meyer and George Tait have taken out a permit for the erection of a three-story brick mercantile building to be erected on Huron street at a cost of \$24,000. This will furnish a nice brick contract.

The Ohio Brick Company is enjoying a good out-of-town brick business and have been shipping heavily to points in Ohio and Michigan. Because of the heavy outside orders brick have been scarce locally and some difficulty has been experienced to get enough to take care of the demand. There has been a slight curtailment of orders recently which has given an opportunity to get caught up. The concern is running full time and full capacity and the badly depleted stocks are filling up in fair shape.

The Hartford block, corner of Summit street and Madison avenue, has been razed and the construction work on the new twenty-story home of the Second National Bank has begun. The general contract for the building has been awarded to A. Bentley & Sons Co., of Toledo. The struc-

ture will be of solid construction, the foundation resting on steel caissons, six feet in diameter, which will be filled with solid concrete and extend down to bed rock, a distance of 100 feet below ground level. The Burnham Company, of Chicago, architects, who furnished plans and specifications, will supervise the construction of the building, which will be the finest office structure in the city when completed. It is estimated that the structure will require fourteen months in building. The exterior of the building will be white terra cotta banded with English wire cut brick of soft gray. The interior will be finished with Vermont white marble and mahogany.

Pressed brick will be used in a thoroughly modern six-apartment flat to be erected at 426 Rockingham street by Louis Hissig. The general contract was awarded to Charles Meinka, a Toledo contractor.

The entire pavement from Front to Depot street, Fremont, Ohio, is being put into first class shape. Every defective brick will be removed and replaced with new ones. The street is in remarkably good condition considering the time since the paving was laid and comparing it with other streets where different materials were used.

The St. Mary's Brick Company, which removed the plant from New Bremen, Ohio, to St. Mary's, Ohio, has completed the shifting of machinery from the old location to their new home and will soon be ready for business. The plant occupies fifteen acres of ground near the eastern limits of St. Mary's.

The Consolidated Brick and Tile Company, of Hatton, Ohio, has sold its plant and equipment at that place to the National Clay Company. It is virtually a reorganization of the concern with some new associates who have had a wider experience in the brick business, the object being to increase the facilities and enlarge the plant.

Chicago Junction is to have a new \$20,000 city hall and brick men have been considerably interested, as it will furnish a nice contract.

The village of Clyde, Ohio, is busy with paving jobs this summer, two miles of paving having been projected for this season. The paving will be of brick.

Plans are being drawn by Toledo architects for a large fireproof building to be erected by William Hardee at the corner of Jefferson and Huron streets, Toledo, which, if built, will be one of the most beautiful business buildings in the city. According to the present plans the new structure will be of brick, steel and terra cotta construction, the exterior to be of special brick and terra cotta. The structure will be two stories in height, 60 feet on Jefferson avenue and 120 feet on Huron street. The Market Savings Bank will occupy quarters in the new building.

A nice brick contract was provided in the new Pythian Castle building to be erected in Springfield, Ohio, at a cost of \$26,688. The contract was awarded to W. F. Morningstar and Jacob Kinckle, local contractors. T. O. D.

J. H. Gautier & Co., Jersey City, N. J., are running one hundred and seventy-five hands on brick, tile and other clay products this season. Hudson Co., in which Jersey City is located, Jersey City alone has approximately a quarter of a million inhabitants, and Hoboken, Union Hill and other boroughs and towns are, to all intents and purposes, parts of Jersey City. Building has been very rapid there of late, much of it large work which consumed immense quantities of brick. The P. Lorrillard Tobacco Company, for example, has put up a new plant which cost \$4,000,000. The demand for this firm's output has been very heavy and the works have been operated to their capacity for the past two or three years and that is true of the situation today. Every man is busy and the orders are numerous enough to keep them going for a good while yet.



Barrett's PAVING PITCH



SOUTH 16TH STREET, OMAHA, NEB. WOOD BLOCK PAVEMENT FILLED WITH
BARRETT'S PAVING PITCH.

A Waterproof Seal Needed

A successful pavement filler must, when applied, be viscid like Barrett's Paving Pitch. Pitch settles down to the bottom of the joints, oozing into every crevice and unevenness of the brick, thus forming a continuous watertight seal throughout the entire pavement.

When the blocks contract in cold weather, the pitch merely sinks to a lower level in the joints, never releasing its adhesion to the brick. In hot weather when the blocks expand, the level of the pitch rises. A brittle filler will not do this.

Asphalt filler, which is viscid while being applied, becomes brittle and unelastic. Compression pulverizes it and when the joints widen it releases its grip on the brick and lies in loose, useless slices.

Cement is still more brittle and prohibits expansion or contraction, causing a host of serious difficulties.

Pitch is the only really satisfactory filler. Neither sand, asphalt nor cement compares with it. And the best pitch for this purpose is Barrett's Paving Pitch.

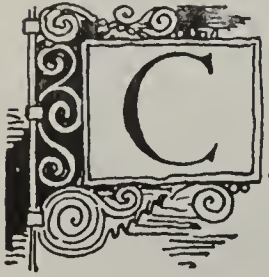
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Written for THE CLAY-WORKER.

CLEVELAND BRICK NEWS.



CLEVELAND is now experiencing one of the biggest building booms in its history. According to records in the office of the city building inspector, 2,246 buildings were in process of construction in the city of Cleveland on June 1 of this year. On the first of June one year ago, 1,818 buildings were in progress and on the same date in 1910 the total was 1,616 buildings.

The month of May was the most active one ever experienced in Cleveland in the manner of building operations. The value of new buildings for which permits were granted during May was \$2,014,270, as against \$1,701,634 for the same month in 1911, and \$1,258,468 in 1910. The total for 1909 was \$1,826,539; in 1908 it was only \$668,070.

In view of this excellent record the brick manufacturers and dealers here are greatly pleased with the way the season has opened up. Although several months late on account of the exceedingly cold winter, the results which have been experienced during the past month or two are beyond the expectations of even the most sanguine.

It is believed that the year 1912 will show a substantial gain over 1911, which was almost \$3,000,000 ahead of the previous record for building operations in this city.

The biggest individual project announced during the past month embraces a \$2,000,000 hotel on the site of the old Forest City House on the west side of Cleveland Public Square. It is proposed to put up a twelve-story fireproof building of modern design. The financing is being done through the office of M. B. and H. H. Johnson, American Trust building, who have been successful in a number of operations of this kind. The building will occupy about 40,000 square feet and by the use of a large court opening from the street every room will have outside windows. The building will occupy 200 feet on the Public Square and about the same frontage on Superior avenue and West Third street, having three fine frontages. The property has been occupied for hotel purposes since 1820 and is admirably suited for this purpose as it will be near the new terminal depot which is being planned on Ontario street. It is believed that it will prove a very successful venture for those engaged in it.

During the past month a bond issue of \$1,000,000 for school improvements was approved by the voters of Cleveland, and this sum will be spent during the coming year providing relief for fifteen schools; \$700,000 will be spent on actual buildings and \$300,000 towards rehabilitating old buildings.

Another large mercantile building containing a theater and costing about \$1,000,000 is planned for East Ninth street and Huron road. This building will be built in connection with the present Pythian Temple and another mercantile building recently erected will occupy a large area of unimproved ground in the rear. Entrances to the theater will be furnished through the existing buildings.

A large hotel and mercantile building is also being planned for East Ninth street and Superior avenue and contracts for the wrecking of a number of old buildings have been let in the office of the George A. Griebel Company. Director Stage, of the city administration, has awarded to the Reaugh Construction Company the contract for constructing the administration building and the building for men and women insane at the Warrensville farm. The building will be of brick and will cost \$115,000 complete.

William S. Lougee, architect, American Trust building, has planned a handsome new addition to the German hospital on Franklin avenue, N. W. The new structure will be erected in the rear of the present hospital building and will face Fairview Park. It will be three stories in height and have a large basement and will connect with the main hospital building. The structure will be of face brick trimmed with stone and will contain a men's surgical ward, a smoking room, children's ward, staff quarters, dining rooms and

kitchen. It will be fireproof throughout and will contain every modern convenience obtainable.

The Madison Realty Company has awarded to the Caldwell Construction Company the work on the new ten-story brick, terra cotta and steel hotel. The building will cost \$200,000. Plans were prepared by Architect G. A. Griebel. The same architect has awarded the contract for the new Holcomb commercial building, Euclid avenue near East Fifty-fifth street, to the Caldwell Construction Company at \$100,000.

A handsome new six-story brick and terra cotta building is to be erected on Champlain street near Ontario street for the Cleveland Window Glass Company. The structure will be fireproof throughout and will have a frontage of nearly 100 feet. The company will occupy the entire building. Plans, which are being prepared by Architect W. S. Lougee, American Trust building, will be completed within a short time and work will be started on the new project.

A new gymnasium, said to be the largest in Ohio, has just been completed at Wooster by Cleveland contractors. The structure covers 160 x 60 feet with walls of white face brick trimmed with terra cotta. It was designed by L. C. Holden, of New York, and built by the Roland A. Curry Company, of Cleveland, at a cost of \$120,000. It will be opened for use early in the fall.

The Cleveland Hardware Company has awarded contracts for a factory and office building to be erected on the site on Lakeside avenue from plans prepared by architects George S. Rider & Son. The contract has been awarded to the Reo Construction Company. The building will be of brick, steel and reinforced concrete and will be six stories high.

During the past month Cleveland voters approved of a bond issue for \$2,000,000 for the new public library building for Cleveland. At the present time the public library occupies a temporary building opposite the city hall on East Third street. It is proposed to erect a monumental building corresponding in architecture with the new federal building, which faces on the Public Square and Superior avenue. The new structure for the library building will probably be built on the site of the present city hall.

The foundations for the new city hall are all in and work is about to begin on the structure on the lake front. The city hall will be a companion building to the new court house and the new library building will be a mate to the new federal building. This will constitute four corners of the group plan with other public buildings ranging about the same size. Already twelve million dollars has been spent on public buildings and about six million dollars more has been authorized. It is expected that work will proceed on the new library within a few months as soon as plans can be provided and arrangements made for the city. Although the exterior of the building will be of granite it is expected that between 5,000,000 and 6,000,000 brick will be used in its construction.

On the evening of Sunday, May 27, the buildings of the Farr Company's brick plant were destroyed by fire. The cause of the blaze is unknown but the repairs will be made and the plant will be in operation at once.

Negotiations are now in progress whereby additional land may be secured for a large increase in the size of the Rockefeller building, West Sixth street and Superior avenue. The old Weddell House on West Sixth street will in all probability be torn down and a large sixteen-story structure erected as an addition to the Rockefeller building. The proposed addition will cost not less than \$1,000,000 according to the present outlook.

BUCKEYE.

F. JULIUS FOHS
Mining Geologist and Engineer
EXAMINATIONS of CLAY PROPERTIES
LEXINGTON, KY.

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DRYING

The BOSS TEN HOUR DRYER

is completed and has proven to be what every brick-maker is striving for:

A DRYER THAT WILL DRY BRICK IN TEN HOURS.

Your brick are dried exclusively with the exhaust from the engine that makes the brick. No extra fuel and no extra power required.

A dryer that does not have to be operated at night time.

Requires no expensive dry kiln, and no iron cars.

Cost of drying reduced to less than 4 cents per thousand.

TRIAL TESTS CAN BE MADE ON APPLICATION.



JOHN C. BOSS COMPANY
Write for catalog. ELKHART, IND.



BURNING

Do you want to burn hard coal, culm, lignite, slack or screenings? There is just one way to do it, and that is by using air under pressure, which is

The BOSS System of Burning Brick

Burns all kinds of Brick and Clay Wares.

Applies to both Up-draft and Down-draft Kilns and

Will reduce your fuel cost fully 40% over the old way of burning.

Kilns last longer and give better service when equipped with the BOSS SYSTEM.
Try it.



Editor THE CLAY-WORKER:

PACIFIC COAST NEWS.



MARKET for clay products on the coast has continued to improve in the last month, but is not yet on the basis hoped for. Numerous large contracts are being let and fairly good prices are being received in spite of close competition. The sewer pipe industry seems to be in the most flourishing condition owing to the big demand for vitrified pipe in many different sections of the Pacific slope. Many cities and towns are making radical improvements in their sanitary systems and while concrete pipe is used a great deal for the larger sewer mains the demand for vitrified pipe in the smaller sizes is more than encouraging. Practically all the sewer pipe plants are operating full force and a high standard of product is being rigidly maintained.

The terra cotta situation is not so bright, though it is showing signs of improving. This material is growing somewhat in popularity, but not as fast as the merit of the product seems to warrant. For all skyscrapers and buildings of the finest class for business purposes terra cotta continues to be specified as usual. While face brick and terra cotta are used some in connection with concrete construction, yet this idea is not favored either by the concrete people or the brick and terra cotta manufacturers, at least not for exterior work.

The common brick market is steady and promises to pick up greatly in the coming month. Common brick is still holding firm at the price of \$7.50 per thousand. The market for pressed brick and fire brick is rather lively and prices are very good for the best products. Brick manufacturing plants are working full force for the most part and a number of new concerns are reported to be doing a fair business in restricted fields. There are plentiful supplies of brick on hand to meet the market demands.

After a long period of incubation the idea of a publicity bureau for the local brick industry has hatched out and the organization is known as the Brick Builders' Bureau. Modeled somewhat after the plan of the Pacific Clay Products Publicity Bureau, which bureau has thus far concerned itself mostly with educational work in connection with vitrified sewer pipe, the Brick Builders' Bureau will launch a propaganda, the purpose of which will be to educate architects and engineers to the merits of brick and terra cotta and steel construction work as well as to encourage individuals, institutions, municipalities, etc., to demand such building. As manager for the bureau a most competent man has been secured in the person of Nat Ellery, who formerly held the position of California State Engineer. Mr. Ellery will be given wide latitude in the exercise of his office and he is already formulating plans for the most progressive sort of publicity work. The bureau has the unanimous support of the brick manufacturers and terra cotta makers of prominence as well as the Masons' and Builders' Association, the bricklayers' union and the association of steel fabricators. The bureau is to be financed by subscriptions from these interests. In no sense is the organization meant for trade agreements as to prices, etc. It is purely a publicity bureau and already a fund of \$10,000 has been raised to start off the work. Eleven delegates representing the various industries concerned will direct the general policy of the bureau, and weekly luncheons will be held by a publicity committee for the purpose of conferring with the manager and giving him the benefit of expert suggestions. The officers of the bureau are Mr. Dennison, of the Steiger Terra Cotta and Pottery Works, president; Mr. Dennis, of the McNear Brick Company, vice-president; Mr. Lipp, of the Sacramento Brick Company, treasurer, and Mr. Spencer, of the Western Iron

Works, secretary. The office of the bureau will be located in the Merchants' Exchange building in San Francisco.

C. F. Pratt, manager of the Golden Gate Brick Company, states that his concern is busy on numerous small contracts which call for both sand-lime and pressed clay brick. The company's manufacturing plants at Stockton and Antioch, Cal., are running full force in anticipation of a larger business expected soon.

The United Materials Company is at present delivering brick for two new school houses at Richmond, Cal. About one million common brick are called for on these jobs. The company is also busy delivering small orders of from five to thirty thousand brick each. The latter are for face brick.

Gus Larsen, superintendent of manufacturing for the Los Angeles Pressed Brick Company, visited San Francisco the first week in June.

The plant of the Vallejo Brick and Tile Company at Vallejo, Cal., is being operated to its full capacity, as the demand for the products of this plant has increased greatly by reason of the special fitness of its tile for sewer work.

The Steiger Terra Cotta and Pottery Works has been awarded the contract for supplying standard architectural terra cotta for the Crocker Estate building at Market and Ecker streets. The plant of this company at South San Francisco is very busy. A large part of their output is sewer pipe.

N. Clark & Sons, 112 Natoma street, have been given the contract for the face brick on the new St. Ignatius Catholic church. About 600,000 brick are called for.

The San Francisco office of the Livermore Fire Brick Company has been discontinued and hereafter the San Francisco business will be conducted direct from headquarters at Livermore, Cal. C. K. Halloway, secretary and manager of the company, has just purchased a home in Livermore.

Mr. Penfield, president of the American Clay Machinery Company, has been in Oakland recently conferring with the stockholders of the Oakland Paving Brick Company, whose plant has been shut down for the last few months. It is expected that improvements in the equipment will be made soon and the plant put in operation again.

J. P. Donovan, representing San Francisco capital, is looking over the prospects for a fire brick plant at Lompoc, Cal. If conditions are considered favorable enough it is likely that a company will be organized in the near future.

The California Enamel Brick Company, with a capital stock of \$25,000, has just been incorporated in this State by business men of Los Angeles. The directors are A. F. Andres, C. P. Campbell, A. C. Meyers and J. W. Hislop.

The Inglewood Brick Company has been incorporated in Los Angeles by A. F. Andres, R. B. Andres, C. P. Campbell, Milton Bartley and C. C. Spicer. The capital stock is \$40,000.

Plans are almost ready for a brick and tile factory which is to be established at Ontario, Ore., by W. H. Shepard, who is from Wendall, Idaho.

A brick contractors' association has been organized at Phoenix, Arizona, with a capital of \$10,000. William C. Armstrong, J. L. Perry and J. H. Pope are the incorporators.

SUNSET.

. San Francisco, June 10, 1912.

ALTON BRICK COMPANY

Makers of High Quality Brick for
Roadways and Permanent Buildings.
Repressed and Dunn Wire-Cut-Lug Block.
ALTON, ILLINOIS.

Classified Advertisements

FOR SALE, WANTED, ETC.

Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

FOR SALE

FOR SALE—Cheap, iron Quaker brick machine, perfect order. Make offer. Address **BOX 4—HERMAN,** 4 tf d Care Clay-Worker.

FOR SALE.

Four-mold Fernholtz dry press in first-class condition. For particulars address **W. G. BUSH & CO.,** 5 5 d Nashville, Tenn.

FOR SALE—CHEAP.

Two new, up-to-date Patterson throwing wheels. For full information, address, **39 N. Bennet Street,** 2 6 cm Boston, Mass.

FOR SALE.

Sand-lime brick plant, capacity 25,000 brick per day, ten hours. Price very reasonable. **HOLLAND CITY STATE BANK,** 6 tf dm Holland, Mich.

FOR SALE.

One Martin's steam rack brick dryer, 14-pipe high; holds 30,000 brick with cars and tracks. All for \$1,100. Address **THE SCHMITT BRICK CO.,** 6 2 2 pm Columbus, Ohio.

FOR SALE—Complete brick plant with Steele machinery; good as new. Located in thriving new town at junction of two trunk line railroads, side track at plant. Good clay and good market. **ALTAVISTA BRICK CO.,** 6 1 cm Altavista, Va.

BRICKYARD FOR SALE.

The brickyard and plant of the Ful-tonham Brick Company will be sold at public auction on the premises at Ful-tonham, Ohio, on the Zanesville & Western railway, at 12 o'clock noon, Friday, June 28, 1912. The plant is completely equipped and in running order, having a capacity of 50,000 brick per day. For further information apply to C. T. MARSHALL, trustee in bankruptcy, Zanesville, Ohio. 6 1 dm

A GOOD INVESTMENT.

We are offering a small amount of stock in a modern brick plant in successful operation. This is your opportunity to secure stock in a paying enterprise. Full particulars on request. Address **BOX 699, Oklahoma City, Okla.** 4 4 d

FOR SALE.

Fire clay plant in Indiana; forty acres of ground with full equipment. Plant now in operation and making money. Books open to anyone interested. This is a rare bargain and will stand closest investigation. Residence also near-by. **HALL & HILL,** 147 East Market St., 6 1 d Indianapolis, Ind.

FOR SALE.

Because of other business interests I offer for sale, very cheap, my brick and tile plant, located in a good farming district of southwestern Michigan. Fine home market for tile; 17 acres of land, plenty of clay, good buildings, machinery and dwelling house. A bargain for the right man. **L. P. WALKER,** 5 2 cm Hartford, Mich.

BRICK AND TILE MAKERS.

The demand for brick, fireproofing and tiling is far greater in the Canadian West than the supply, and with the tremendous expansion of Manitoba and the west, the demand for all brick products is enormous. Rapid City, Manitoba, has an abundant supply of raw material and good railway facilities. A great opportunity for some one. For particulars write to **G. GORDON MURRAY,** Sec.-Treas. Town of Rapid City, Box 146 Manitoba. 5 3 dm

FOR SALE.

At a great bargain. The entire machinery, boilers and complete plant of the Mobile Brick Company, at Mobile, Ala., consisting of one 150 horsepower tubular boiler, one 150 horsepower horizontal engine, complete Success outfit, 50,000 daily capacity; including belting, team, cars, rails and the entire outfit. In use about three years. This plant must be disposed of within the next 60 days so that the affairs of the company can be wound up. Information can be obtained by addressing **JOHN T. McDONALD,** President Mobile Brick Co., 65 St. Francis St., 5 2 cm Mobile, Ala.

FOR SALE.

A two-kiln brick and tile plant in eastern Iowa. **DE WITT BRICK & TILE CO.,** 11 8 c DeWitt, Ia.

FOR SALE.

A sacrifice at quick sale. One hundred and fifty steel rack dryer cars, 36-inch gauge, 10 racks high, with track and turntable. About 2,000 feet 2-inch rail; 4,000 steel galvanized pallets, size 10 x 33 inches, rolled edge. One Phillips & McLaren dry grinding pan, No. 9. One Hayden dry grinding pan with conveyors and screens. One soft mud brick machine (Hercules make); 125 horsepower boiler and engine. Address **THE SCHNEIDER BRICK CO.,** 6 2 cm 633 Linwood Ave., Columbus, Ohio.

FOR SALE.

REBUILT ENGINES AND BOILERS.

Engines—Corliss.

18x42 Lane & Bodley, 18x36 Ohio Heavy Duty, 16x42 Allis, 14x36 Sioux City, 12x30 Lane & Bodley, 12x30 Hamilton.

Engines—Automatic.

14½x24 Buckeye, 11x16x12 Buffalo compound, 13½x15 Taylor, 13x16 Atlas, 13x12 Harrisburg-Ideal, 13x12 Phoenix, 12x14 Green, 12x12 Armington & Sims, 11x16 Atlas, 8x14 Noyes.

Engines—Throttling.

18x24 Atlas, 14x18 Sinker-Davis, 14x14 Lewis vertical, 12x16 Reed, 12x14 Brownell, 10x16 Bass, 10x12 Atlas, 9x14 Lane & Bodley, 8x10 Erie, 6x8 Industrial.

Boilers—Stationary.

72x18, 66x16 high pressure, 72x18 standard, 72x16, 66x18, 60x16, 60x14, 54x14, 48x14, 44x14, 44x12, 42x12, 36x16, etc.

Boilers—Fire Box.

100, 80, 60, 50, 40, 35, 25, 20, 16, 12, 10 and 8 horsepower, etc.

Boilers—Vertical.

50, 40, 35, 30, 25, 20, 16, 12, 10, 8, 5 and 3 horsepower, etc.

Heaters.

All sizes, open and closed.

Pumps.

All sizes, single and duplex.

Electrical.

30 k. w. generator, direct connected to 8x10 Skinner engine; 20 k. w. generator, direct connected to 8x10 Economic engine; 18 k. w. belted generator.

Miscellaneous.

Saw mills, lath mills, edgers, cut-off saws, resaws, blowers, exhaust fans, tanks, etc. Write for list. Also a full assortment of new machinery. Sole manufacturers of the celebrated "Leader" injectors and jet pumps. Send for circular.

THE RANDLE MACHINERY CO., 1733 Powers St. Cincinnati, Ohio.

Classified Advertisements.

FOR SALE.

One 40-43 heavy duty brick and tile machine, complete with brick nozzle and die.

One board delivery cutting table. Also barrel attachment and dies for making 3, 4 and 6-inch partition tile and drain tile. Dies have never been used.

One Bensing tile cutting table, new.

One 84-inch disk fan, used only three months.

American Clay Machinery Company's make.

STANDARD BRICK & TILE CO.,
309 Henry Building.

5 3 c Portland, Ore.

WANTED, ETC.

WANTED—Position by mine superintendent, ten years' experience managing clay and coal mines. Best of references. Former employers will testify as to record for getting best results at lowest cost. Address

BOX 6—WILLIAM,

6 1 1p Care Clay-Worker.

AN OPPORTUNITY.

A good proposition offered to a progressive brick, tile or pottery maker on a new tunnel and car type continuous kiln. With suitable clay will save from 70 to 75 per cent of the fuel and labor costs of burning. A chance for big returns. Investigation will prove claims.

6 1 c Care Clay-Worker.

Address BOX 6—ILLINOIS,

WANTED.

Position as manager or superintendent with a live brick or tile plant that will appreciate the services of a live man. Can design, erect or operate any type plant most economically. Practical and technical education in the work in this and other countries. Salary and commission preferred. Address

BOX 6—A. E.,

6 1 c Care Clay-Worker.

WANTED.

Situation by man who understands the trade in all its branches. enamel brick, building brick, all colors, paving brick, pottery wares. Can mix my own glazes. Am also familiar with sanitary wares. Thorough knowledge of all kinds of kilns and machinery. Can handle men. Can build plant at small cost if necessary. Address

BOX 3—H. W. H.,

3 tf d Care Clay-Worker.

WANTED—Business manager for a plant manufacturing paving and face brick. Plant has a competent superintendent. Manager's duties will include sales, credits and collections and the general management of the business. Good opening for a man with an established record who can give unquestioned reference. Address

BUSINESS MANAGER,

6 2 d Care Clay-Worker.

MISCELLANEOUS

WANTED—A good second-hand cutting table. State condition, make and price. Address BOX 5—F. A.,
5 1 d Care Clay-Worker.

CASH FOR YOUR PLANT OR BUSINESS.

No matter where located. If you want to buy, sell or exchange any kind of real estate or business anywhere, at any price, address

FRANK P. CLEVELAND,

965 Adams Express Bldg.,

4 tf d Chicago, Ill.

WANTED—POSITION.

Paving and face brick man of extended experience, at present in charge of one of the largest face brick plants in the south, would like to correspond with some concern in the north or east who desires to secure the services of an up-to-the-minute manager or superintendent. Highest testimonials. Address BOX 6—A. L. A., SOUTH,
6 tf d Care Clay-Worker.

CAPITAL WANTED.

I have one of the best shale deposits located near Vancouver, British Columbia, which has been thoroughly tested for vitrified paving, sewer and dry pressed brick, also partition and drain tile. Property is located on water front with excellent harbor adjacent to the largest coal mines in British Columbia, Can. Unlimited demand for all the above articles, with practically no competition.

No. 1 small 2½-inch paving brick command \$30 per 1,000; sewer brick, \$20; pressed brick, \$30 to \$40; six-inch drain tile, \$25 to \$30 per 1,000, and 3 x 4 partition tile \$70 to \$90 per 1,000.

Will take stock for this property with responsible parties who will invest sufficient capital to erect an up-to-date plant, or will sell same outright for cash. For further particulars address

W. C. MITCHELL,

3806 Eighth Ave., S.,

6 tf dm Seattle, Wash.

FOR SALE.

Bargain for quick cash buyer. Potts iron soft mud machine, disintegrator, sander, boiler and engine, water tank, steam pump, shafting, belting, rack and pallet drying system, 165,000; trucks, wheelbarrows, etc.

W. W. PARRY,

5 1 c Rome, N. Y.

FOR SALE.

Books for brickmakers. Inexperienced workmen will find them a source of valuable information. "Brickmakers' Manual," \$3.00; a practical treatise on the every-day details of brick-making. "Clay Glazes and Enamels," \$5.00; tells how to glaze and enamel brick and gives valuable recipes. "Analyses of Clays," \$2.00; a valuable reference book, giving analyses of well-known clays of this and foreign countries. "The Clayworkers' Handbook," \$2.00; a manual for all engaged in the manufacture of articles from clay. "Clays," \$5.00; their occurrences, properties and uses, with special reference to those of the United States. Any or all of these books mailed postage prepaid on receipt of price. Write for list of other valuable books for clayworkers. Address,

T. A. RANDALL & CO.,

Indianapolis, Ind.

PATENTS

secured in the United States and foreign countries. TRADE MARKS registered. Investigations, opinions and advice in regard to patentability and infringement.

WATSON & BOYDEN

Patent Attorneys

918 F St., Washington, D. C.



"STAG" BRAND
Manganese
Steel
Castings.

Edgar Allen American
Manganese Steel Co.

CHICAGO, ILL. NEW CASTLE, DEL.

Classified Advertisements—Continued.

BRICK WORKS FOR SALE.

Brick works formerly owned by the Parkersburg Brick Company.
Capacity, 25,000 bricks per day.
Ten round brick kilns. Type, down draft. Capacity, 570,000. Can be enlarged to suit needs of purchaser.
Modern machinery equipment, made by E. M. Freese & Co.
Heavy local demand for brick.
Natural gas available at eight cents per thousand cubic feet.
Very large supply of finest clay, also finest shale suitable for roof tile and paving brick—same quality shale used by United States Roofing Tile Company. The latter property joining the property here offered.
Works located near main line Baltimore & Ohio Railway, and about one mile from Ohio river.
A splendid opportunity for large company to engage in manufacture of paving or building brick, or roofing tile.
Property will be sold on liberal terms, and is exceptional opportunity for right party. Address, or call on

JAMES A. WADE, Agent, Parkersburg, W. Va.

We desire to call the attention of Clay Products Manufacturers and others to our

FOUNDRY AND MACHINE SHOP

which is in position to make up

Iron Castings to Replace Broken or Worn Out Parts of Machinery, Dies, Drier Cars, Screen Plates, Etc.

We also manufacture a complete line of Sewer Covers and Sanitary Castings

Wm. E. Dee Company,
Suite 1026 Stock Exchange Bldg.
CHICAGO, ILL.

Write us for particulars of our plan.

Ricketson's PURE MINERAL Colors
The "Red Brick" brand. Brilliant in tint; easy to mix, go farther than any other and none like them
YOU CAN'T FADE THEM
Cement, etc. Red, Brown, Purple and Black.
for Brick, Mortar, Mortar Colors
RICKETSON MINERAL PAINT WORKS,
MILWAUKEE, WIS.

FOR SALE.

About 18,000 first class brick pallets.
Address **J. C. RILEY,**
6 3 dm Bloomington, Ill.

See additional ads under Table of Contents.



Newton Portable Brick Handling System

This system gives you the advantage of three men taking the place of nine, as here shown. Above is a photograph of elevator and staging in operation, saving you six men over old way of passing and tossing brick; same advantage taking brick out of kiln. Send for circular and special information.

A. C. NEWTON,
Pat. Aug. 9, 1909. CRESCENT, N. Y.

A Burning Question!

HAVE YOU TROUBLE
With Hot and Cold Spots When
Burning Up Draft Kilns?

I have a very simple and inexpensive method of securing a uniform burn throughout the entire kiln. Equally good as a fuel saver. It will pay you well to write for information.

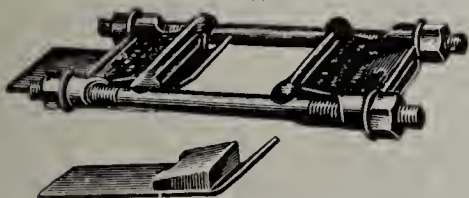
ROBERT TWELLS,
WALNUT HILLS, ILL.

SEE WHERE THE ARROW POINTS—

It Shows the Simple, Effective Door Frame Connection of the

TECKTONIUS LUG

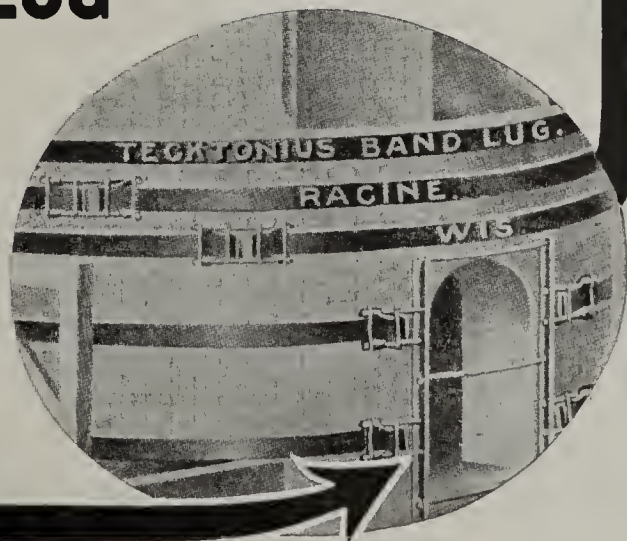
It is "penny wise and pound foolish" to try and adapt someone made, troublesome, unsafe, makeshift for banding your kilns
The Tecktonius Lug is



Cheaper, Stronger,
Safer, Neater,
Easier Attached and
Lasts as Long as the Bands

Write for our booklet "Lug Facts"

E. C. TECKTONIUS MFG. CO.
Racine Junction, Wis.



The Department of Clayworking and Ceramics

Established by the Legislature
in 1902 at the

New Jersey State College,

RUTGERS COLLEGE.

NEW BRUNSWICK, N. J.

Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

C. W. PARMELEE, B. Sc., Director.
W. H. S. DEMAREST, D.D.

Kilns Driers Processes

JULIUS J. KOCH

Consulting Engineer

for

Clayworking Industries

3325 Caroline St. St. Louis, Mo.

If...

**You Want
to Sell
or Buy...**

Second hand Clayworking Machinery, Tile Mills, or anything pertaining thereto.

**If...
You Want
a Man**

for any position or a position in any connection with the Clayworking Trades use the

**For Sale
and Want
Columns
of...**

**The...
Clay-Worker.**

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For all transient advertisements, such as "For Sale," "Wanted," etc., the rate is 25 cents a line per insertion. Average of seven words to line. Head line counts as two lines.

**The Best, Quickest, Cheapest
Method of Securing Results.**

Conveying, Elevating and Power-Transmitting Machinery.



The only perfect spiral conveyor. Continuous flight—no laps or rivets.
A Complete Line of the Best Supplies.

Belt, Chain and Cable Conveyors.

Ask for General Catalogue No. 34.

H. W. CALDWELL & SON CO., Chicago.

Fulton Bldg., Hudson Terminal, No. 50 Church St., New York.

Chicago Retort & Fire Brick Co.

**"AJAX"
Fire Brick for
Building Kilns**

GENERAL OFFICE:

837-839 Commercial National Bank Bldg.

CHICAGO, ILL.

'Phone
Randolph 3601.

KILN FLOOR TILE

THE RECOGNIZED STANDARD OVER 50 YEARS.

ANY SIZE **FIRE BRICK** ANY SHAPE

Write Us Now **Evens & Howard Fire Brick Co.**
St. Louis, Mo.

Books for Brickmakers

"CLAY GLAZES AND ENAMELS," H. R. Griffen.....	\$5.00
"BRICKMAKERS' MANUAL," Morrison and Reep.....	3.00
"CLAYWORKERS' HANDBOOK," by Author of "Chemistry of Clayworking"	2.00
"CLAYS," Heinrich Ries	5.00
"VITRIFIED PAVING BRICK," H. A. Wheeler, E. M.	2.00
"BRICKLAYING," Owen B. Maginnis.....	2.00
"KILN RECORDS," W. D. Richardson.....	1.00
"PRACTICAL FARM DRAINAGE," C. G. Elliott.....	1.50
"ENGINEERING FOR LAND DRAINAGE," C. G. Elliott..	1.50

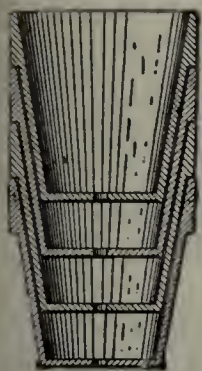
T. A. RANDALL & CO.,

PUBLISHERS,

INDIANAPOLIS, IND.

\$2.00 THE CLAY-WORKER, \$2.00
ONE YEAR, (IN ADVANCE)

Mention THE CLAY-WORKER.



Make Money

WITH THE ONLY SUCCESSFUL

Flower Pot Machine

(PATENTED.)

No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "

Write for Circular and prices.

The Rockwood Mfg. Co.,

1801 English Ave.

INDIANAPOLIS, IND.



Something New in Brick Kilns and Brick Dryers

Patented April 14, 1903, and September 8, 1903.

ANY KILN OF THE MORRISON OR WINGARD TYPE CAN EASILY BE CHANGED INTO THE DENNIS DOUBLE DOWN DRAFT KILN.

County and State Rights For Sale.

The kiln walls are battered, furnaces are built "within the walls," avoiding expense of outside furnaces and the loss of heat by radiation, while the battered side walls and double arches form a perfect brace, each holding the other in position. In proportion to capacity, these kilns can be built for less money, burned with less fuel, and water-smoked and burned in less time than any other kiln upon the market, except continuous kilns, the heat throughout burning, is under perfect control, and these kilns will burn with perfectly satisfactory results, soft mud, stiff mud, dry pressed, or paving brick, burning practically all hard. I have kilns built under this patent of capacities ranging from 100,000 to 500,000 brick, and should be pleased to furnish names of users to prospective buyers.

Plans for round and square down-draft kilns. Also plans for drying off round kilns by taking the heat from a burning kiln to a green one without the use of a fan. Wood burning kilns changed into coal burners and to down-draft kilns or up-draft kilns arched over like down-draft kilns.

Write for printed booklet and testimonials.



Double Up and Down Draft Kiln.

ADDRESS

F. W. Dennis

188 Bermuda St.,
NORFOLK, VA.

PHILLIPS & McLAREN CO.

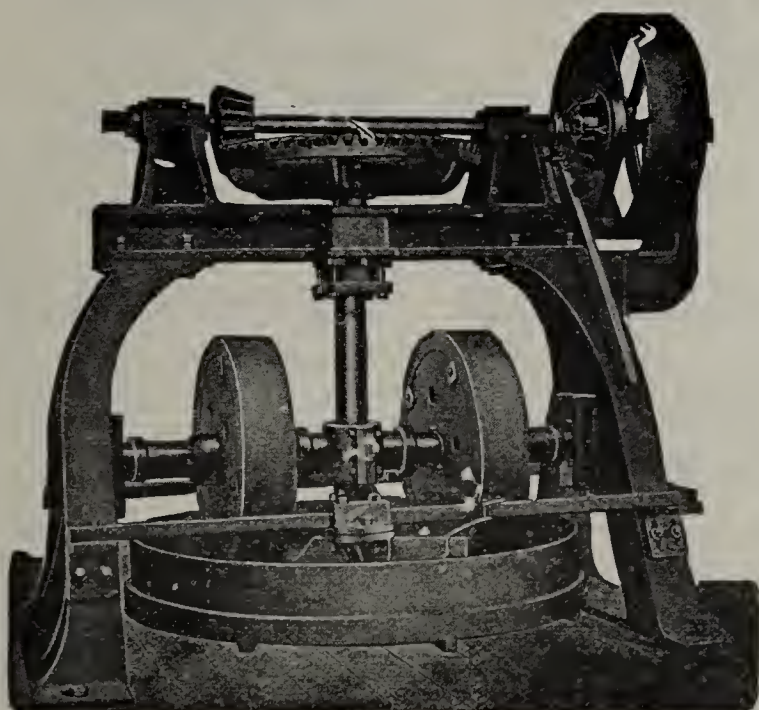
PITTSBURG, PA.

Builders of
Pittsburg Standard
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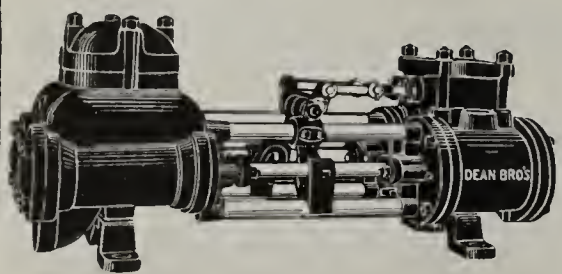
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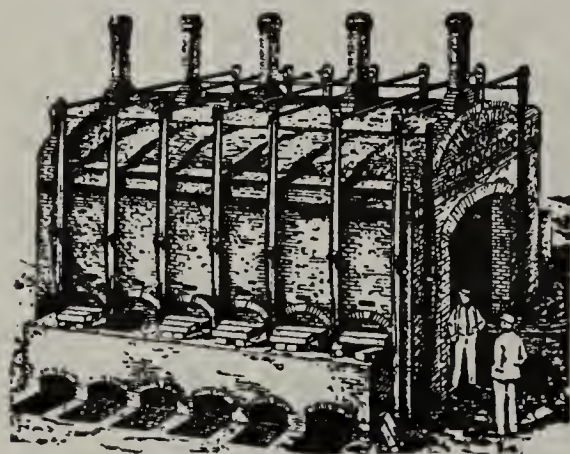
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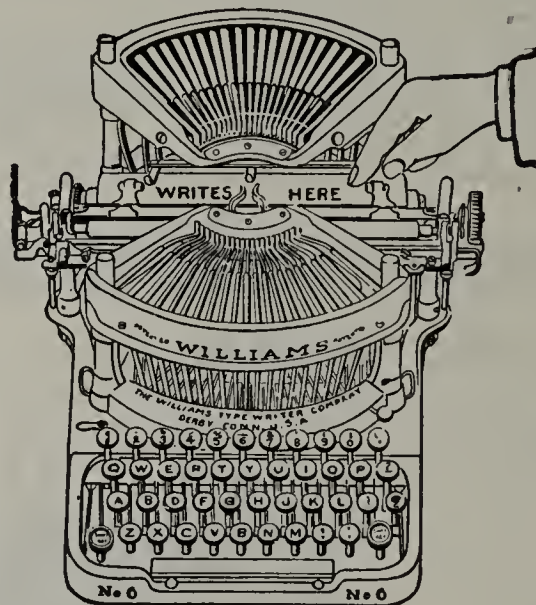
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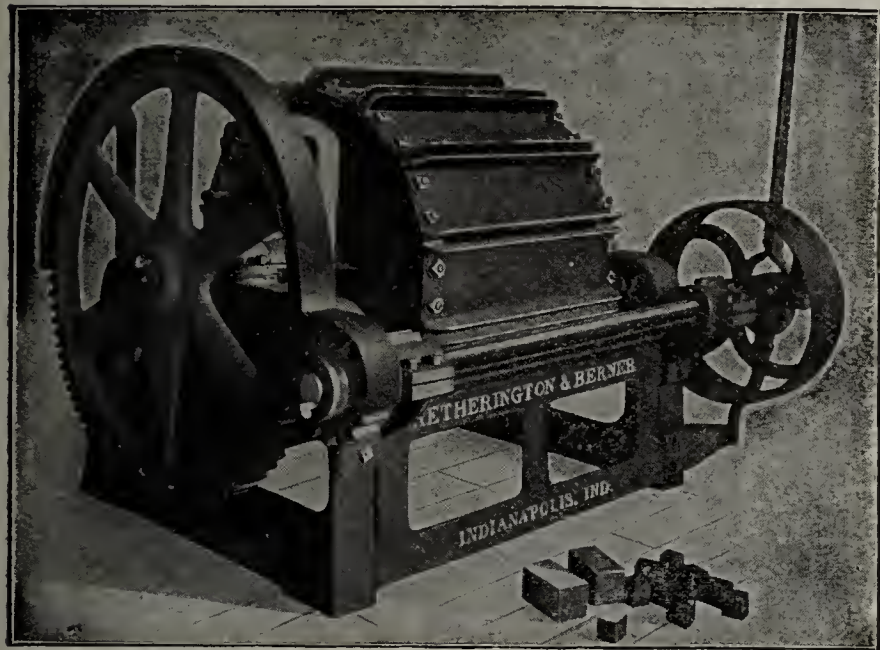
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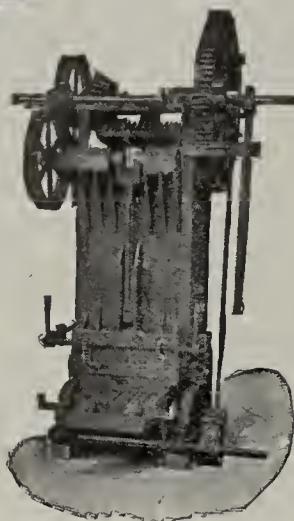
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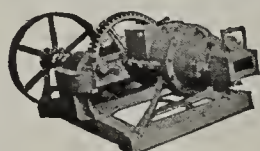
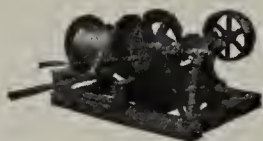
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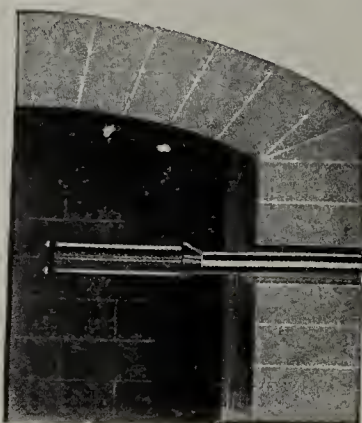
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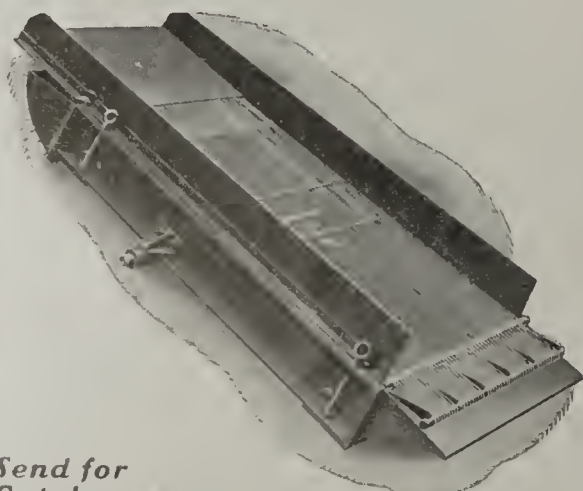


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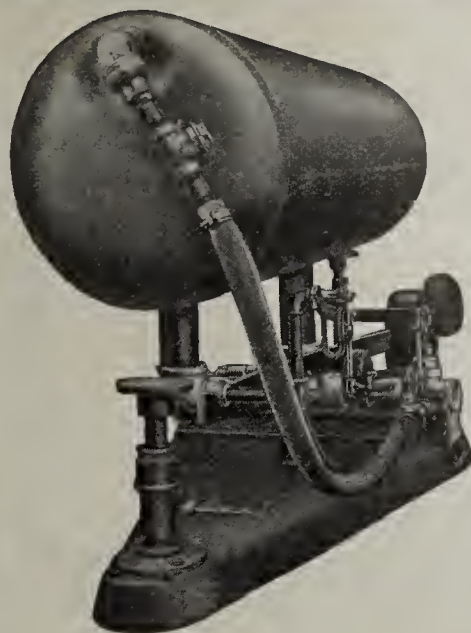


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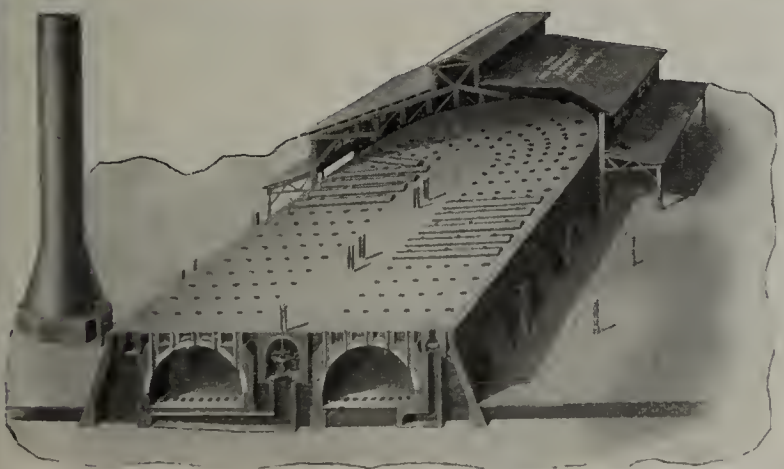
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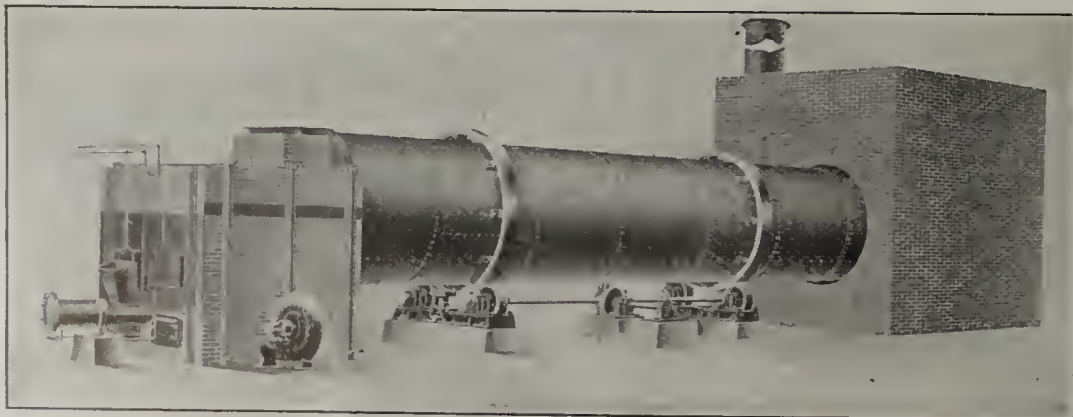
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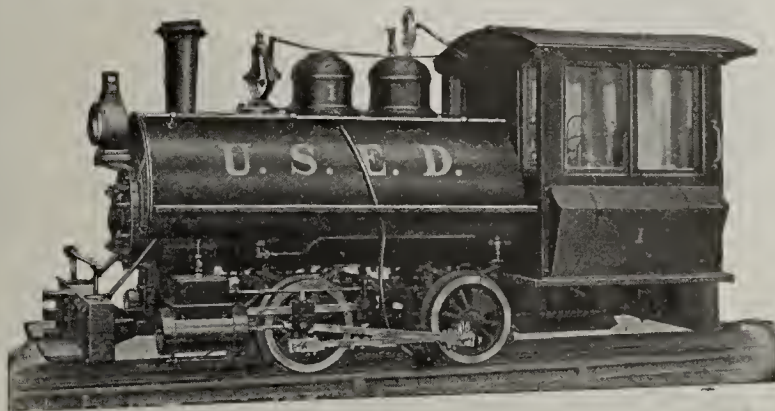
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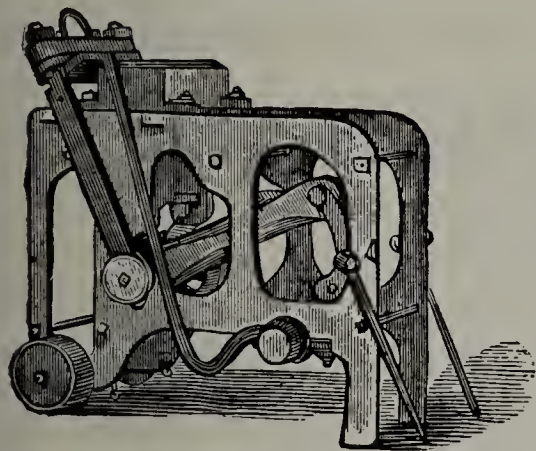
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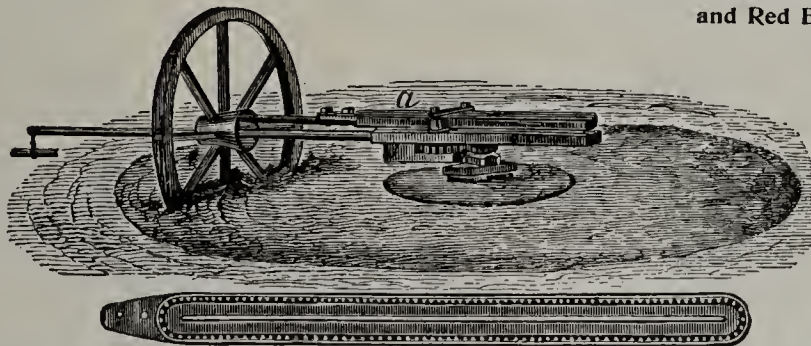


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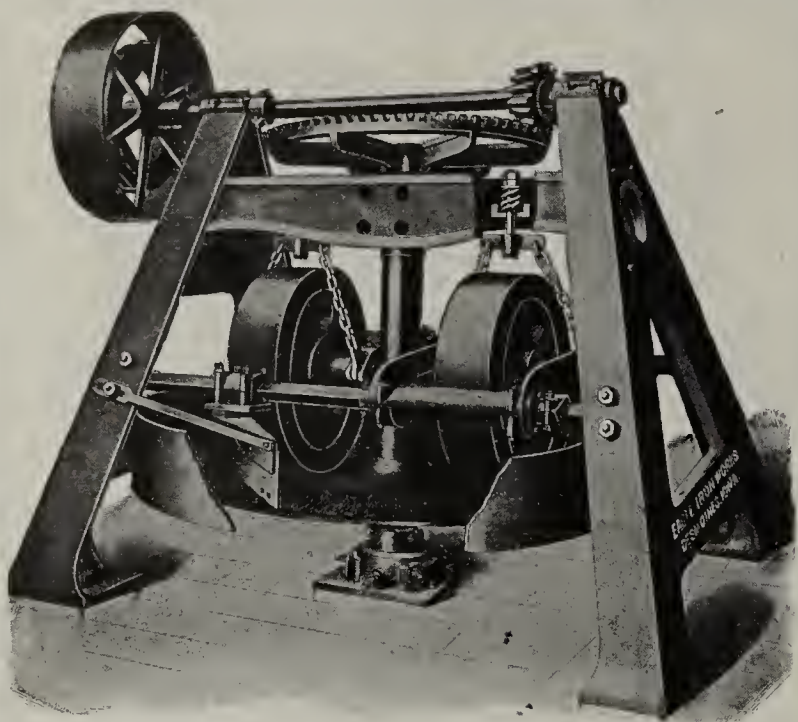
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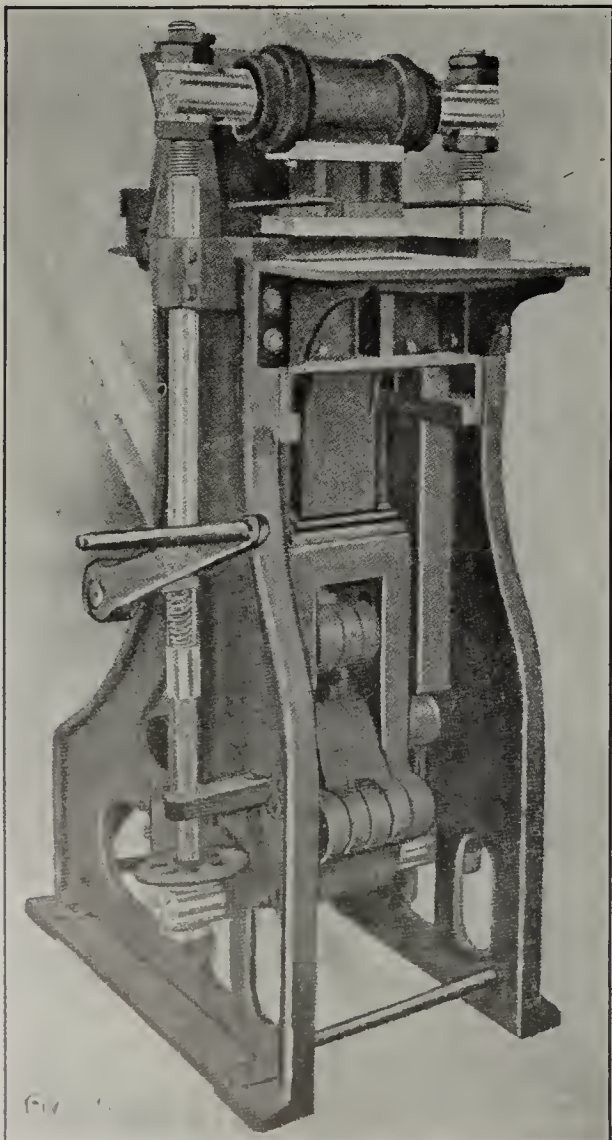
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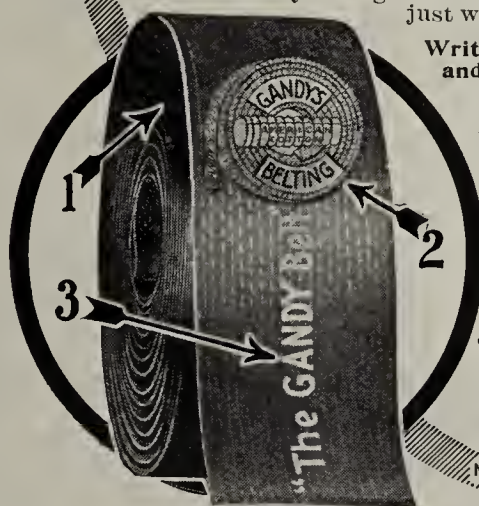
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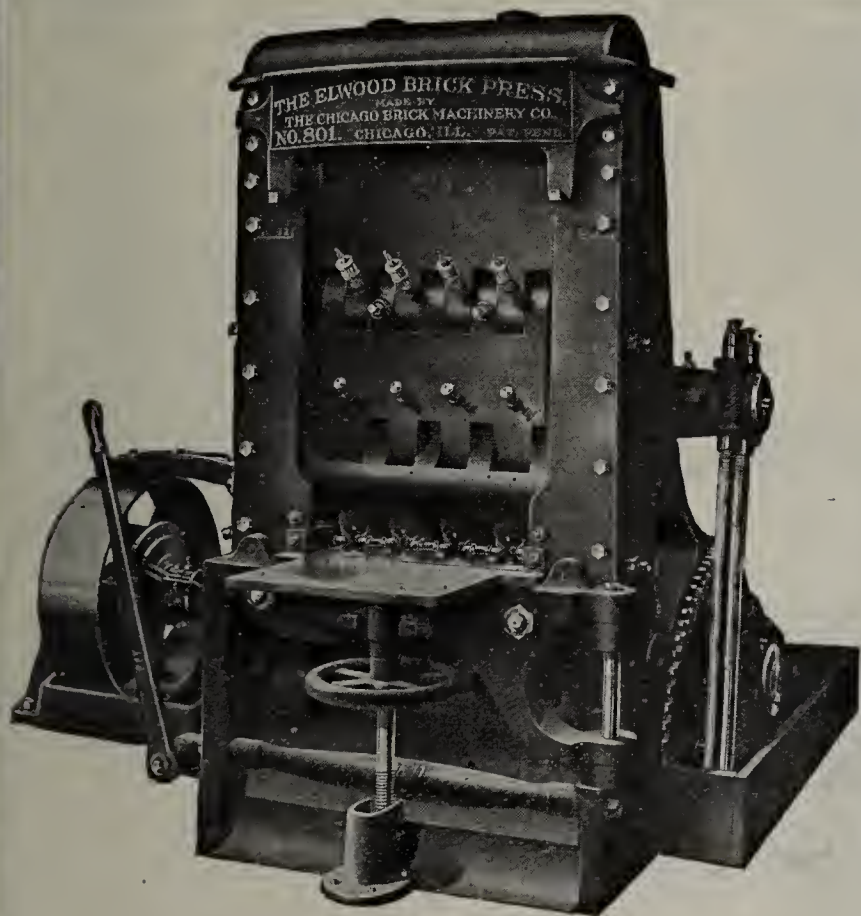
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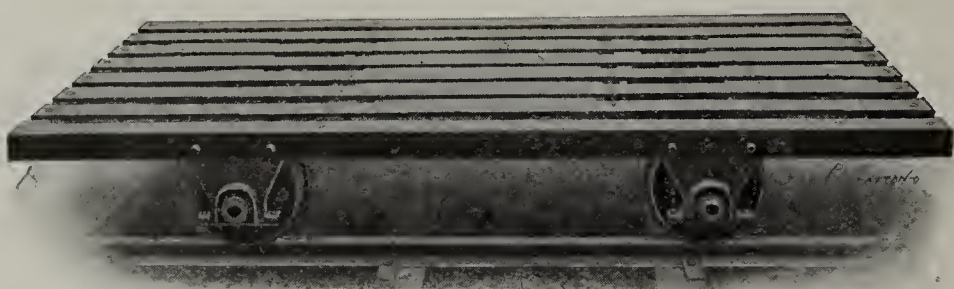
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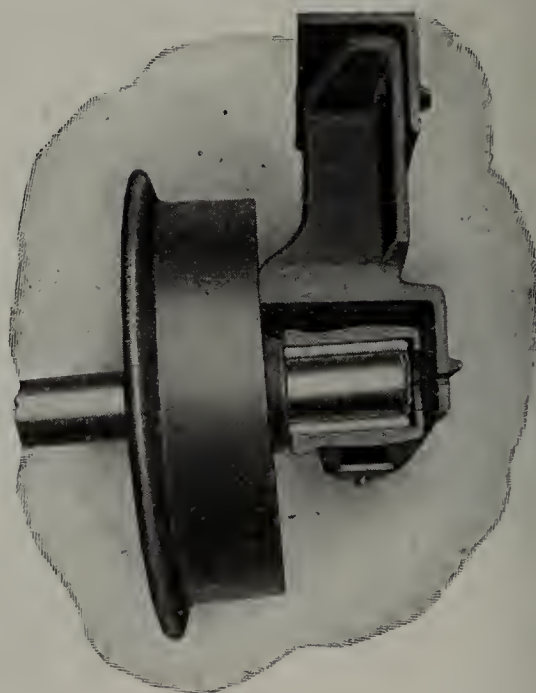
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Mould always ready to be taken out at the proper time.
Impossible to break a Mould.
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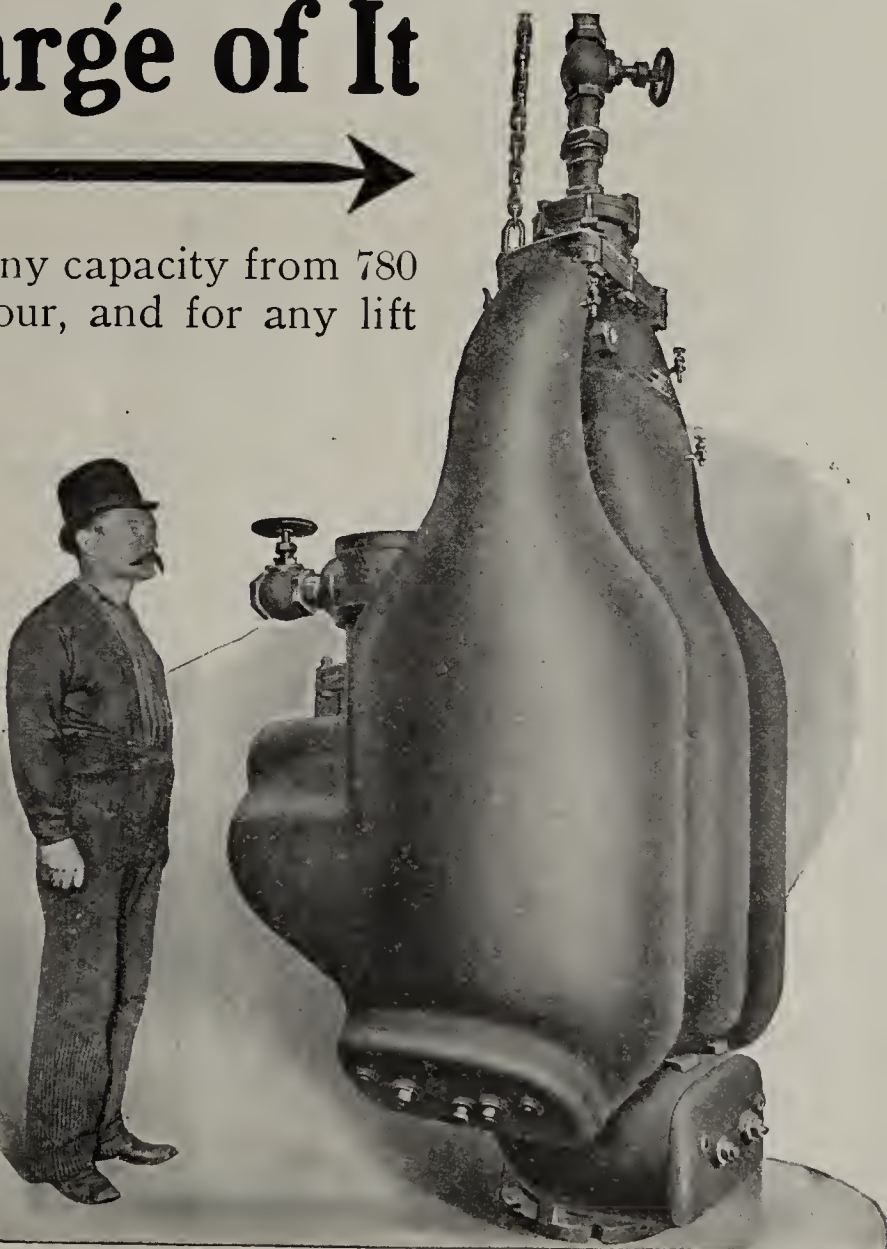
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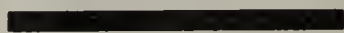
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The other a revolutionizing of the methods of generation and application of heats to the burning of clay wares.

The one a spectacular innovation of momentary wonder and interest, but of doubtful benefit or lasting utility to the masses.

The other a complete alteration and improvement and utilization of fuel and a resultant economy and facility that will be immediately and permanently felt throughout not only all branches of the clayworking industry, but directly among all users

of clay ware, represented by every member of civilized society.

We live in an age of burned clay.

Brick, Tile, Terra Cotta and Sanitary Ware now enter more or less into the lives, comforts and utility of all.

Pavements and sewerage supply their quota in the facility of transportation and sanitation of our communities.

Drain Tile occupies a prominent position in the reclamation of our lands.

Refractories make possible the operation and progress of our industries.

While Pottery, in its indispensable and countless forms, supplies the daily needs of each of us in myriad ways.

A method that is destined to work such great facility and an economy of one-half of the fuel requirements in such a large and widespread department of human endeavor, with its resultant mutuality of vitality of interest and concern to all humankind, cannot fail to take its place as one of the truly great inventions of the century and, in reality, of all time.

Such an invention is now being shown to clayworkers throughout the country, and is being installed by progressive clay manufacturers everywhere.

Reports from users indicate a saving of from 50% to 60% of former fuel requirements and a great improvement in the quality of their ware.

Wide awake manufacturers everywhere are installing and investigating this great Continuous Kiln, Producer Gas Fired.

Full information will be gladly forwarded on application to

THE C. W. RAYMOND CO.

Dayton, Ohio, U. S. A.

Have You a
**RAYMOND
DRY PAN?**

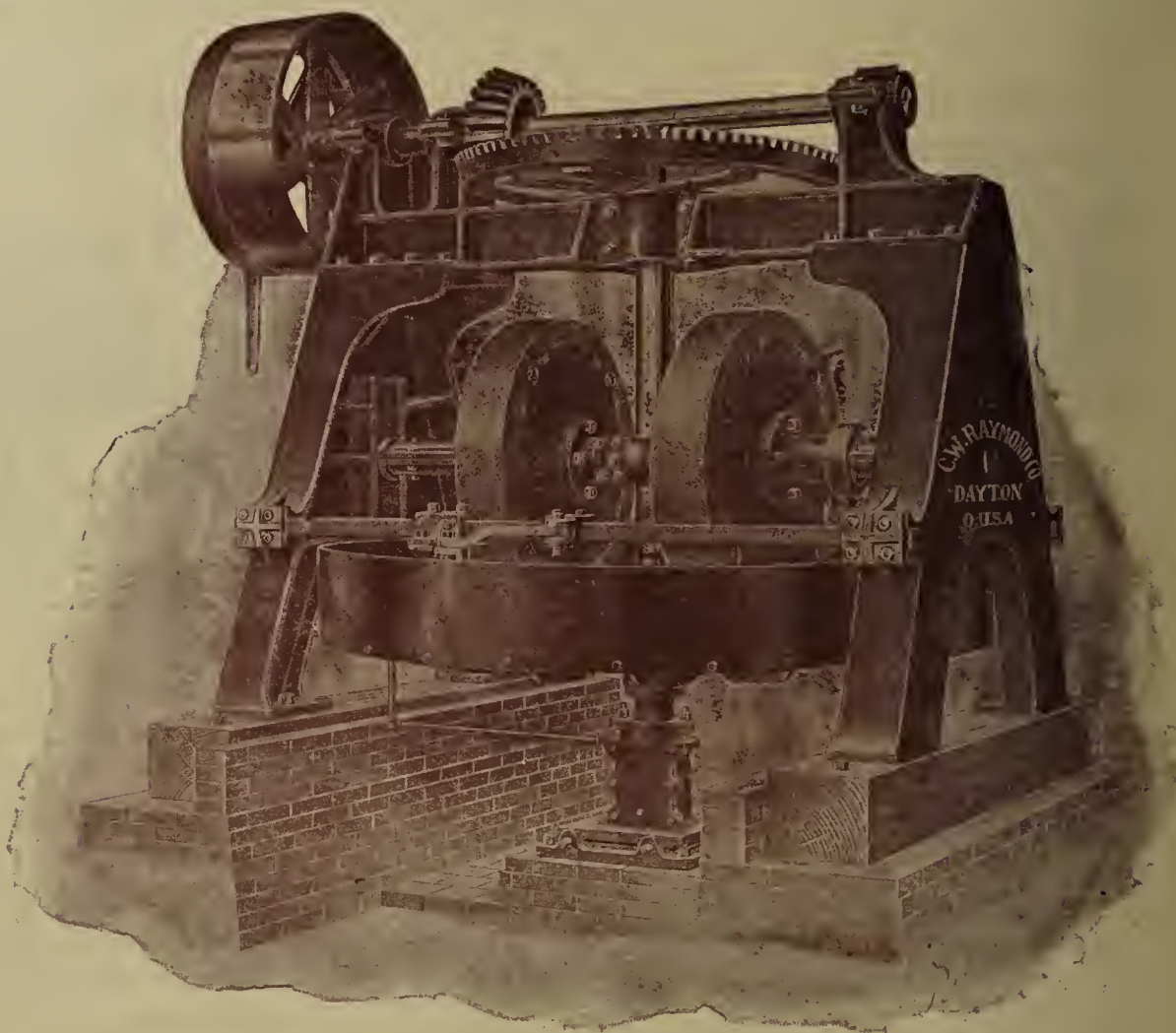
YES?

Would you exchange it
for any other you have ever
seen or heard of?

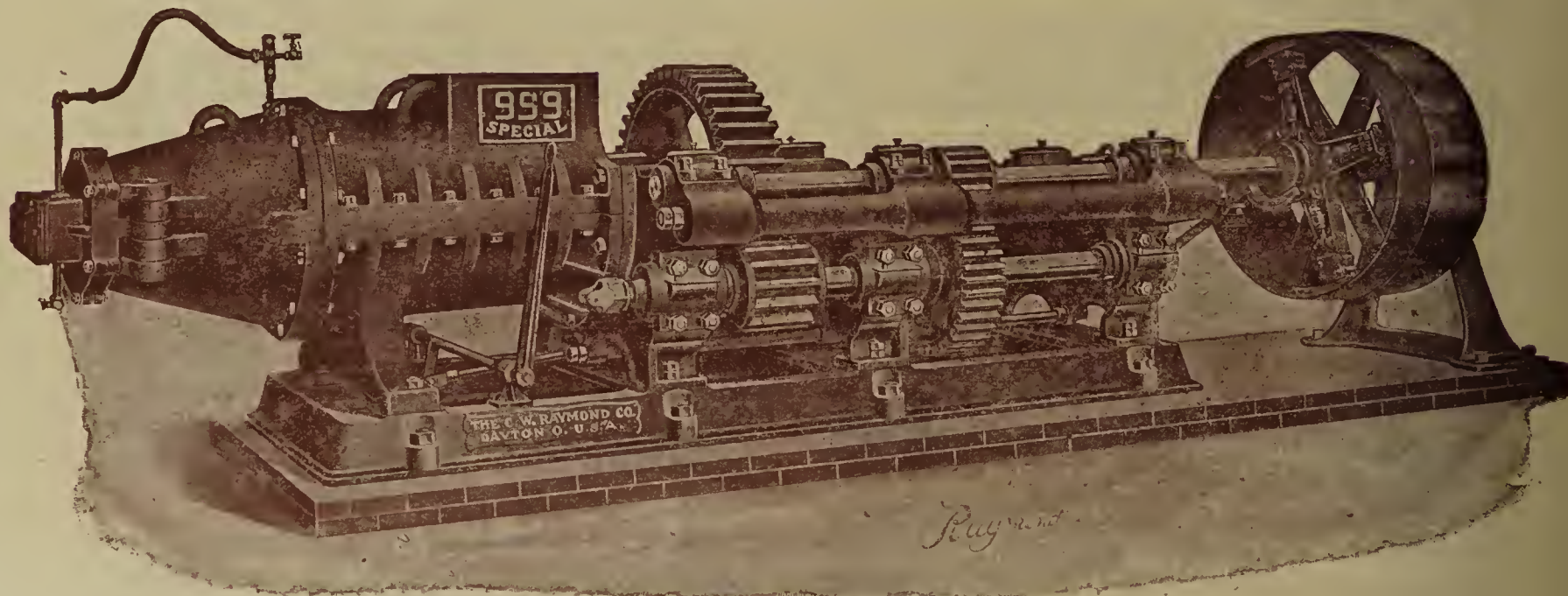
Well, Hardly.

The Greatest Grinders
and most consistent Per-
formers, with less POWER
and less STOPPAGE and
less REPAIRS than any
other Dry Pan built.

Let Us Tell You About Them.



The Raymond Heavy Duty Dry Pan



The Largest, Simplest, Strongest, Heaviest Capacity
Brick Machine in the World.

THE RAYMOND "999 SPECIAL."

Many exclusive features—built like a Corliss engine.

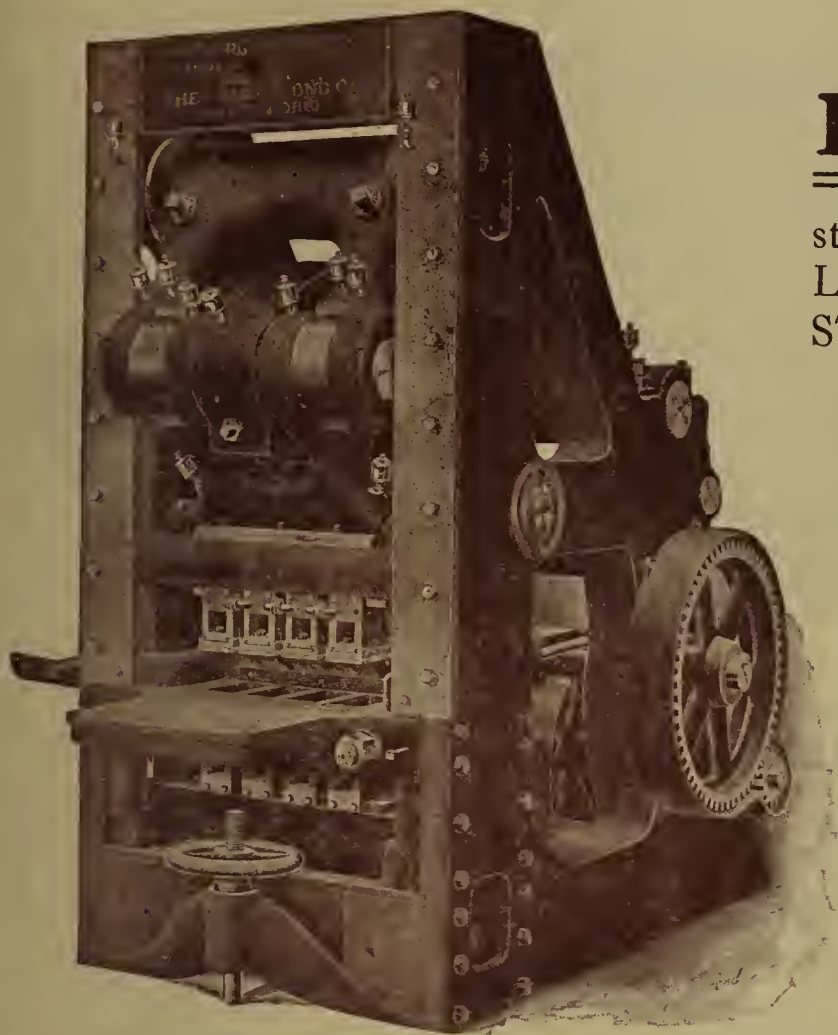
Write for full description today.

THE C. W. RAYMOND CO.

The Strongest Power in the World of Clayworking Machinery

DAYTON, OHIO, U. S. A.

Mention THE CLAY-WORKER.



The New Model

BERG DRY PRESS

stands today where it has ALWAYS STOOD—the LEADER and ACME of all DRY PRESS CONSTRUCTION.

HEAVIEST
STRONGEST
SIMPLEST
MOST COMPACT
FEWER PARTS
THREE DISTINCT PRESSURES
MOST PERFECT BRICK

Catalog gives full details for the asking.

WRITE TODAY

THE C. W. RAYMOND CO.

The Strongest Power in the World
of Clayworking Machinery

Dayton, Ohio, U. S. A.

Is Your Weak Spot Your Cutter?

Every minute's stoppage means

Profits Thrown Away

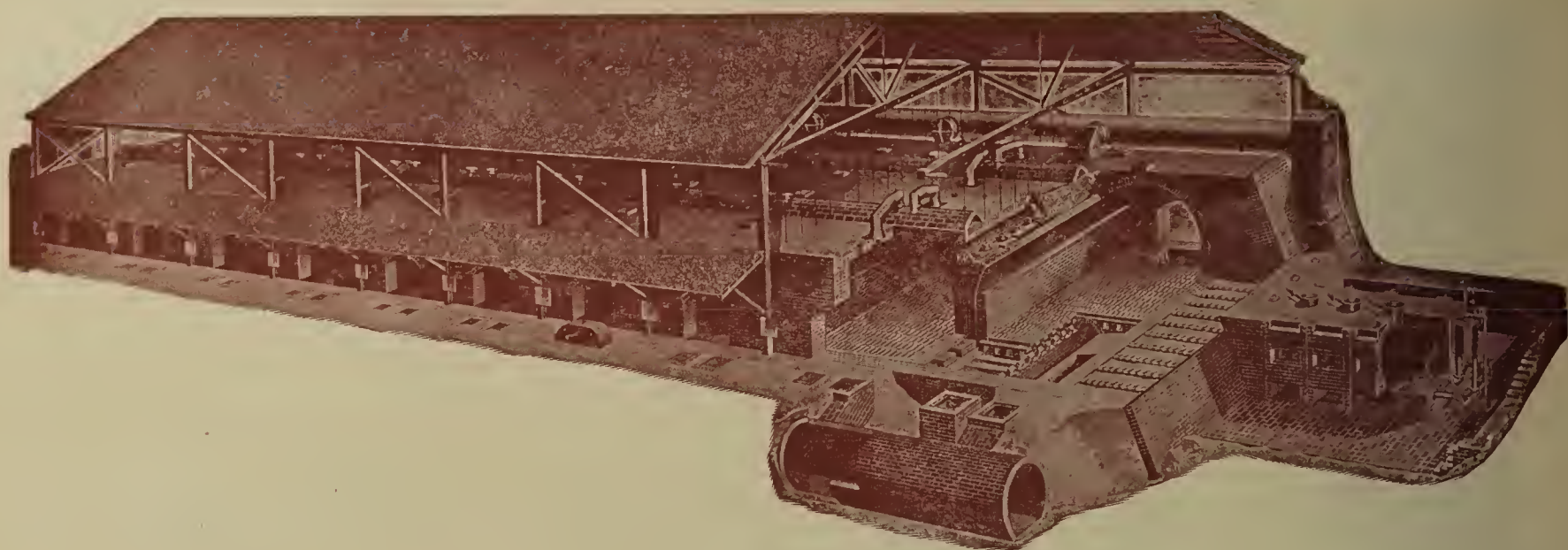


A RAYMOND CUTTER

Will cure your troubles and stop the leak.

World renowned for their SMOOTH, CONTINUOUS, REEL-MOTION and their surpassing PERFECTION OF CUT. No jar—few broken wires—quickly changed to any size cut—high capacities—most perfect brick. WRITE FOR DESCRIPTIVE MATTER.

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It is Not the HOW But the WHY That Interests You.

- Why** a saving of 60% of your fuel bills would affect very largely **your dividends.**
- Why** an elimination of smoke and trash and unsightliness would promote a better **system about your plant.**
- Why** an ideal burning system, of easy operation and control would lead to steady and uniform results, and the highest **efficiency in your business.**
- Why** a great saving in ground space and ideal arrangement would reduce by hundreds, probably thousands, of dollars per year the **cost of handling your product.**
- Why** a minimum of kiln repairs, coupled with long life, would **reduce** very much your **bill of expense.**
- Why** uniform burns and high percentages of "firsts" of uniform color and quality would rebound to your prestige and reputation and affect very materially your **business success** and your **bank account.**
- Why** a corresponding decrease in "seconds" and practical elimination of "culls" and waste would **reduce your worries** and **increase your profits.**
- Why** a kiln that is bound to put your plant on a better money-making basis, while the "other fellow" is still floundering around with his irregular burns, waste and losses will give you the **jump on competition.**
- Why** it will result in your great benefit to investigate at once into the merits of the Greatest of all Clayworks Economies

The Raymond Continuous Kiln Producer Gas Fired.

A line will bring you the answer—Write today, you may forget by tomorrow.

THE C. W. RAYMOND CO.

The Strongest Power in the World of Clayworking Machinery

DAYTON, OHIO, U. S. A.

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Will Purchase Paving Brick Plants

or

Erect New Plants

While the demand for vitrified blocks is now unlimited in certain sections of the country, this condition will not continue unless the best possible form of paving block is made and laid in the best possible manner. The success of

Wire-Cut-Lug Block

has been established and this improved paving block must be immediately placed on the market throughout the country.

We therefore propose to acquire, by purchase or erection, a string of Modern Plants throughout the country.

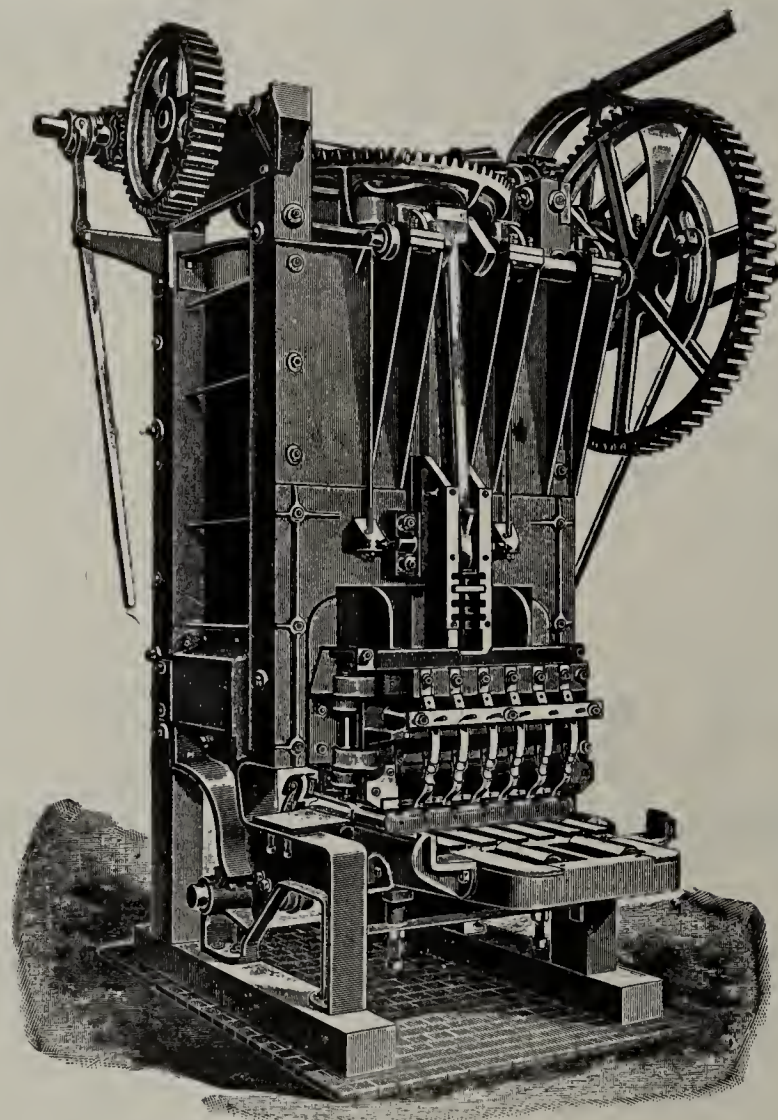
If you have suitable shale or clay for the manufacture of a strictly No. 1 vitrified block, communicate with us immediately and furnish full particulars.

F. B. DUNN, Conneaut, Ohio

GET YOUR MONEY'S WORTH.

NEW HAVEN BRICK MACHINES are by actual weight and measurement the heaviest soft clay brick machines on the market. They are thoroughly reliable and **all right**.

Write for
Descriptive
Catalog and
Commendatory
Letters from
Satisfied
Users.



We also
Make a
Horizontal
"New Haven."
Let us
Tell you
About it.

"NEW HAVEN" VERTICAL BRICK MACHINE

No one gives more for the money invested then we do.

If you want first-class machines that will not break down,
BUY OF US AND GET YOUR MONEY'S WORTH.

If you want a machine that will cost little for repairs,
BUY OF US AND GET YOUR MONEY'S WORTH.

If you want a machine that will turn out first-class brick every day in
the week, every week in the month, every month in the year,
BUY OF US AND GET YOUR MONEY'S WORTH.

The EASTERN MACHINERY CO.

NEW HAVEN, CONN.

YOU CAN SAVE MONEY

Time and Trouble

By making your choice of magazines for coming year and ordering them all at once through THE CLAY-WORKER.

Knowledge is Power

The best way for clayworkers to get trade knowledge is through the columns of the best clay journal, THE CLAY-WORKER. The up-to-date, successful manufacturer usually keeps posted on current events through the current magazines. The home should be provided, and usually is, with journals devoted to domestic interests and to the welfare and pleasure of the women and children. All of these, whether literary or technical, we offer at prices that will net a saving of 25 to 50 per cent on your magazine purchases for the ensuing year.

(These prices are good only in the United States. Special prices will be quoted to points beyond the United States covering additional postage required.)

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Value.....\$5.00	3.50
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If none of the foregoing combinations is just what you want, write us for special prices on any magazines or papers desired and we will quote you equally low prices.

Send all orders to THE CLAY-WORKER.

T. A. Randall & Co., Publishers Clay-Worker, Indianapolis:

You will please send THE CLAY-WORKER and the other magazines named below to me for the ensuing year beginning with the next current issue of each for which

I enclose \$.....

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Sand Mould Brick Machinery and Equipment

IS OUR SPECIALTY

We make no machinery for other processes. Having made a special study of the one process, adapted ourselves to it, as well as all of our manufacturing facilities, having but one object in view, *i. e.*, to make the very best machines of this class on the market.

That we have been successful in making a machine that does give

RESULTS

without the usual expense and delays attached to other machines of this class because of poor construction and design is proven beyond a doubt by the large number of machines in use at

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with over 200 single machine plants scattered.

We manufacture everything, so are responsible for results.

Horizontal Brick Machines, Disintegrators, Mould Sanders, Pug Mills, Granulators, Hoisting Drums, Cars, Trucks, Barrows and Moulds.

Don't fail to get our prices and references.

C. & A. Potts & Co.

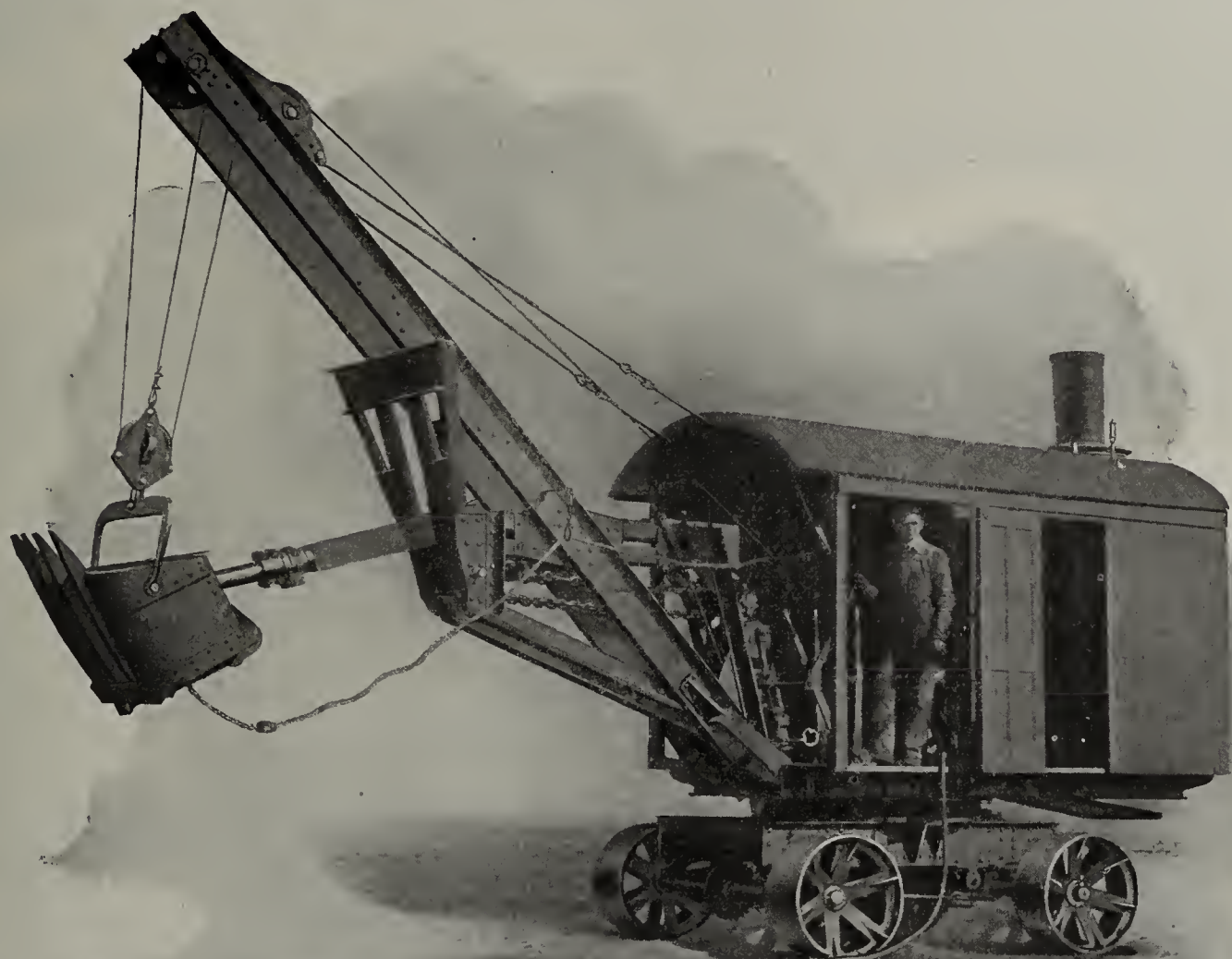
INDIANAPOLIS, IND.

Handle Your Clay With One Man and a **THEW SHOVEL**

For many years we have been furnishing full circle swing steam shovels to the brick manufacturers of the country. We are the pioneers in this field and have created the demand for this type of shovel. We have studied the peculiar requirements of the clay-working industries and have designed shovels to meet these requirements. We offer today a complete line of shovels for this purpose, machines recognized everywhere as the standard of excellence.

THEW Shovels are not like others. They possess features of design not found in other shovels, features that are valuable as to convenience and economy of operation. Several hundred are now operating in brickyards and every one is giving satisfaction.

WE REFER YOU TO ANY OWNER OF A THEW SHOVEL ANYWHERE



Type No. 0 Thew Shovel—Mounted Upon Traction or Car Wheels.

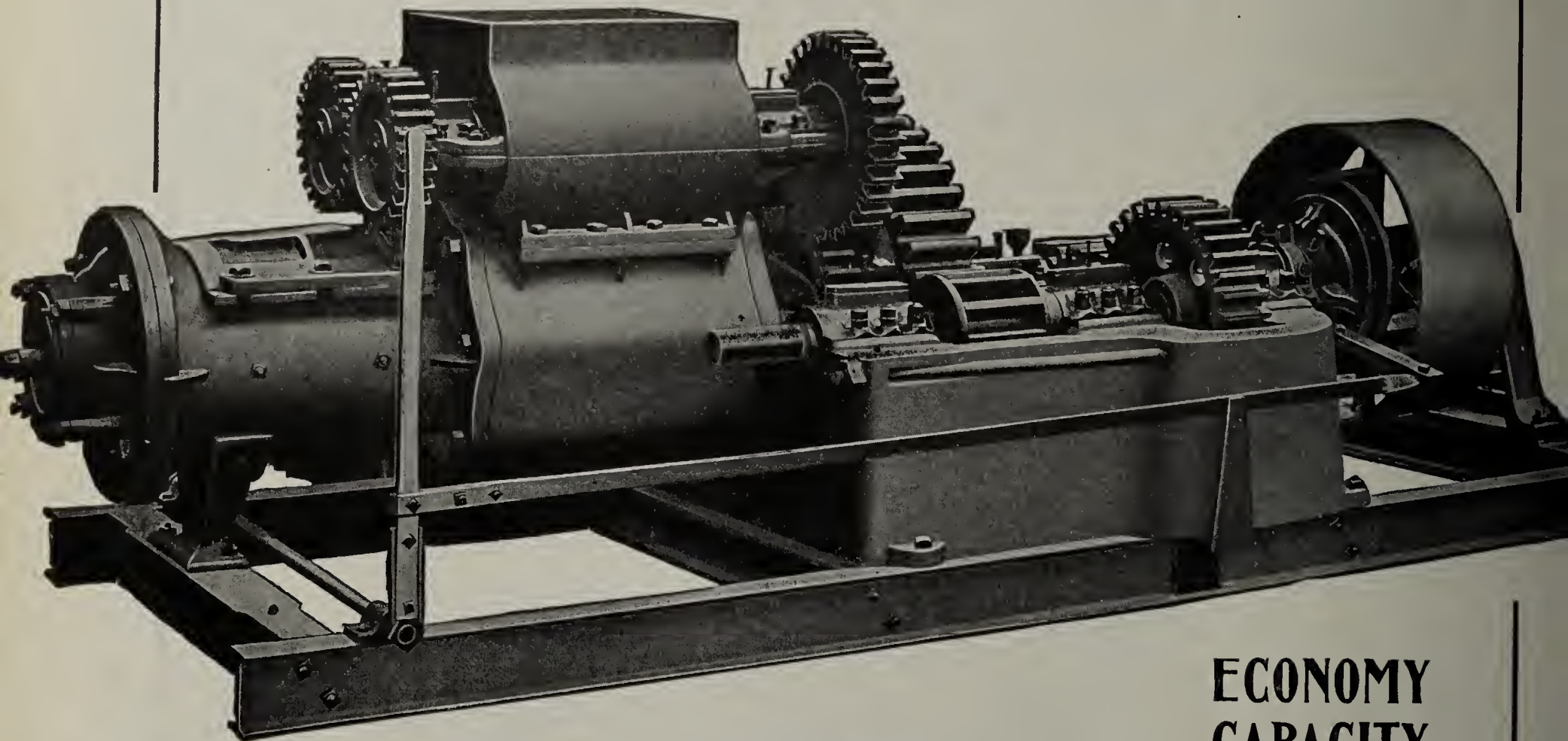
STANDARD SIZES

Type	0,	15 Tons,	$\frac{5}{8}$ yard dipper;	capacity 100 M brick for ordinary clays.
Type	A-1,	20 Tons,	$\frac{7}{8}$ yard dipper;	capacity 150 M brick for ordinary clays.
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Type	2,	35 Tons,	$\frac{3}{4}$ yard dipper;	capacity 125 M brick for ordinary shales.
Type	4,	50 Tons,	$1\frac{1}{4}$ yard dipper;	capacity 200 M brick for difficult shales.

The above rated outputs are for one man operation and may be doubled by using a fireman and extra laborer on ground.

THE THEW AUTOMATIC SHOVEL CO., Lorain, Ohio

MADDEN MACHINES



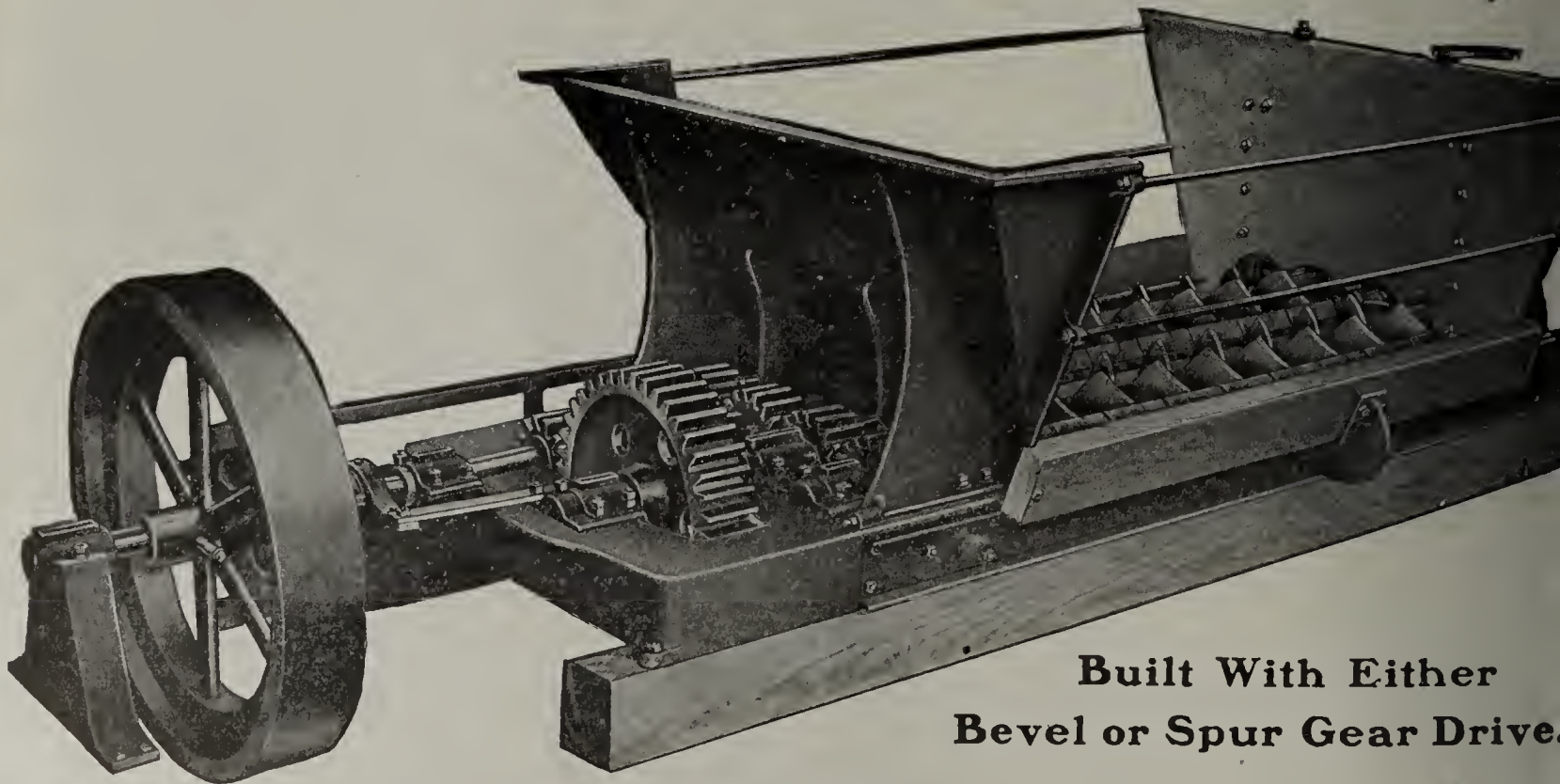
FAMOUS THE COUNTRY OVER

**ECONOMY
CAPACITY
QUALITY**

Used in the most successful Clay Plants in the manufacture of Drain Tile, Brick, Hollow Blocks, Silo Blocks, Fire Proofing, and Paving Brick.

TALK WITH ARBUCKLE

We can equip your entire plant with crushers, disintegrators, **FEEDERS**, Dump Tables, Elevators or any machinery used in Clay-working Plants.



**Built With Either
Bevel or Spur Gear Drive.**

Write to **ARBUCKLE & CO., Inc.** Rushville, Ind.

Successors to Scott-Madden Iron Works Co. Rushville Plant.

(Sold by Scott-Madden Iron Works Co., Keokuk, Iowa)

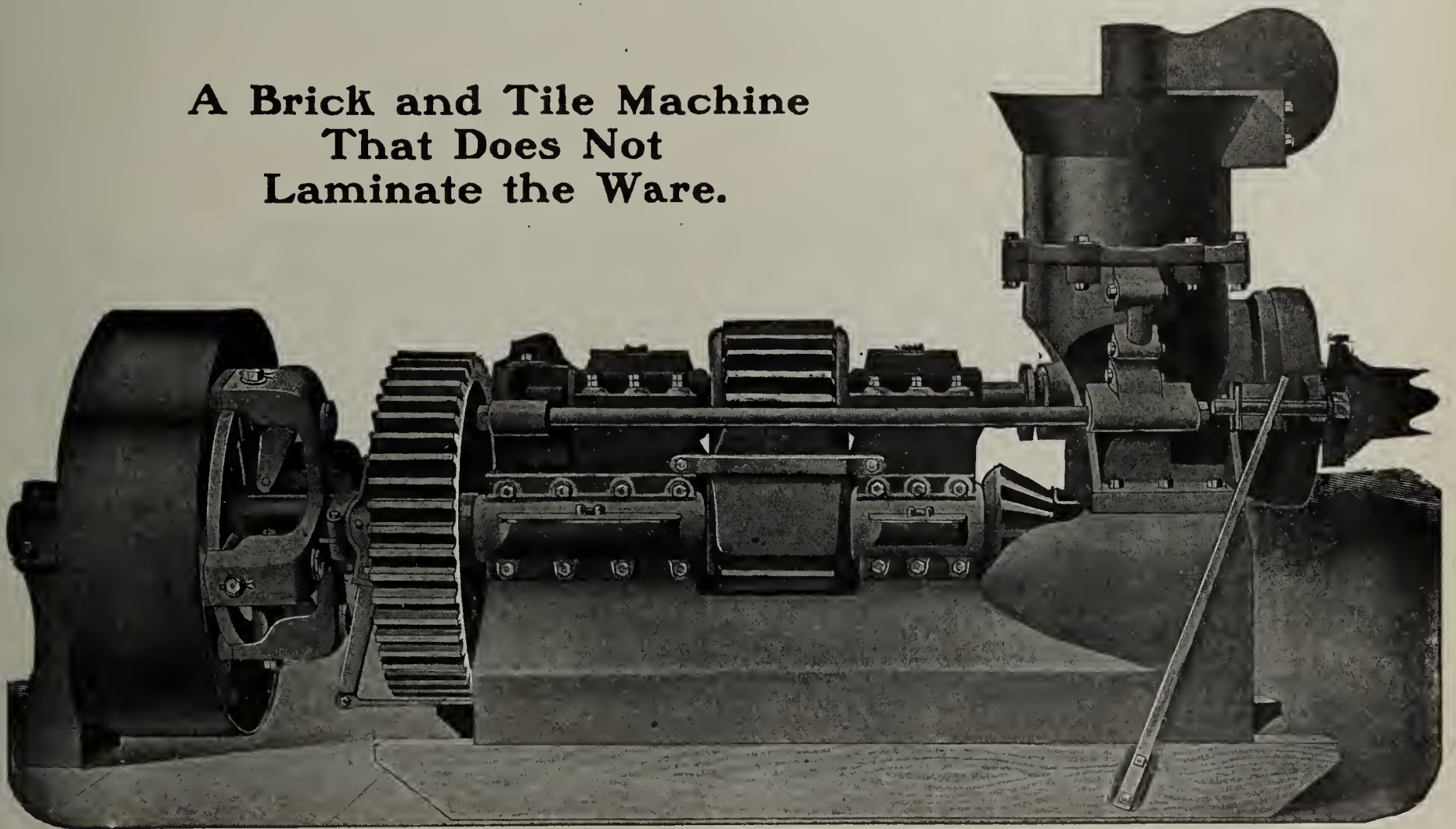
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TURN FAILURE INTO SUCCESS

With The Wonder Machine.

A Machine of Large Capacity. Unequaled in
Record of Durability.

A Brick and Tile Machine
That Does Not
Laminate the Ware.



The Big Wonder Brick and Tile Machine.

We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans, Disintegrators, Pug Mills, Granulators and Corrugated and Smooth Roll Crushers.

Write for Catalog and Prices.

THE WALLACE MFG. CO.,
FRANKFORT, IND.

BOOKS FOR CLAYWORKERS.

These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

The Brickmakers' Manual, by R. B. Morrison and J. A. Reep. Price \$3.00.

An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryers, kilns, etc.

The Clayworkers' Handbook, by the Author of "The Chemistry of Clayworking." Price \$2.00.

A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport, Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting or Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

Modern Brickmaking, by Alfred B. Searle. Price \$5.00.

It contains well-written chapters on the nature and selection of clays and other materials used, general brickmaking, the different processes, machinery, kilns, setting and burning, various products and uses, and sources of difficulty and loss.

Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

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A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

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This book contains extensive explanations of the most improved modern methods of bricklaying, and is the current practice and experience of the best authorities, making an invaluable work of reference for architects, engineers, contractors, builders and mechanics.

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A review of present practice of the manufacture, testing and uses of vitrified paving brick.

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Including analyses of chemically pure clays, well-known common and pressed brick clays, paving brick clays, fire clays, shales, etc., both in this country and abroad. A valuable book for those desiring to compare their clays with well-known and standard clays.

Kiln Records, by W. D. Richardson. Price \$1.00.

To establish a successful system of burning, observations and records should be made regularly, carefully and conscientiously, and this can be done to best advantage by the use of Mr. Richardson's Kiln Records.

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A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

Tile Underdrainage, by J. J. W. Billingsley. Price 25 Cents.

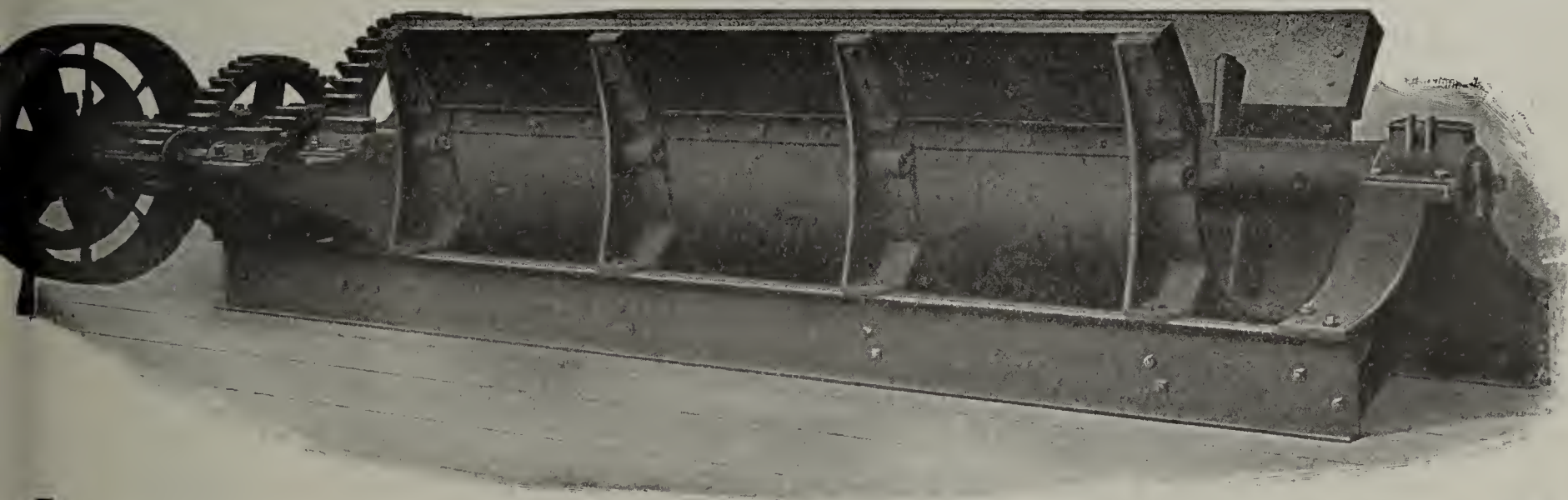
A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distributing among tile users. In lots of 100, \$2.50; in lots of 1,000, \$20.00.

T. A. RANDALL & CO.,
Indianapolis, Ind., U. S. A.



GRANULATORS

Too many plants are running without Granulators, but it isn't our fault. We have them in large, small and medium sizes, spur and bevel geared drives, pushing and pulling patterns. A Granulator to suit every plant. Something into which you may dump a carload of clay, and from which you may get a uniform delivery with large lumps reduced to a size which the machine ahead can handle.



THE BREWER NO. 17

is a spur-gearred pushing granulator of the large size. It weighs 18,000 pounds. The tub is 12 feet long. The granulating shaft is 10 in. diameter. The knives (48 of them) are forged from hard, high-carbon steel, and each one is independently adjustable for pitch. The back thrust bearing is of the grooved marine pattern. The main gears are 8-in. face, semi-steel. It is big and strong enough for anybody.

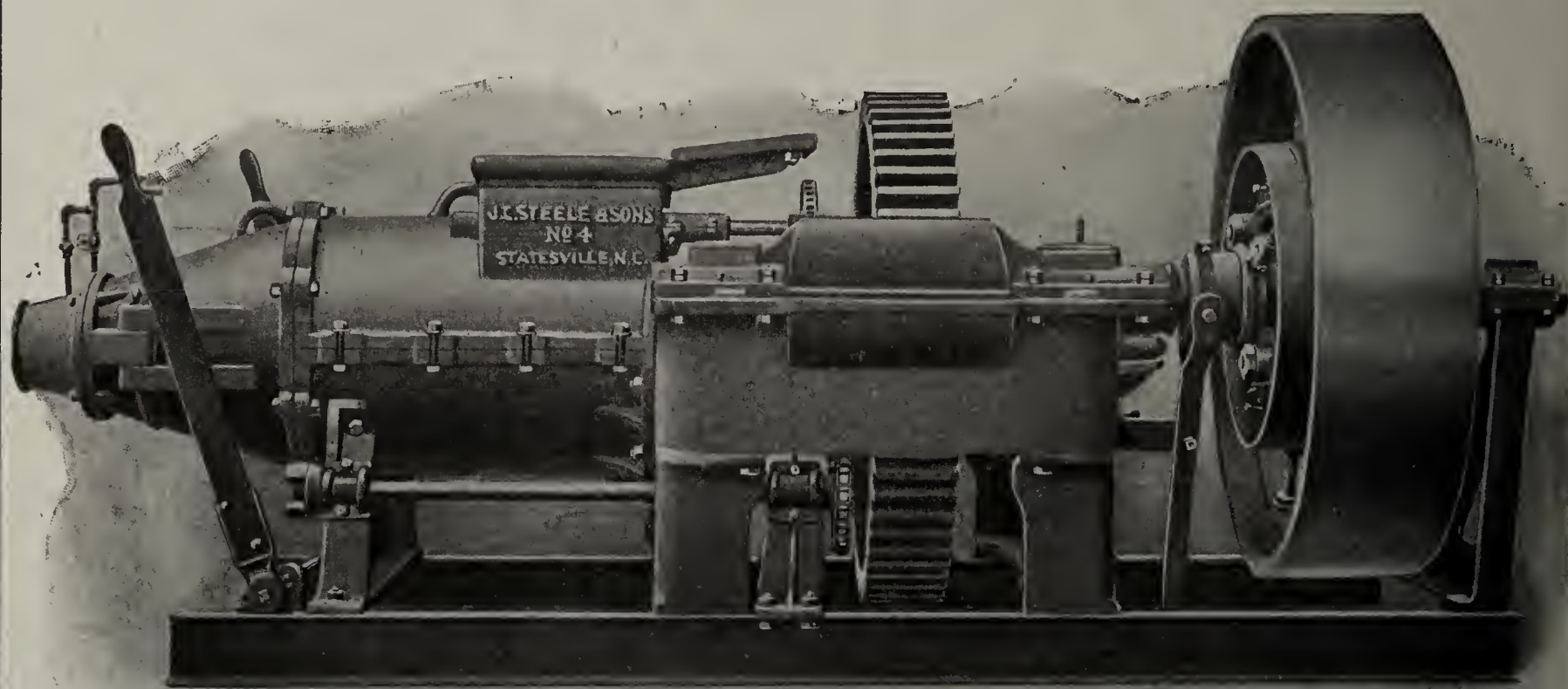
The smaller sizes range down in weight to 5,000 pounds.

See our catalog for details and specifications.

It will be mailed upon receipt of your request.

H. BREWER & COMPANY, Tecumseh, Mich.

Special Attention Given to Medium and Small Plants



FRANKLIN (6-1)

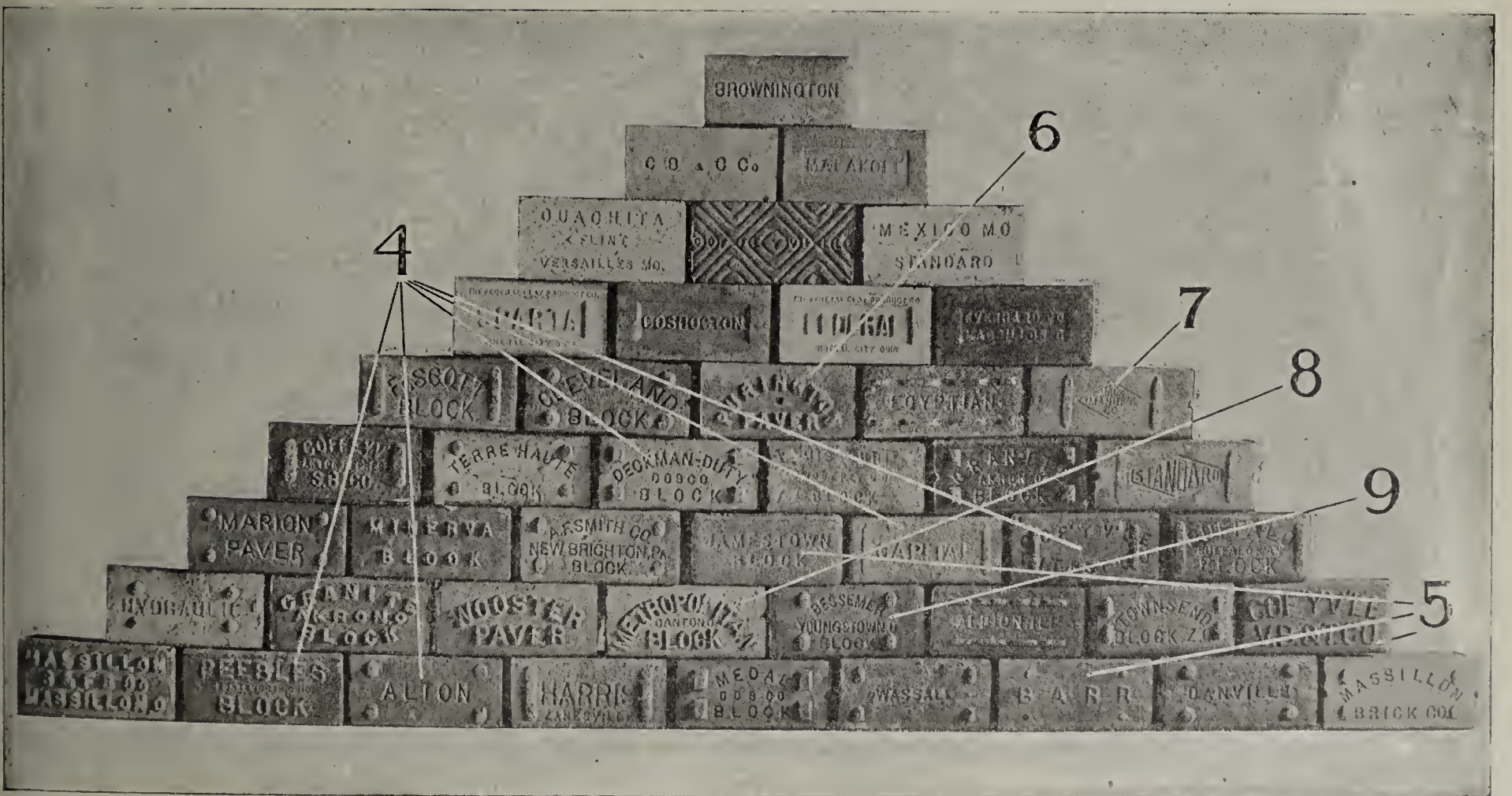
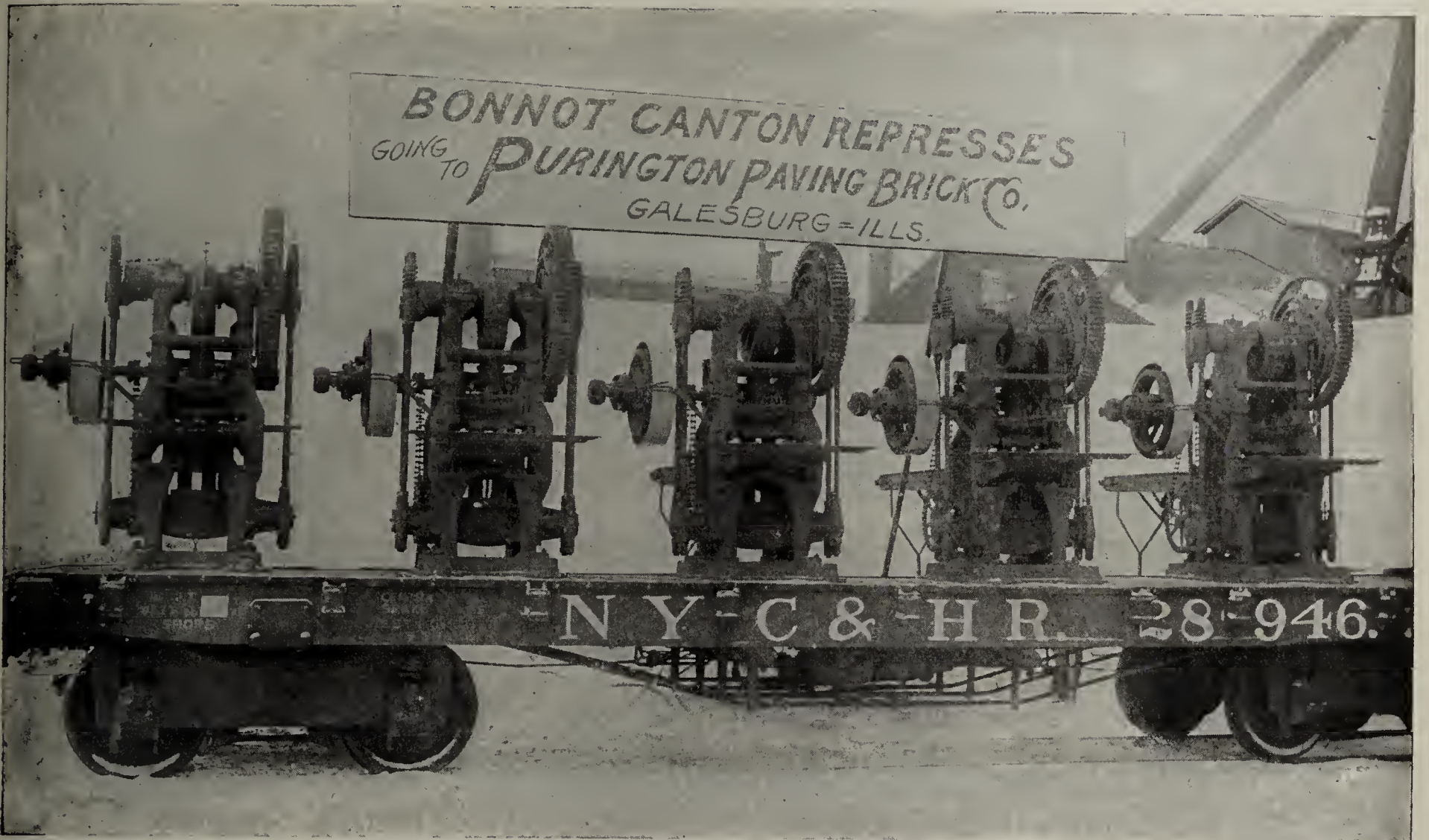
Our machines for small capacities receive just the same attention as our larger machines. We know the requirements of the small brick-maker by long experience, and have given special attention to simplifying and improving these machines.

We think it better policy to carefully consider the necessities of our customers rather than to load them up with machinery not suited to their conditions. With our machines, you are at no disadvantage with the large plants.

We will be glad to help you if you are having any kind of troubles

J. C. STEELE & SONS
Statesville, N. C.

Bonnot Repress has been Adopted by Purington Paving Brick Co.

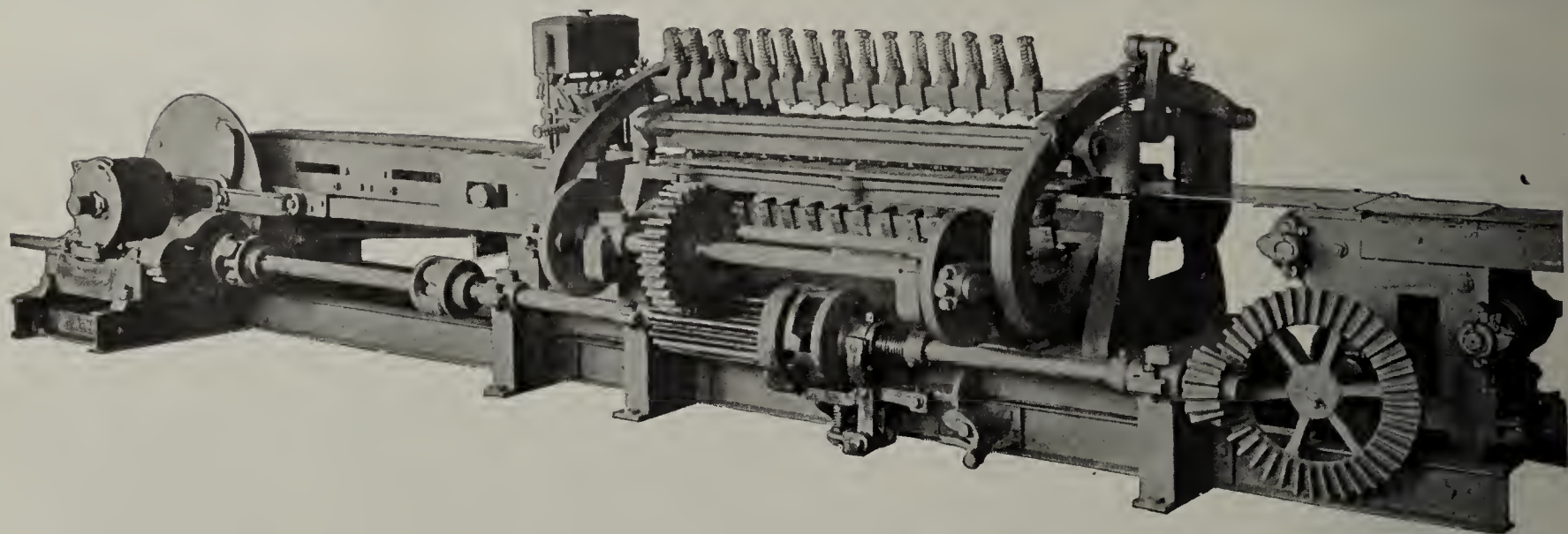


A study of this cut will show the class of brickmakers who use BONNOT REPRESSES and the number of machines some of them are using.

909 N. Y. Life Bldg., Kansas City, Mo.
631 Higgins Bldg., Los Angeles, Cal.

THE BONNOT COMPANY, Canton, Ohio

Mention THE CLAY-WORKER.



Model T 60 Reciprocating Automatic Cutter

This cutter, which is of the reciprocating type, is built in two Models "T 50" and "T 60" for capacities up to 12,500 brick per hour or more. The design is extremely simple and substantial. It embodies many of the well tried features of our Rotating Automatic Cutters.

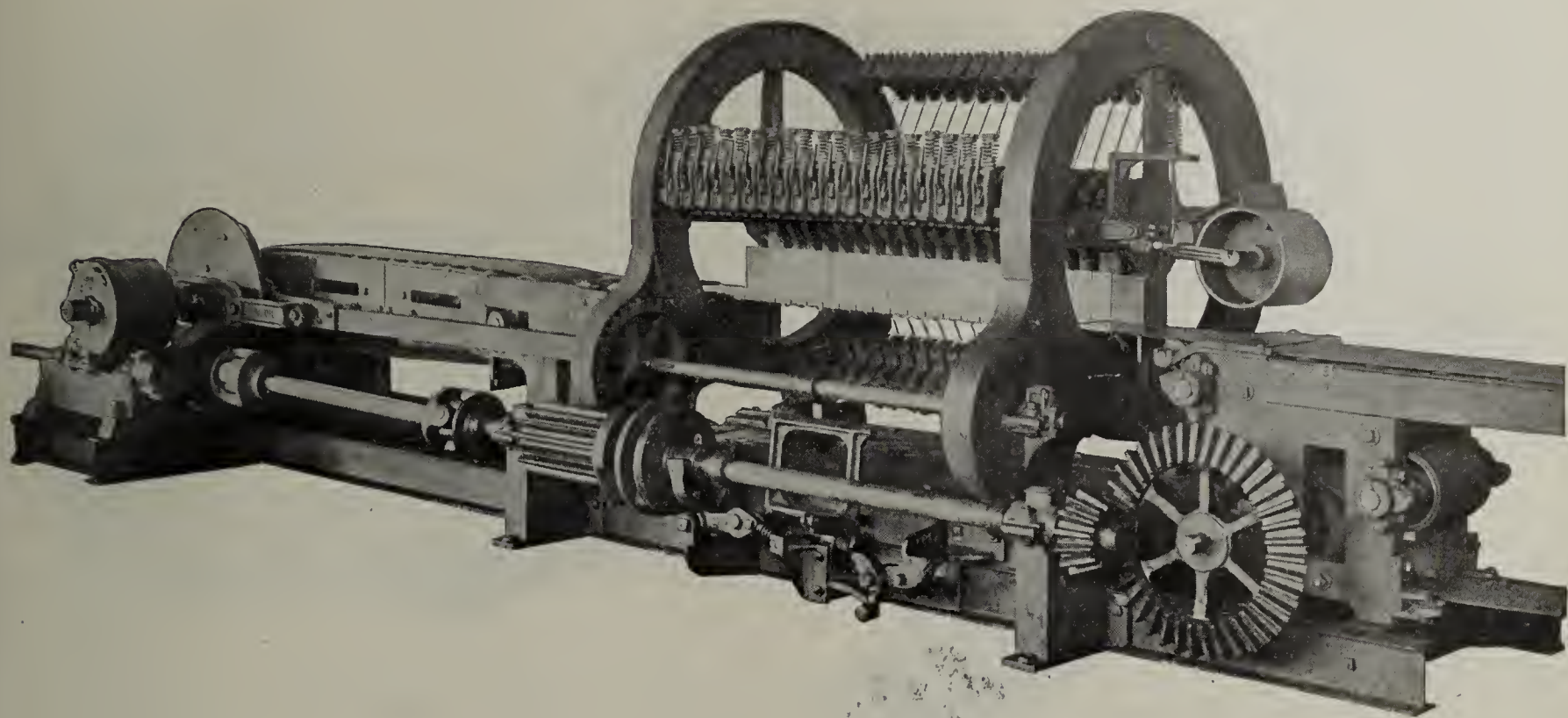
The cutting frame carries only one set of cutting wires and has a swinging movement, avoiding the wear and play common to sliding parts. It is actuated by cranks, driven by a single gear and pinion, giving a smooth, quiet starting and stopping of the cutting stroke. The frame remains stationary between cuts, affording ample time to renew broken wires.

The platens are very easily removed and replaced when the thickness of cut is to be changed. Four bolts hold the platen in place. When these are removed it can be lifted straight up, between the end castings. Only a few minutes required to make the change.

An upper platen (Dunn Patent) can be furnished to insure smooth upper edges on the brick. This is automatically raised to clear the clay column after the cut is completed and is returned to position in time for the next cut, avoiding any tendency for the column to become wedged. Solves the problem of making smooth edge brick on a reciprocating cutter.

Either Model is made to suit a variety of work. The "T 60" is built special to accommodate the largest sizes of fireproofing, etc. These cutters can also be especially arranged for cutting the Dunn Wire-Cut-Lug Paving Blocks.

E. M. FREESE & COMPANY, Galion, Ohio



Model C 20 Rotating Automatic Cutter

We build rotating automatic cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for hollow ware, fireproofing, radial chimney blocks, etc., up to $13\frac{1}{2}$ in. by $7\frac{1}{2}$ in.

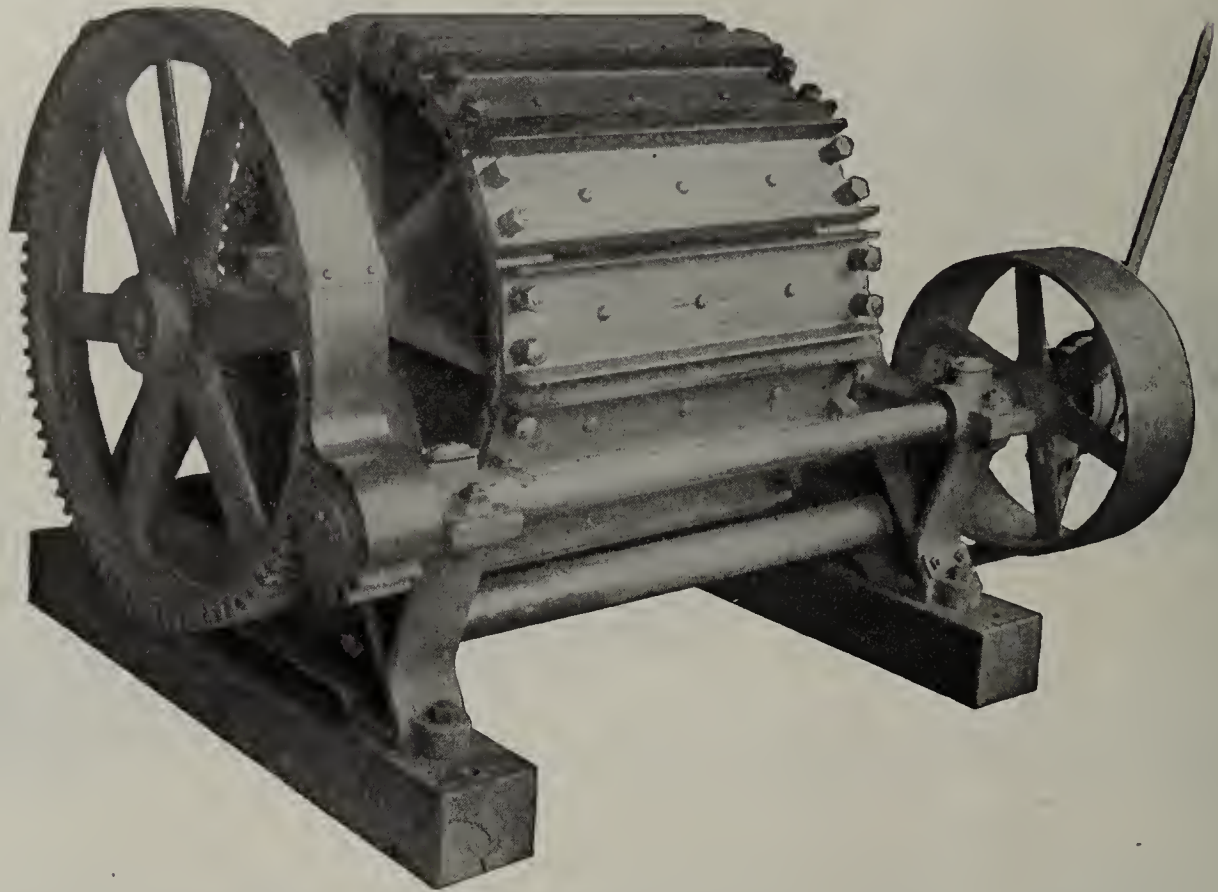
The above illustration shows the Model C 20 Cutter, which is an improved model of our well-known Size 16. It is intended for capacities up to 7,500 standard size brick per hour—18 brick are cut at each cut. At this speed the cutting reel makes only a little over two revolutions per minute, remaining stationary between cutting strokes. It is not necessary to stop the brick machine to renew broken wires, as this gives ample time.

The cutting apparatus, including drive for separating belt, is entirely self-contained, being mounted upon one set of I-beam sills, assuring permanent alignment of all parts. The measuring and separating tables are built with iron or steel sides.

Cutting reel and carriage are carried on rollers requiring little or no oiling. Carriage is positively moved with the clay by an accurate cam. Clutch mechanism is the simplest possible. Wearing surfaces have renewable steel plates.

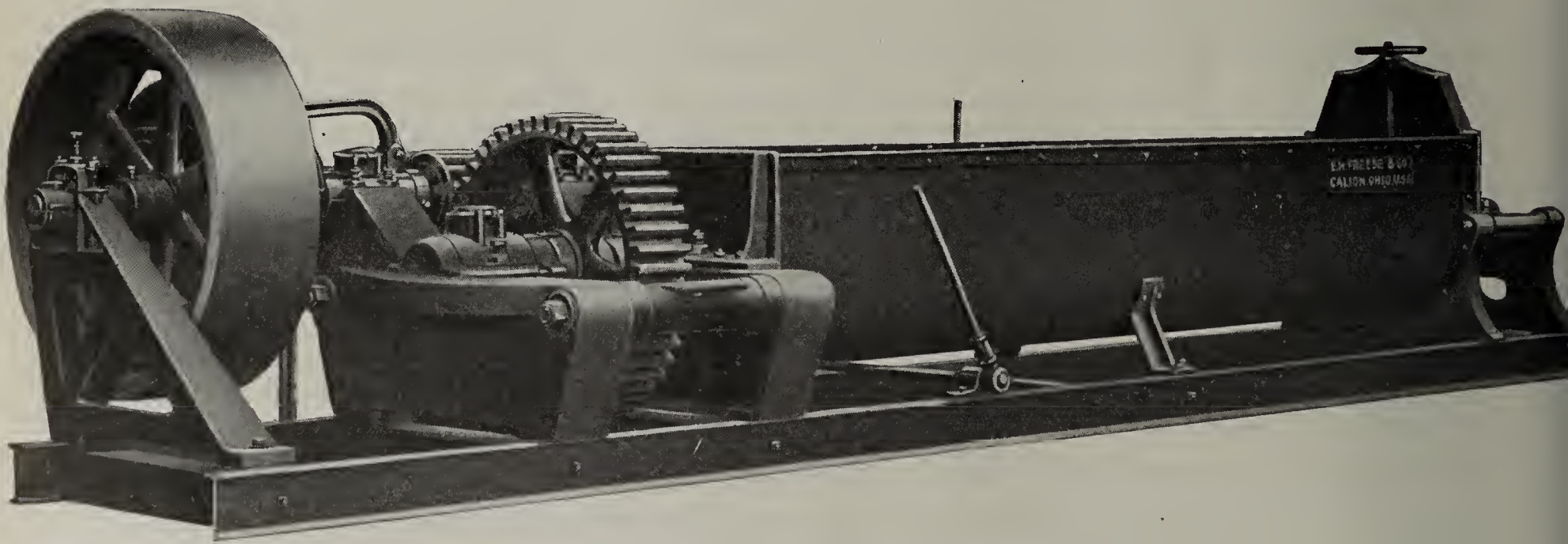
Particular attention is called to the platen construction. The platen is cast in one piece of tubular cross section and is very rigid. Surfaces covered with renewable steel plates, insuring fine slots. The angle of the cutting wires has been changed to give perfect edges on the brick. Built to give long service without skilled attention. Complete description will be furnished on request.

E. M. FREESE & COMPANY, Galion, Ohio



STANDARD RATTLER FOR PAVING BRICK

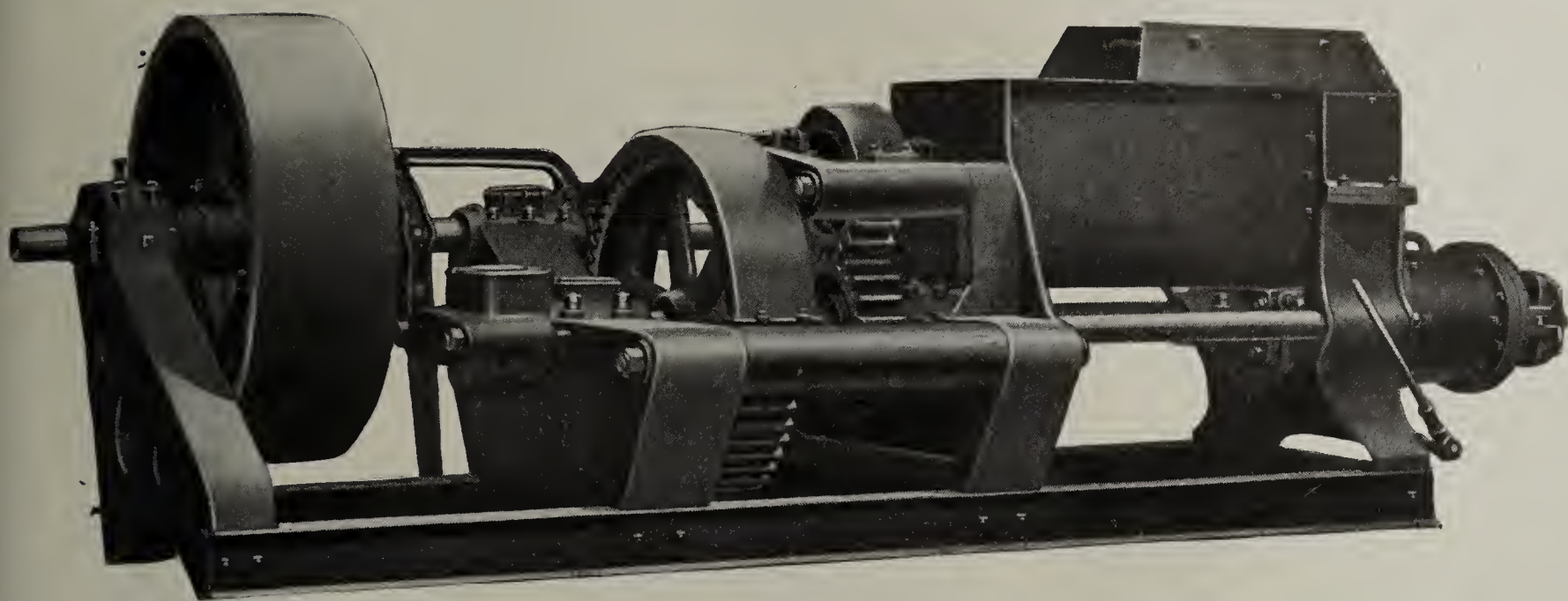
Built to fully comply with the new specifications adopted by the National Paving Brick Manufacturers' Association. Write for detailed information.



We are building Pug Mills in great variety—more than forty patterns and sizes. We have both spur and bevel geared Pug Mills of all sizes, arranged to discharge at either end as may be specified. The above is an example of a heavy, direct geared machine of large capacity, designed for most exacting requirements.

Let us send particulars.

E. M. FREESE & COMPANY, Galion, Ohio



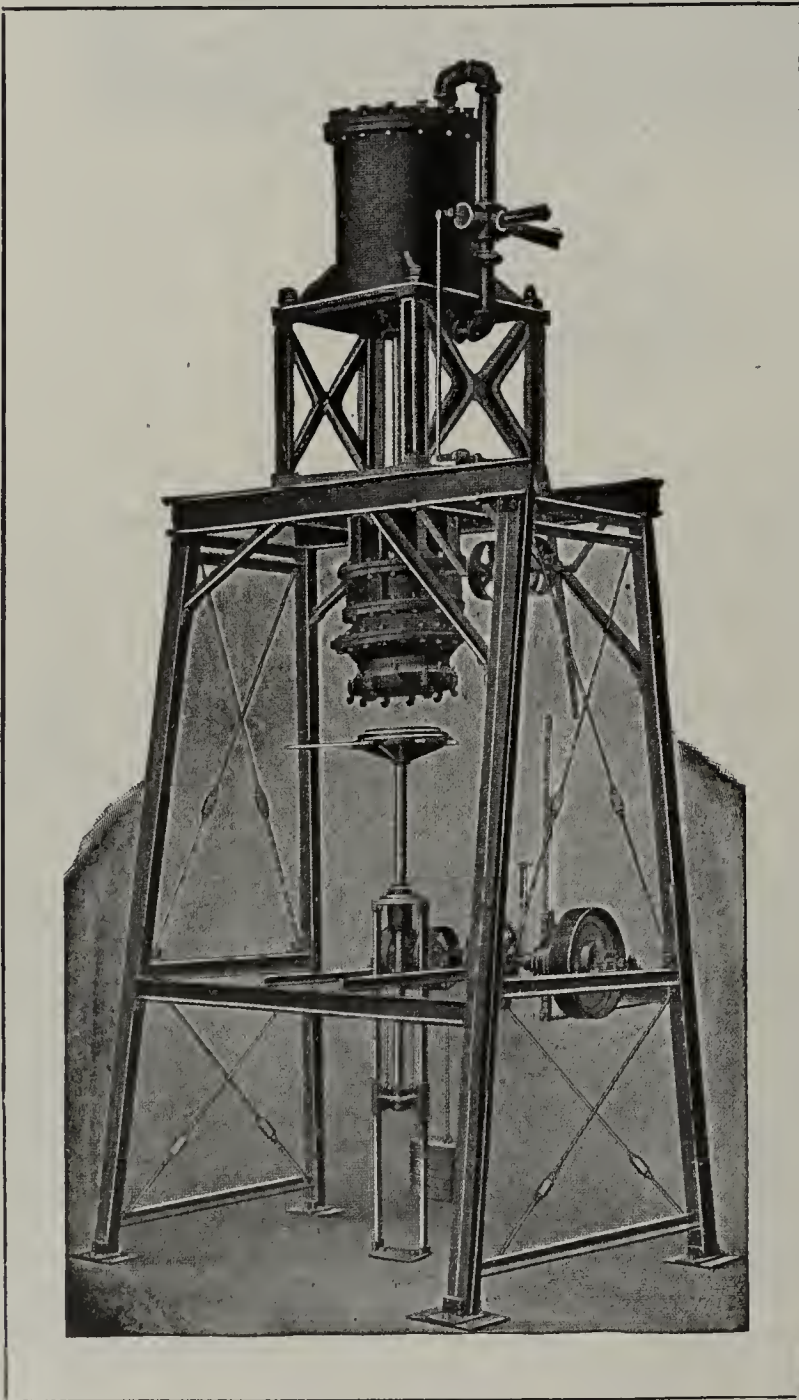
Model "KC" Auger Brick Machine

This machine has several features of merit. The construction is simple. The parts conveniently accessible. Each of its three shafts has three journal bearings, insuring substantial support for the gearing and more permanent alignment. The feeding chamber is open its entire length and the auger chamber is kept positively and uniformly supplied with clay. The gearing is designed for smooth and quiet operation. All the shafts are of large diameter and the proportions throughout are extremely heavy. The workmanship and material are of the best.

Intended for first-class product and economical operation.

E. M. FREESE & COMPANY, Galion, Ohio

Invest
In a Steam
Power Press that
Pays the Largest
Dividends—buy a
STEVENSON



The STEVENSON
Press does large
work as well as
small—and
keeps the costs
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You make big profits by making big drain tile and sewer pipe—and the bigger the tile the bigger the profits because you can demand better prices if your plant is equipped with a STEVENSON Press.

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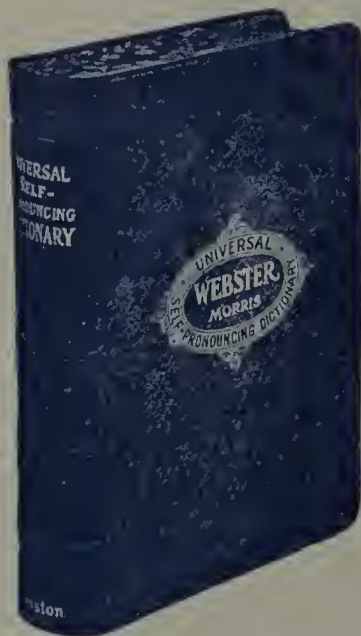
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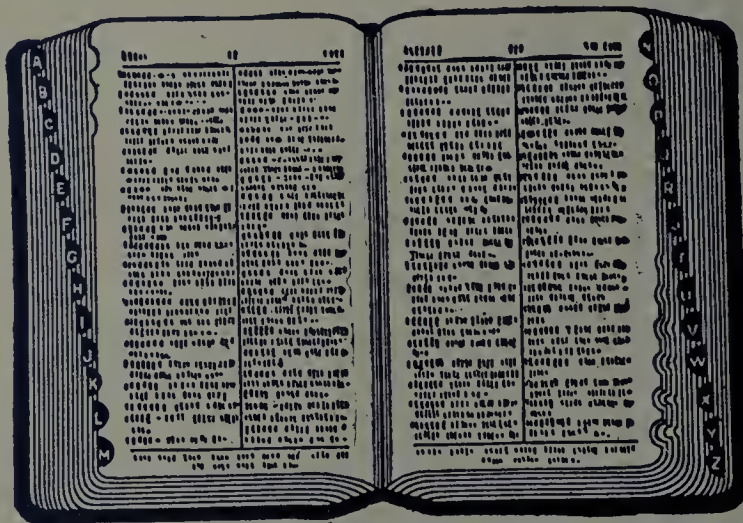
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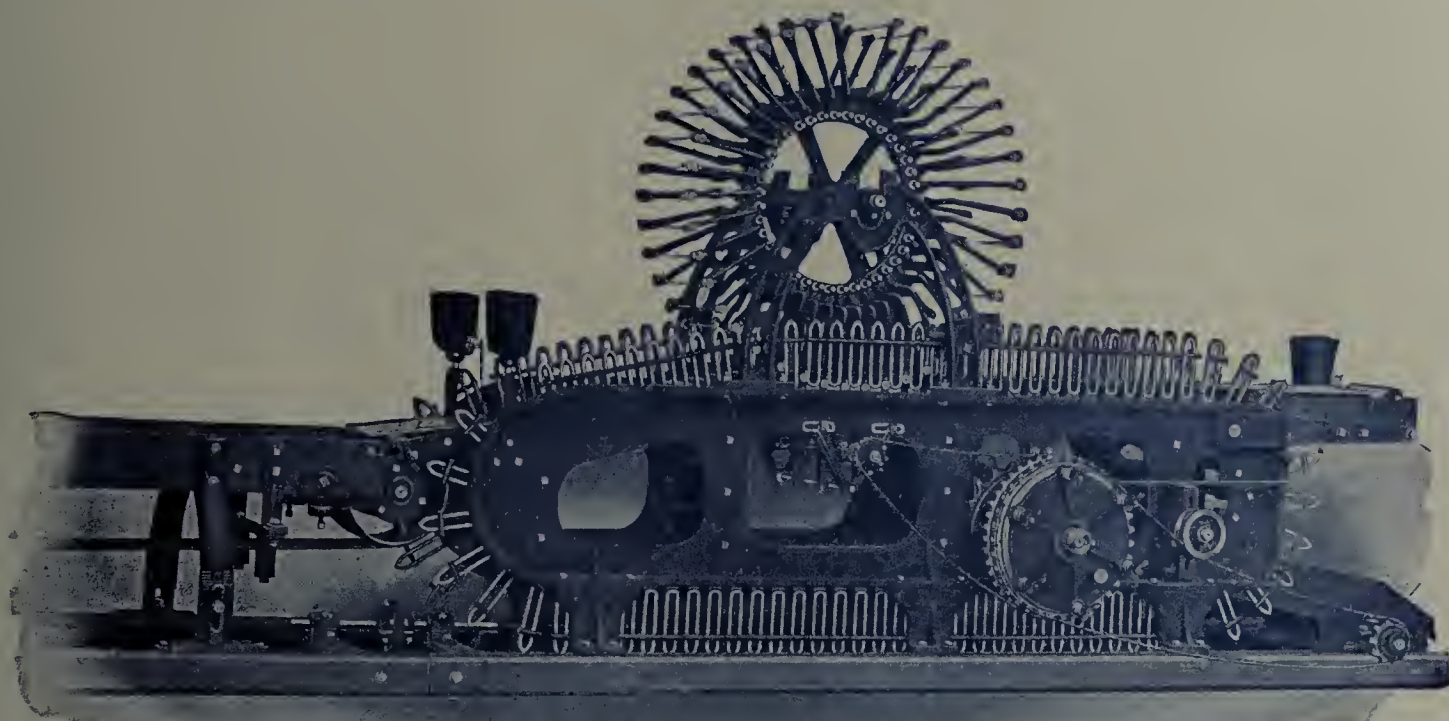


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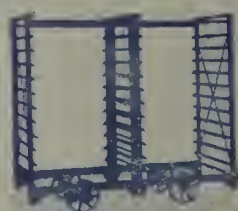
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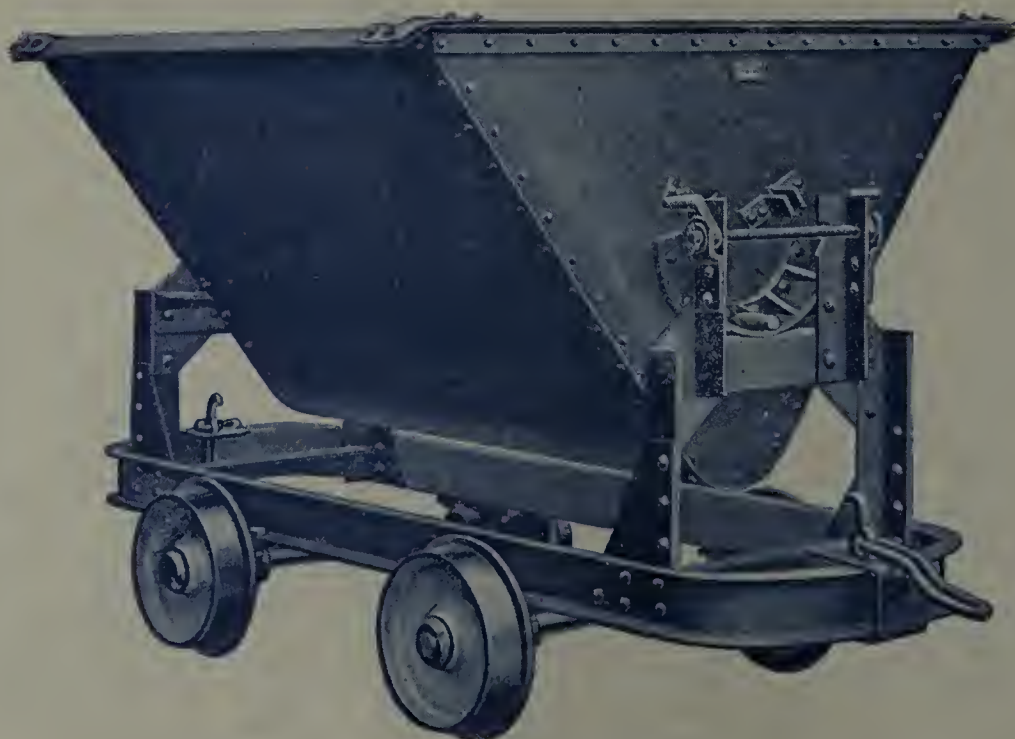
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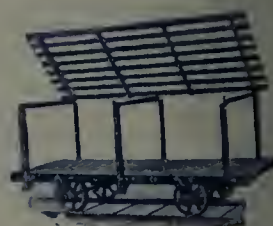
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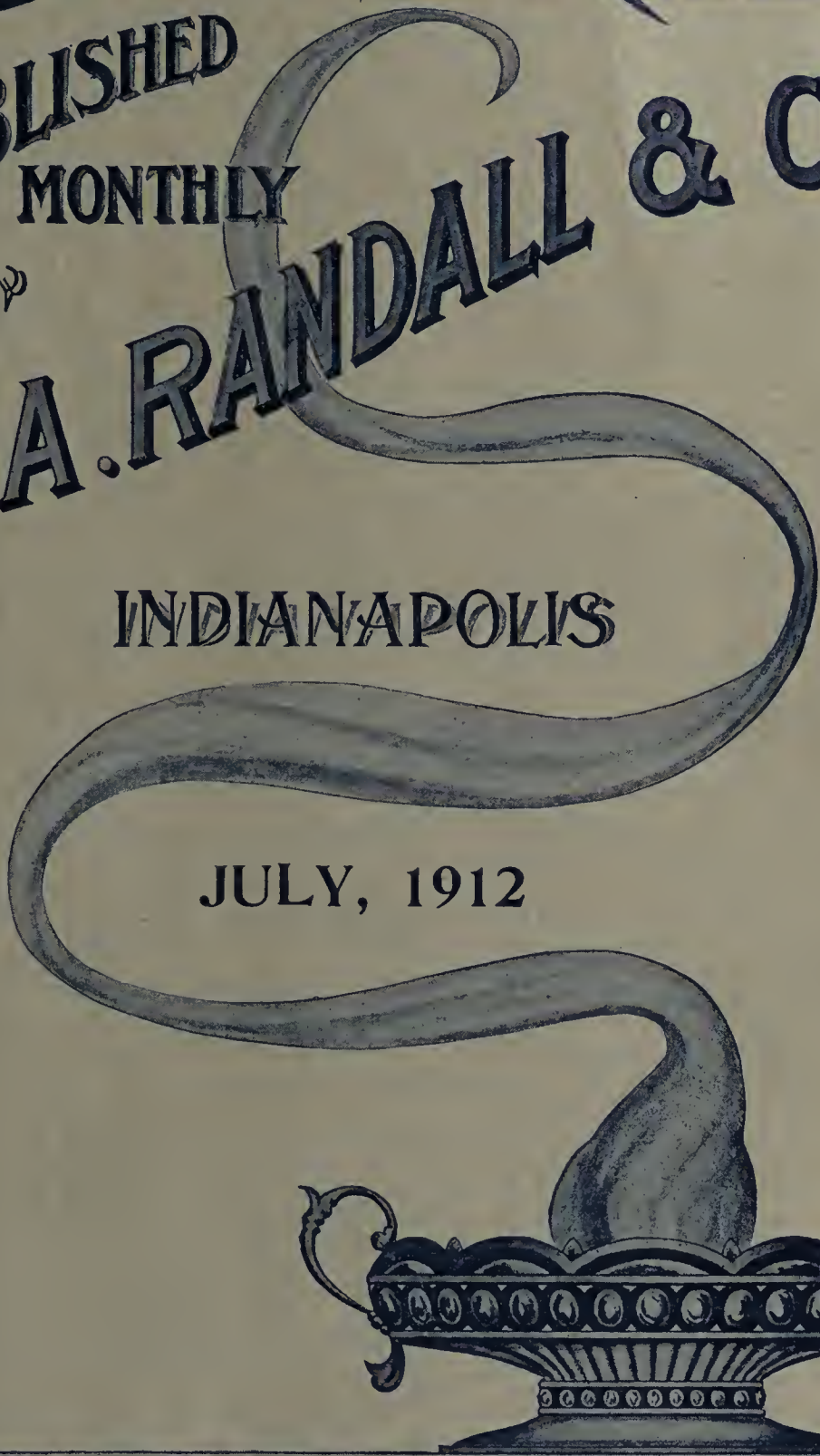
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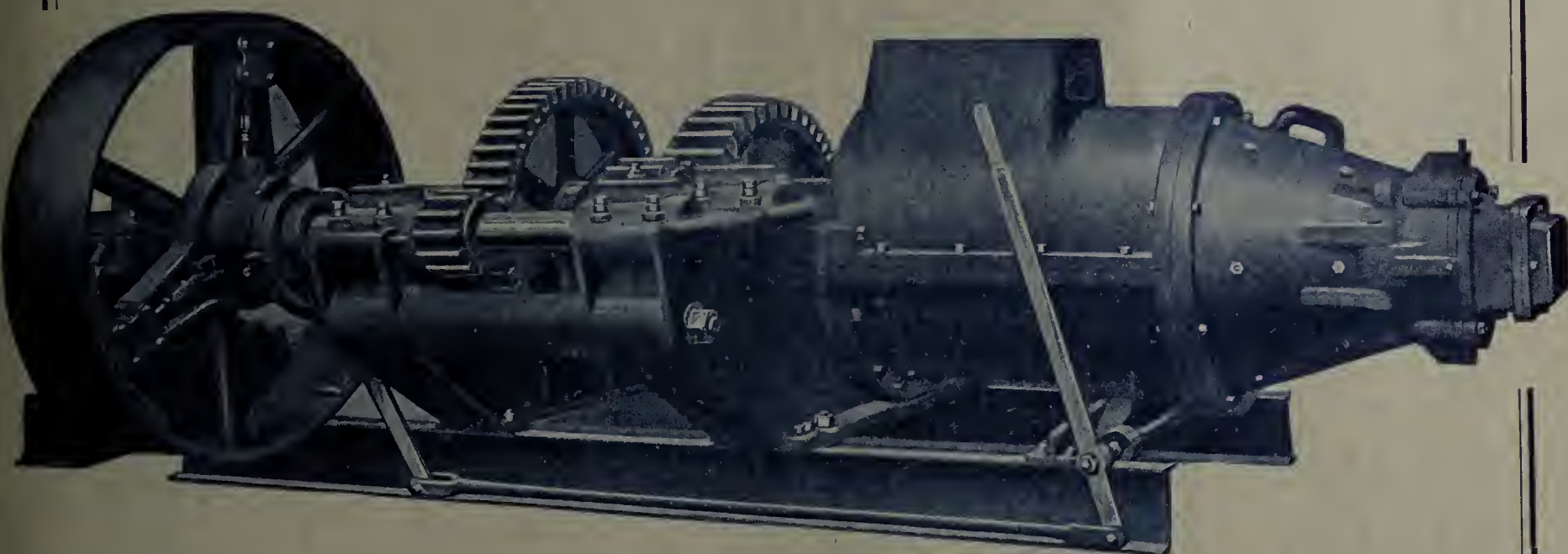
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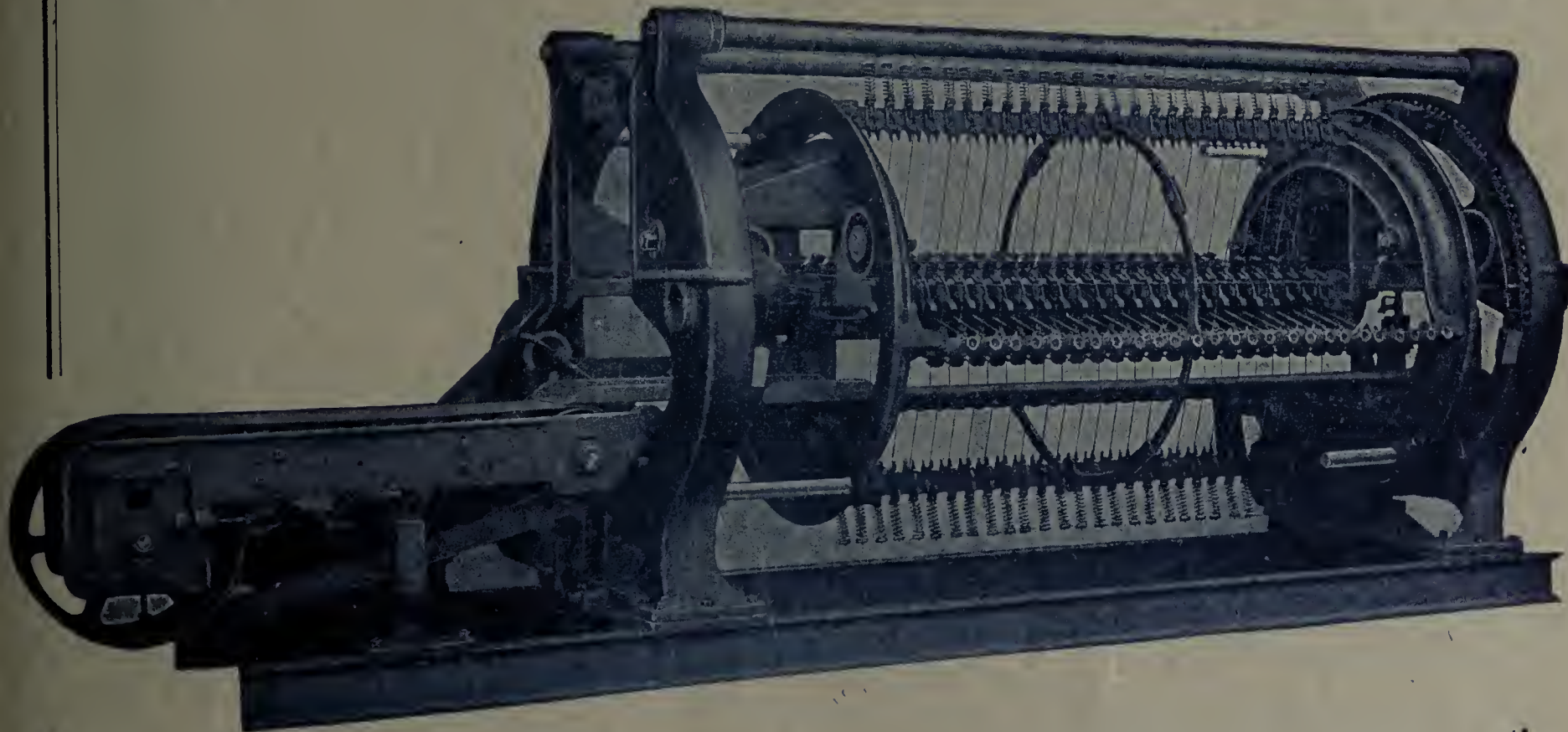
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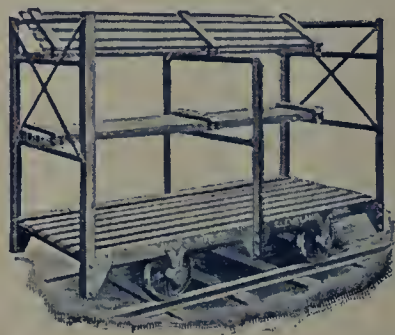
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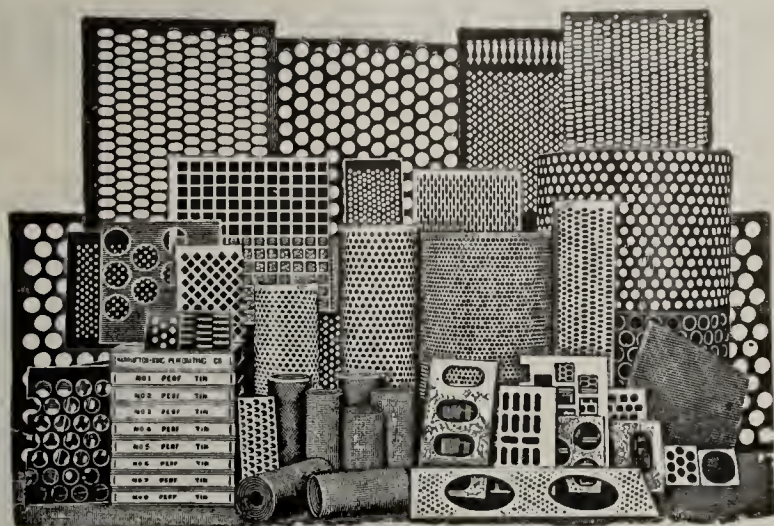
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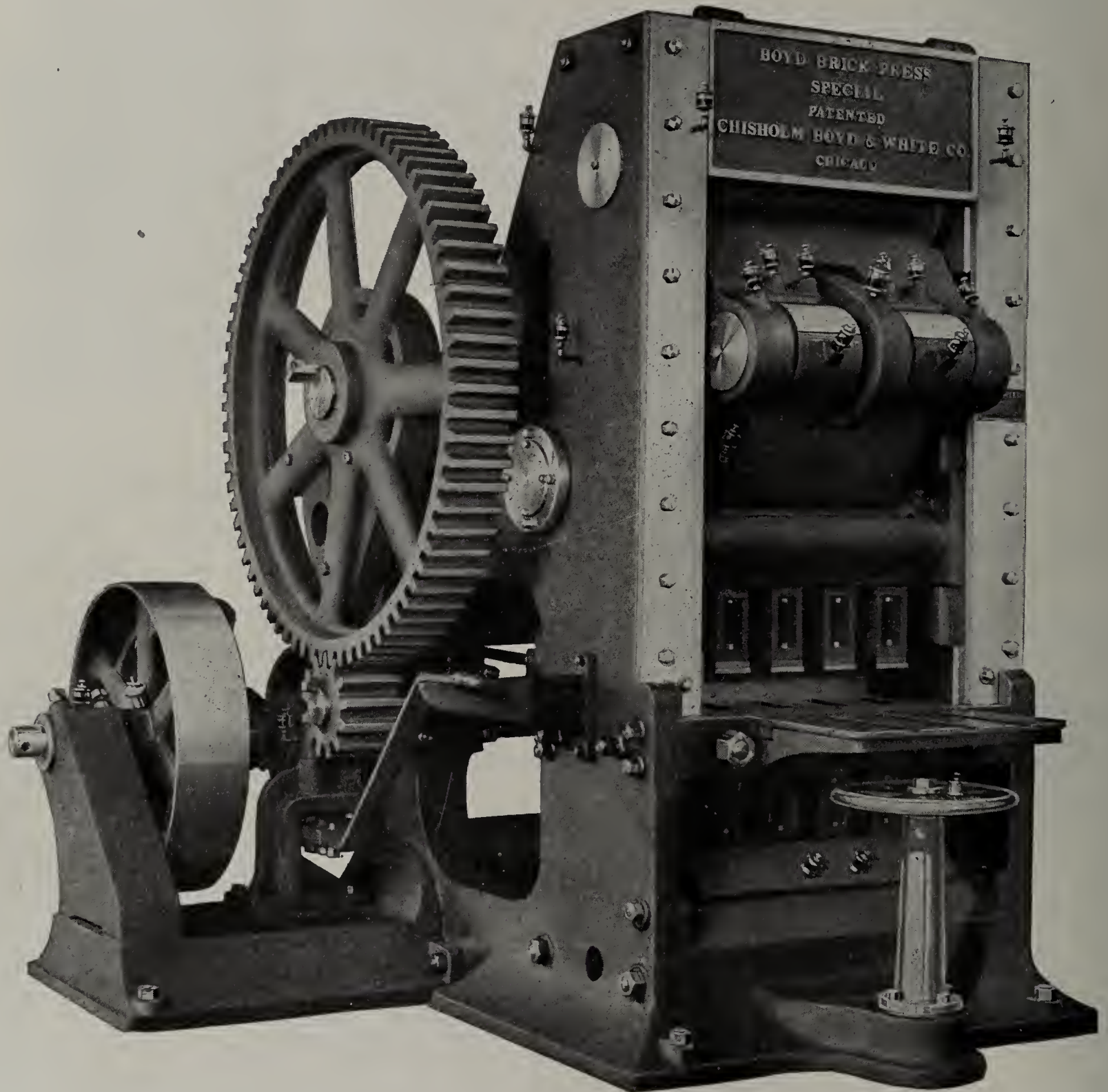
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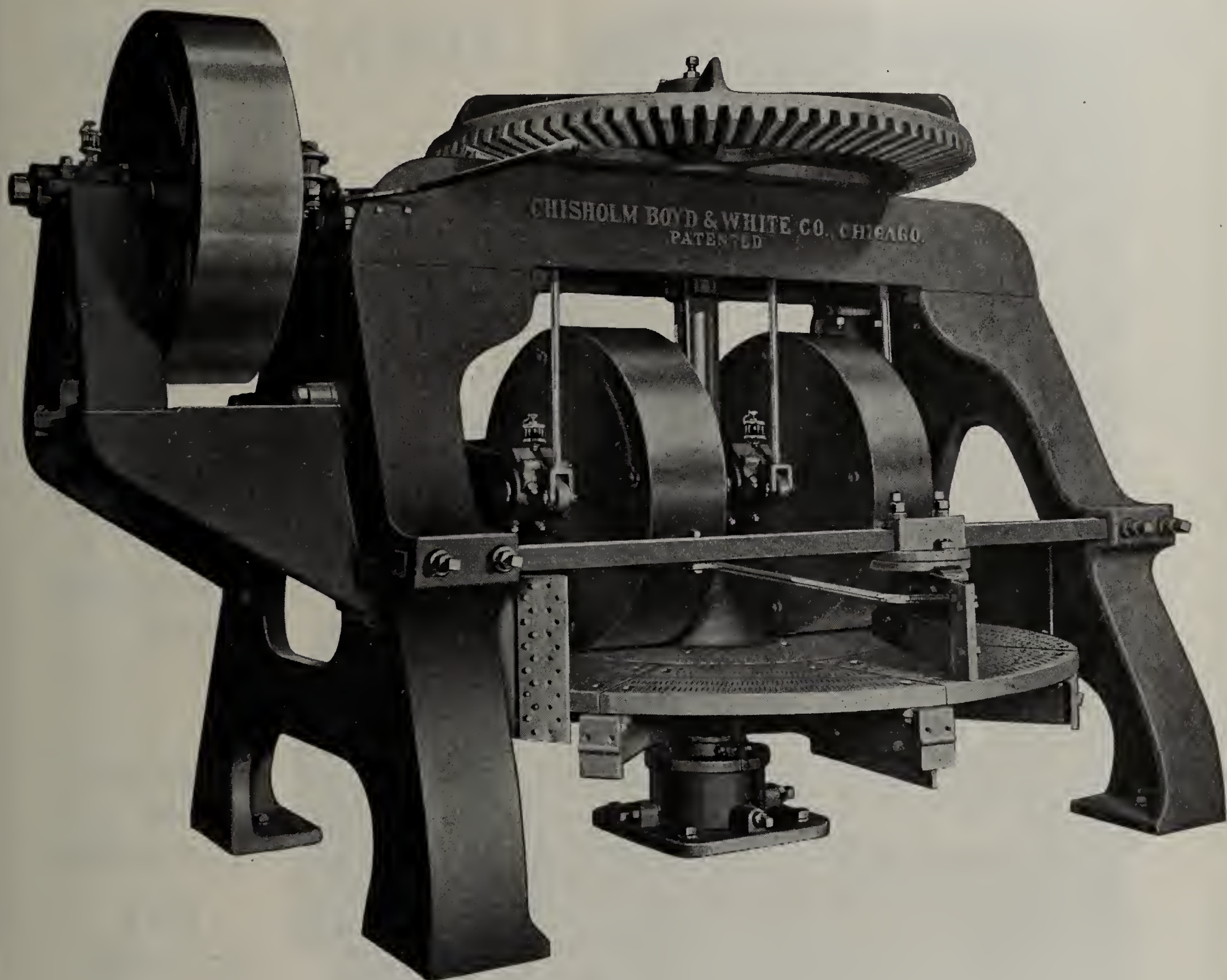
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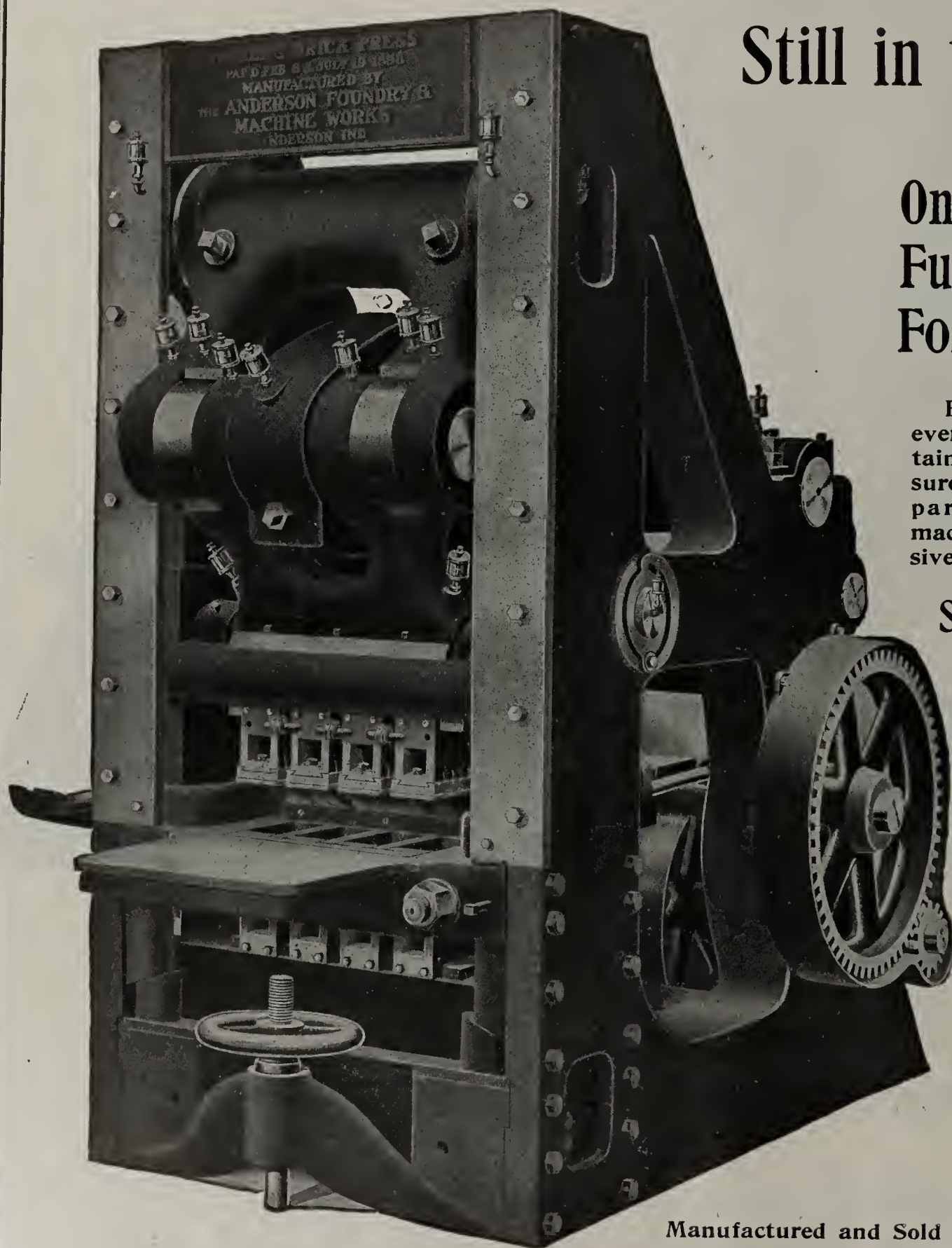
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Raymond Co., The C. W.

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Richardson-Lovejoy Engr. Co.

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(See Supplies.)

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Clinton Metallic Paint Co.
National Paint & Manganese Co.
Ricketson Mineral Paint Co.
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Cones.

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Gas Machinery Co.

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King, E. A.
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(See Supplies.)

Dies.

(See Supplies.)

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(See Supplies.)

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American Clay Machinery Co.
American Process Co.
Chambers Bros. Co.

(Continued on next page.)

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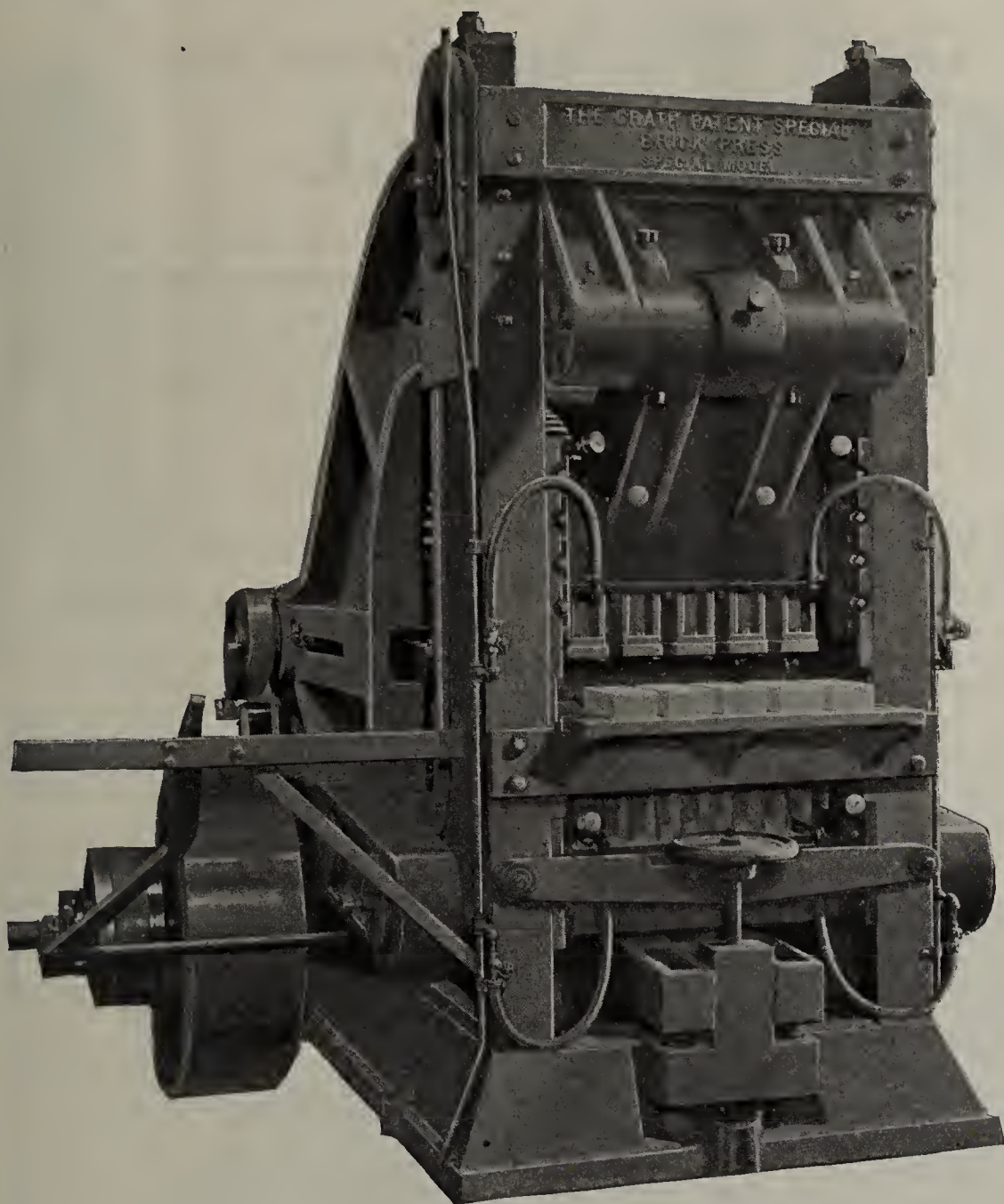
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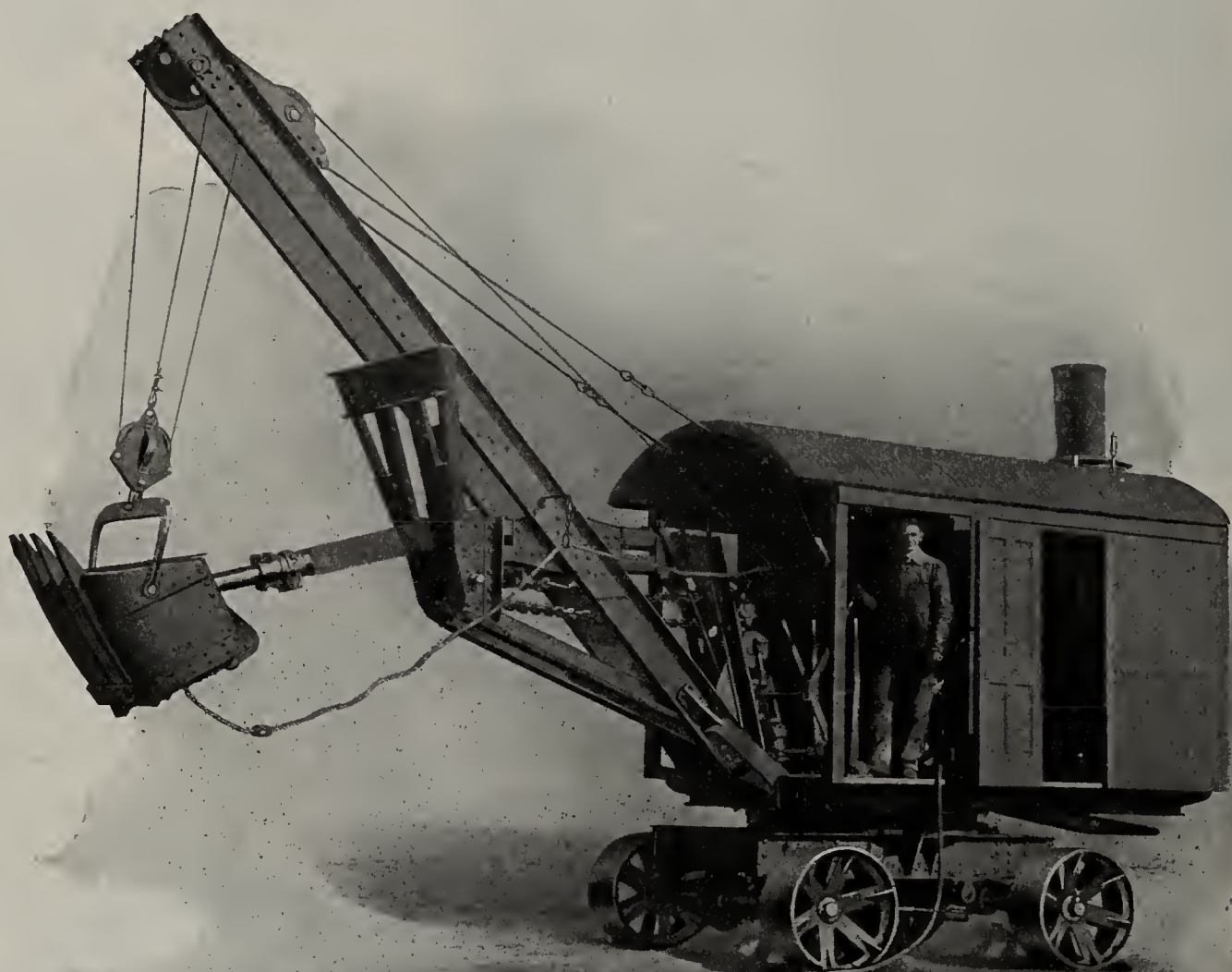
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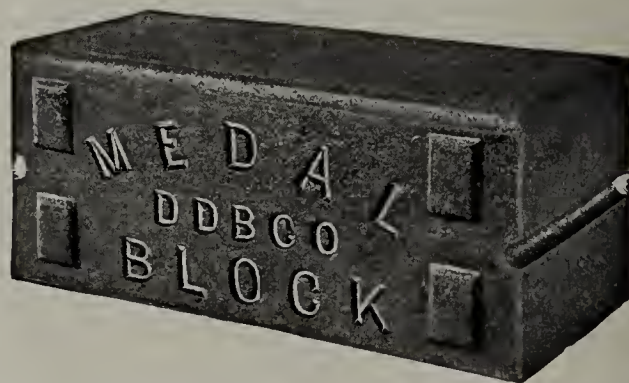
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The Wabash Clay Company,

MANUFACTURERS OF ALL SHALE

PAVING BLOCKS and PIONEER BUILDING BRICK.

Our leading brands are CULVER BLOCKS, WABASH STANDARDS, "SPECIALS," for crossings on macadam streets, GUTTER BLOCKS, COLUMBIAN SIDEWALK BRICK and PIONEER BUILDING BRICK.

Our material has for over twenty years successfully stood the heaviest traffic of Indianapolis, Terre Haute, East St. Louis and dozens of other large cities of Indiana and Illinois. We ask investigation and comparison by those seeking the best paving material. Samples furnished on application.

Office and Works at VEEDERSBURG, IND.

Clinton Paving Brick Company,

Manufacturers of the Highest Quality of

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Which are offered to the municipalities of the Central States under positive guarantee as to wearing quality. None better.

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WE OWN AND OPERATE EXTENSIVE DEPOSITS OF THE VERY BEST GRADES.

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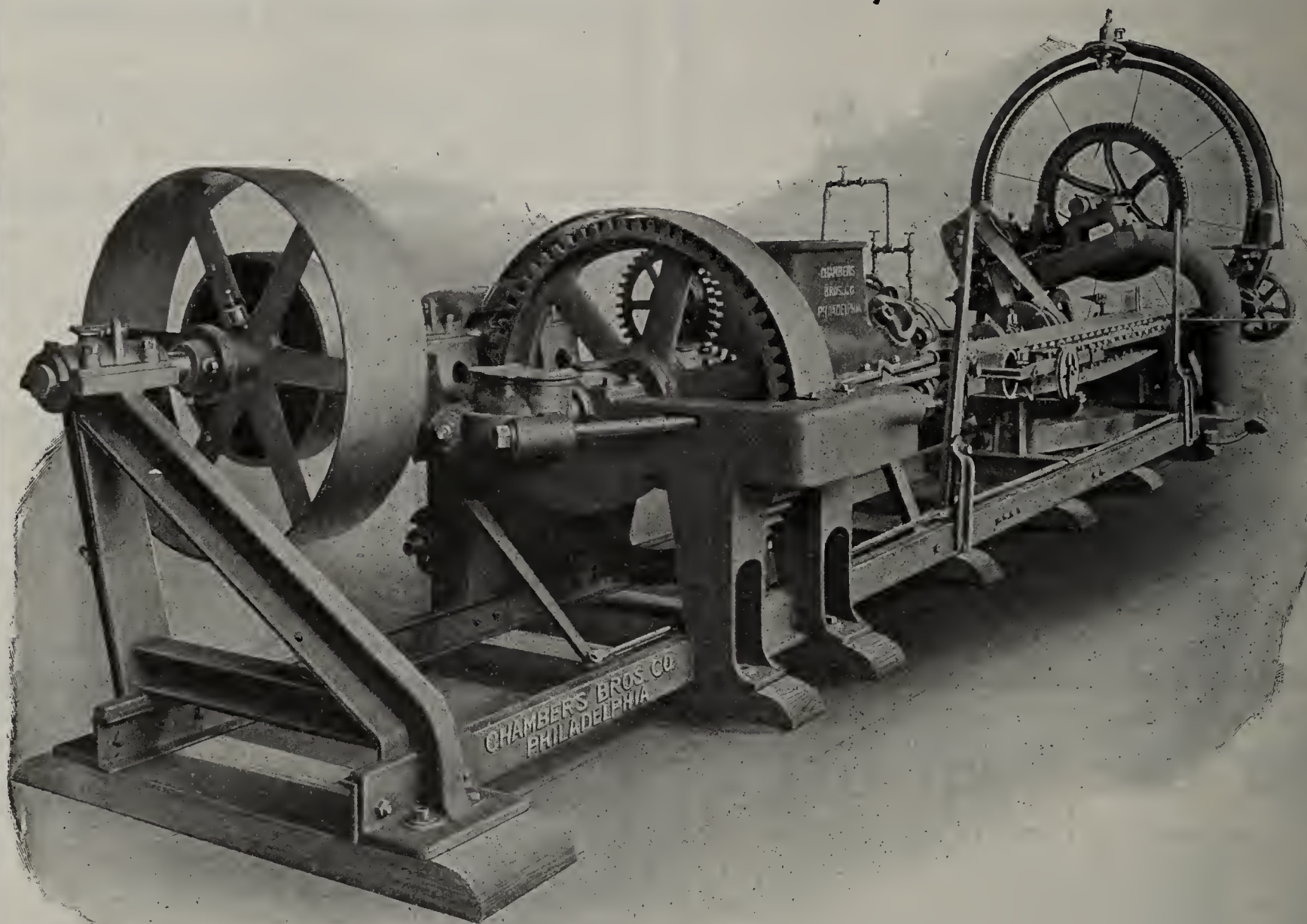
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Cuts Building Brick, Hollow Brick and various thicknesses and lengths of Furnace Block Material.

Auger Brick Machines of Various Capacities with Rotary End-Cut and Side-Cut Tables.

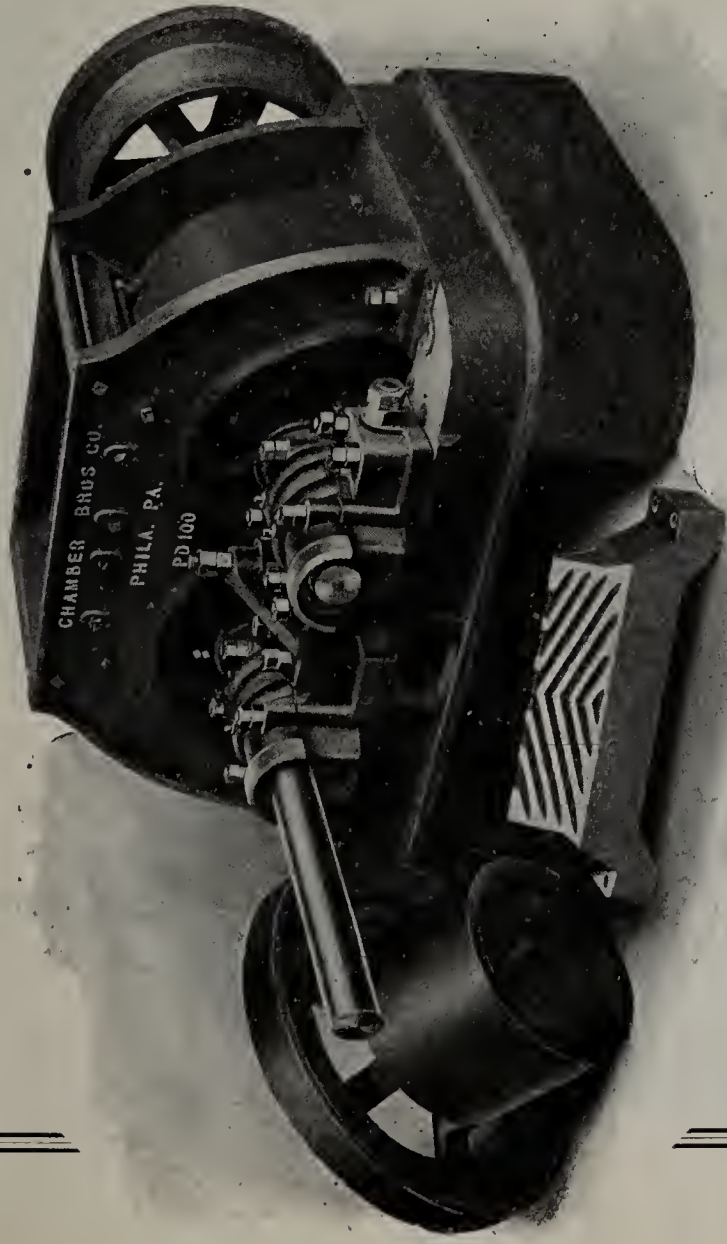
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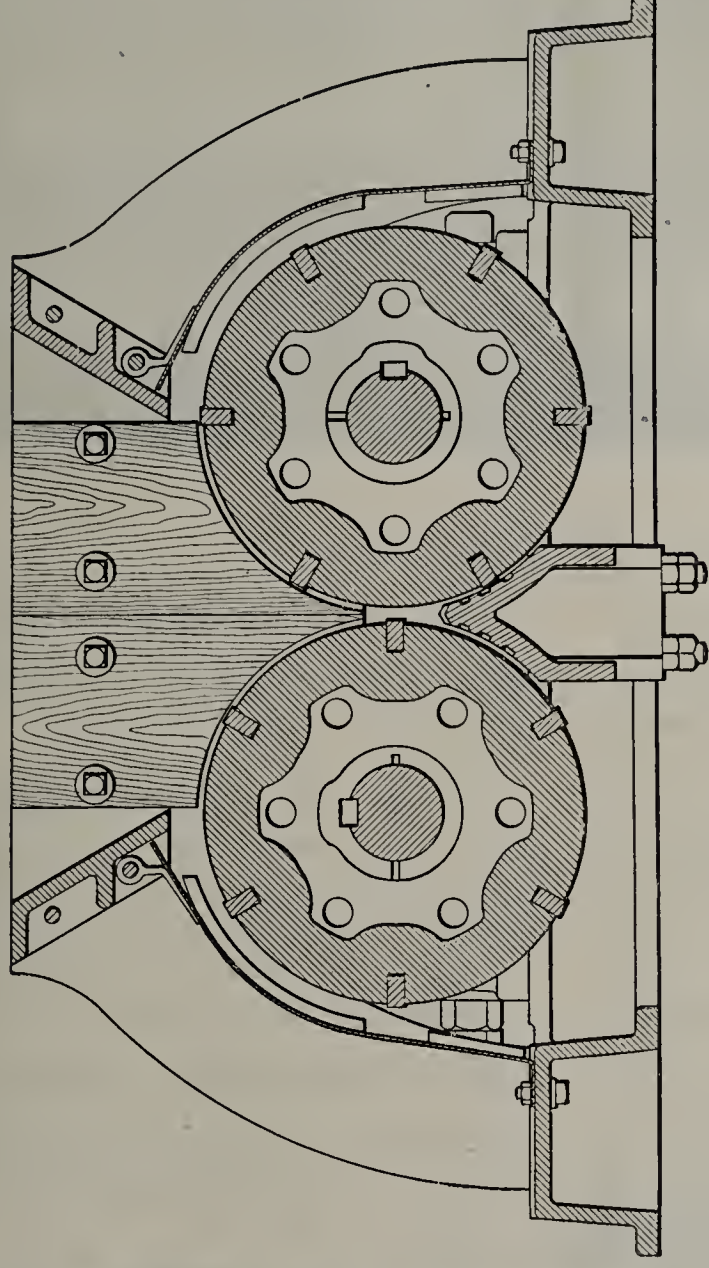
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Keystone Double Disintegrators



No. 30 Size Keystone.



Patented Oct. 31, 1911.



For Grinding Clays, Wet or Dry, With or Without Stones, Pieces of Ore, etc.

Grinding Tests Made on Full Size Machines for Intending Customers.

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PHILADELPHIA, PA.

CHICAGO, ILL.

I am the Natural Draft drying system

I am the next thing to Dame Nature's own method—and I get results, oh, ever so much quicker than she does.

I do *more* and *better* work than any other brick drying system invented by man.

I have many advantages that endear me to the wise brick manufacturer.

For instance: I do away with the danger of fire starting inside the drier;

I prevent checking and cracking—by drawing the moisture from the *center first*;

I am so versatile, so adaptable, that I'm O.K. for *every* clay;

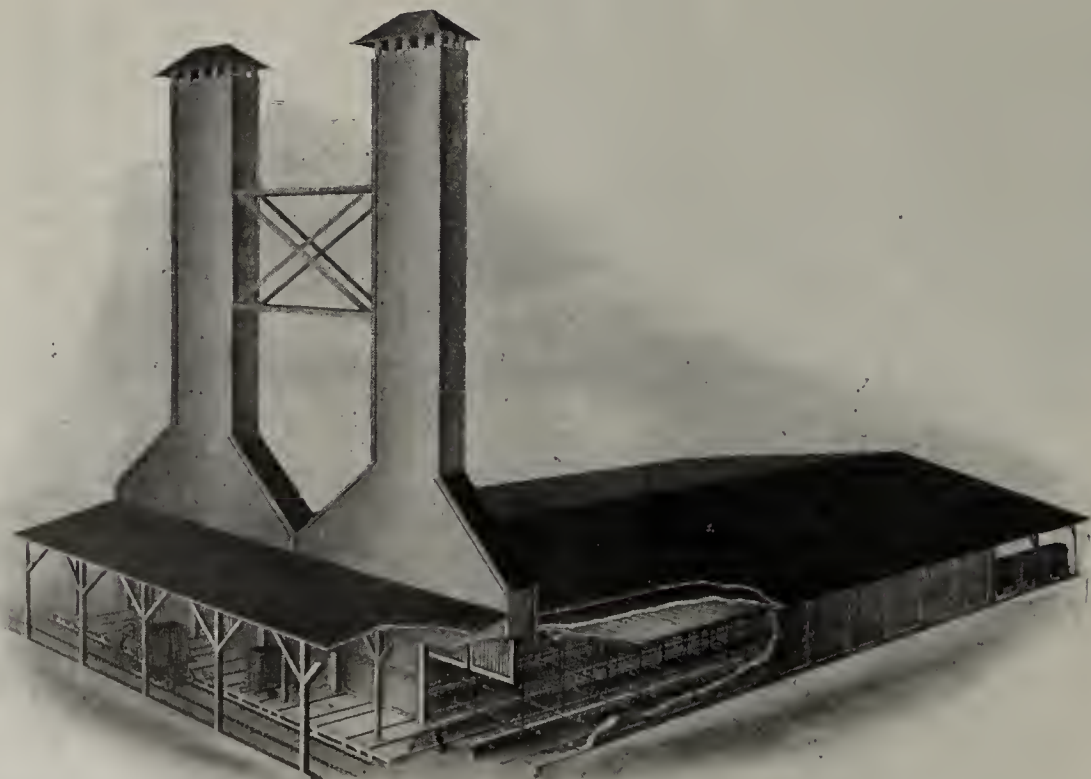
I am so economical that I scorn such expensive luxuries as engines and complicated machinery;

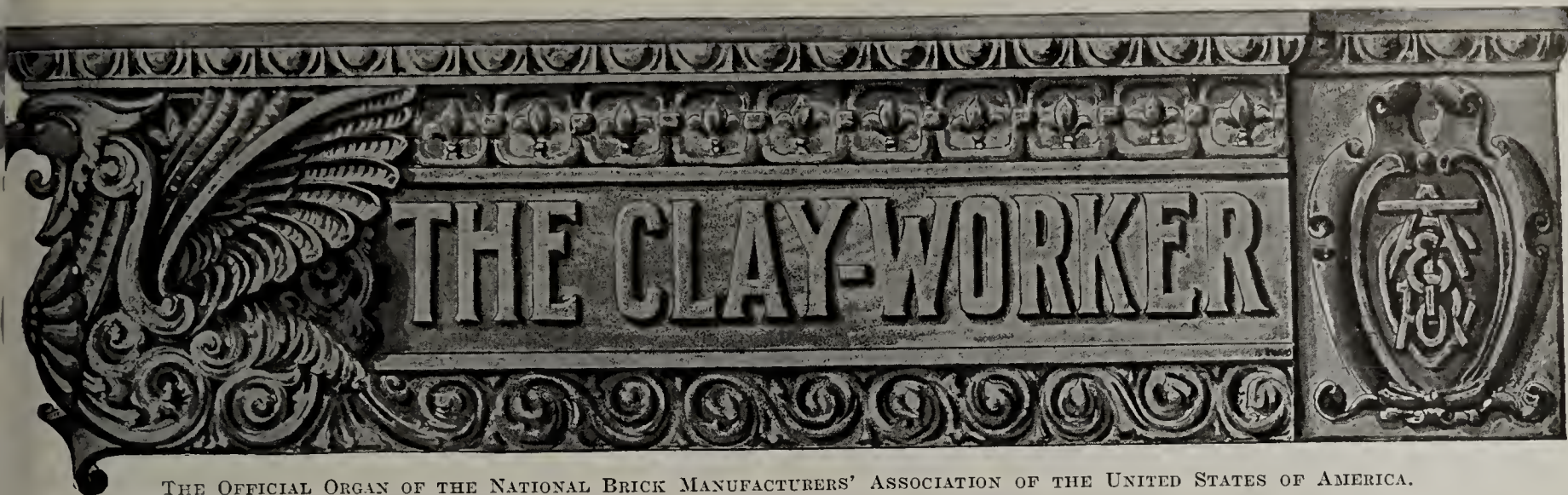
I am so efficient and reliable that I need no overseeing—all I ask is that someone keep me supplied with work.

You will find me almost everywhere—and you'll always find me at my work—not laid up for repairs.

Twenty-five years of perfecting have brought me to my best in The Standard Drier.

Write for the catalog that tells all about me. Address: The Standard Dry Kiln Co., 1547 McCarty St., Indianapolis, Ind.





THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LVIII.

INDIANAPOLIS, IND., JULY, 1912.

No. 1

Written for THE CLAY-WORKER.

ATTRACTIVE BRICK ARCHITECTURE.

An Effective Means of Gaining Attention of Prospective Builders.

ONE OF THE BEST ways to secure publicity for any material which you are endeavoring to sell is to use that material yourself in as attractive and convincing a manner as possible.

Notoriety has again and again attached itself to the

appreciates the value of brick in its own work. The Cleveland Builders' Supply Company not only maintains a fine display room for the sale of its clay products, but it builds all its branch warehouses of brick—not common sand or sewer brick, but attractively finished face brick.

At one of the company's depots on East Fifty-fifth street, near Euclid avenue, a large monumental gateway has been built. Through this arch is gained entrance to the company's station and yard. A ten-foot brick fence marks the street line of the yard. This is set up with brick in attractive bond and gives a fine finish to the entire affair. Terra cotta panels



Attractive Brick Entrance to East Fifty-Fifth Street Station of the Cleveland Builders' Supply Company, Cleveland, Ohio.

fact that the painter always has a shabby house; that the shoemaker has rundown heels and holes at the toes; that the carpenter is only persuaded by his wife to fix up a few shelves and make the home livable after long arguments. Familiarity with one's own business often narrows one's view. Perhaps that is the reason that the average firm which is selling brick fails to realize that the best advertisement it can maintain is a good brick display, or, even better, a fine brick building in which to do business.

In the city of Cleveland there is at least one firm which

are inserted in the fence about every fifteen feet, on which the initials of the company are indicated or the name of some material which it handles.

In conjunction with this attractive entrance and fence, there is a long brick warehouse kept in spick and span order. This warehouse does not attempt any architectural pretensions. It is built solidly and for wear, yet the attractive brown brick gives a classy effect to it which everyone is ready to admire.

Even the smaller stations located in less densely popu-

lated sections of the city are attractively designed. One of these is shown in the accompanying illustration. The street entrance and sides are of face brick attractively set up. The surroundings are always kept neat and clean and the warehouse is far from being a nuisance to the neighborhood in which it is maintained.

Officials of the company maintain that it pays to have attractive warehouses and that no better material can be used than brick from which to build them. The brick stands as a living advertisement of its excellent qualities. After prospective house builders gain an inspiration through merely seeing an attractively set up wall. At least this is the opinion of those in charge of the Cleveland Builders' Supply Company.

The Cleveland Builders' Supply Company is one of the biggest material handling concerns in America. It maintains large offices in the Hippodrome Building, Cleveland, and has a number of yards and depots in different parts of the city in addition to maintaining its own plaster mills. Its officers are: John A. Kling, president; A. Y. Cowen, secretary-treasurer;

the world's greatest telescope and kindred scientific instruments, who considered the acquisition of such a relic as a triumph; it was only through much difficulty and great inconvenience that the brick was secured and ultimately reached its destination, resting in a glass covered case in Mr. Swasey's private office. Carried upon the backs of coolies up and down rough and slippery hillsides, placed upon a boat and transferred to a railroad, and then to a boat again, great care being taken at all times to assure its safe transmission until it finally was cased up at the seashore for its passage across the Pacific ocean.

"The mere fact that this brick has come from China is not of such moment, nor is it altogether because of its unusual size, being almost eight times the size of the common brick of today. Its dimensions are 15 by 8 by 4 inches, and it weighs approximately thirty pounds. The great interest does not come so much from that, but rather from the fact that this brick was made 1,300 years ago and built into one of the world's greatest engineering feats executed by mankind—the Great Wall of China. Yes, there before my very eyes



Brick Warehouse of the Cleveland Builders' Supply Co. A Few of the Company's Teams in the Foreground.

W. T. Rossiter, general manager; Henry Angel, assistant general manager, and R. C. Mitchell, sales manager.

The company has just published a fine catalogue of the various materials it handles. The book is about an inch and a half thick and 9x12 inches in size. The illustrations are halftones, printed on heavy coated book paper. Each page is set in a special design printed in colors. About twenty-seven pages of the book are devoted to an exposition of building brick, with numerous illustrations of buildings and types of bonds. A number of additional pages are also given to fire brick and building tiles.

An introduction to the brick section is an article by Chas. S. Schneider, well known Cleveland architect and student of brick. The introduction is followed by twenty-two illustrations in four colors of attractive brick work. A large number of illustrations of buildings follow.

"It was my privilege but a short time ago," says Mr. Schneider in his article, "to see a brick which had been taken from the Great Wall of China by Mr. Ambrose Swasey, of Cleveland. Here was a man, designer and manufacturer of

I beheld an object molded and formed centuries ago by the hand of man, probably by primeval methods, difficult of execution—but it is well made—a beautifully made brick—and made with a knowledge that must have been gathered from experience, for has it not lived these decades upon decades, century after century, and yet shows no inclination whatsoever to disintegrate or to succumb through the ravages of temperature and weather?

"It will be acknowledged that a test of this kind is sufficient demonstration to prove that brick, if properly made, are a most excellent material for constructional purposes of any kind where masonry is adaptable. The work performed by this brick in that great wall, though only one in myriads of them, was well done, and is to be likened to the soldier who, though but one of a legion, can and must do his work well, else disaster might ensue.

"We find that this product of man has been used as early as history takes us, and the remains of numerous constructions in different corners of the world bear mute but convincing testimony that brick have stood the test of time. The ancient Egyptians, Persians, Babylonians and Indians

used brick and other products of burnt clay very extensively. The children of Israel, when in bondage in Pharaoh, were compelled by their taskmasters to make brick. The Romans, those most extraordinary engineers and builders, made and used them with a wonderful knowledge and intelligence. At the height of the art of the Saracens, many brick were used in the construction of mosques, kiosks and temples.

"Later on, brick were made and used throughout Europe generally. True it is that where stone abounded or was near at hand, it was utilized often on account of the cheapness of the material. This was particularly so throughout portions of France, where Caen stone is accessible, for the ease and cheapness with which this material can be cut and placed force recognition from the builders. There is also a palpable reason for this use of stone in France, that the inherent desire of ostentation by the people of that country be gratified, for this soft stone lends itself to molding and cutting into fantastic and modeled forms most easily.

"However, brick was paramount in many localities, as is exhibited by the beautiful brick work of northern Italy, Hol-

many good buildings still standing indicate the beauty and life of the material as well as the simple but excellent taste of the builders. Have they not been the means of encouraging and inspiring many designers of modern times, as is exemplified in work of the colonial style being built all over our country?

"Today we find the condition exists of architects and builders vying with each other in the matter of beauty of their brick work. However, this fact must be borne in mind that it is essential to have beautiful brick in order to have beautiful brick work. Such tremendous strides towards progress have been taken by the manufacturer of brick that it has brought every architect of note and distinction to its cause, and it can truthfully be said that all architects of ability are doing splendid work with brick, indicating their appreciation for this material of burnt clay. It can be truthfully said that a man's ability and greatness can be measured by the kind and quality of brick work that he is bringing forth and showing the world.

"Brick adapts itself to design of almost any kind and almost every type of building; in the hands of a master,



Attractive Warehouse of the Cleveland Builders' Supply Co., Constructed of Face Brick.

land, Belgium, England and portions of France and Spain. Over a half century ago Street wrote in his 'Brick and Marble in the Middle Ages': 'It has been by far too much the fashion of late years to look upon brick as a very inferior material, fit only to be covered with 'compo' and never fit to be used in church building, or indeed in any building of any architectural pretensions, so that I suspect many people, trusting to their knowledge of painted architecture in England, would be much surprised to find that throughout large tracts of the continent brick was the natural, and indeed the most popular, material during the most palmy days of architecture in the Middle Ages. Yet so it was that in Holland, the Low Countries, in large tracts in Spain, and throughout northern Italy, stone was either scarce or not to be obtained, and brick was therefore everywhere and most fearlessly used. In all those countries, just as in Italy, it was used without concealment, but each country developed its practice in this matter for itself, and there is therefore considerable diversity in their work.'

"When we come to our own shores, we find our colonial forefathers building in brick wherever it was possible, and

most wonderful and beautiful results can be obtained. On account of it being a comparatively small building material, more units in a great mass after their position in a wall, it is subject to the art of the designer and brickmason in that it, several or many of them may be placed in the wall in countless ways, while innumerable other methods remain undiscovered and undeveloped. Recent brick work throughout the length and breadth of our country proves the assertion, for where can we look for better results and more artistic treatment in the use of this material?

"The possibilities of brick in its manufacture and use have not anywhere reached its limitations, and although much has been done in the past decade towards its development, there are still greater achievements beyond. The future of brick is assured; with proper manufacture, intelligent design and excellent workmanship, it has no fear of competition and is being used today in all kinds and classes of structures, built for every purpose."

Profit is the thing the average man goes into business after and sometimes finds missing when he goes through the year's balance.



BY W. G. WORCESTER.

The Working Properties on Repress Dies.

AS A GENERAL RULE, more clays will work satisfactory on flow dies than on the dies of a roofing tile press. In the latter case, should the clays be highly plastic, they will stick to the dies badly and are quite liable to laminate while under the die pressure. On the other hand, a clay that is lean or short will prove troublesome by failing to fill out the locks of the dies; furthermore, a short clay is difficult to remove from the molds or dies without great loss through breakage. While experience will in a measure enable one to pass on the working properties of a given clay, an actual die test should be made to properly demonstrate the point in question.

It can be said, though, as a general rule, that any fairly plastic clay, if not too much so, will prove satisfactory on the dies of a tile press.

Drying Properties.

In order to prepare a clay for shaping or molding, we add water to it until the desired degree of plasticity has been obtained. The water added to produce the plasticity has been used in two ways: first, a certain part of it is required to fill the open or pore spaces between the grains of clay, while the balance or excess water separates, or, in other words, floats the clay grains, thereby permitting the mass to become mobile or plastic. Naturally, the more water there is added the greater becomes the distance between the grains. Hence, when a piece of clay ware made under such conditions is dried, it will shrink while the excess water is evaporating. As a general rule, the shrinkage ceases when the last of the excess water is expelled, but the mass continues to lose water until the pore water has all been driven out.

It is while passing through the first, or shrinkage, stage that a piece of ware is in danger of cracking or warping if dried too rapidly. The rate at which the shrinkage can proceed without danger to the ware differs with different clays.

Of fourteen roofing tile clays examined as to their drying behavior (Bulletin 11, Ohio Geological Survey), it was shown that nine of them ceased to shrink when approximately 50 per cent. of their water content had been expelled, while five departed from the general rule and continued to shrink nearly up to the time when the last traces of water were expelled.

It is only reasonable to expect that the five clays must be dried slowly right up to the expulsion of the last traces of water, while, on the other hand, the nine clays could have their rate of drying increased materially after the first 50 per cent. of the water had been expelled. It was found that these conditions were borne out in a remarkable manner in the actual plants where the clays were used.

The ideal clay, in so far as drying is concerned, would, therefore, seem to be the one that ceases to shrink after 30 to 50 per cent. of its water content has been expelled; the piece of ware is then practically safe from warpage and cracking, so that the remaining water can be expelled more rapidly, thereby requiring less time to dry and a corresponding smaller equipment in the way of drying cars and dryer capacity.

Strength in Unburned Condition.

There are many clays which can be used in the manufacture of bricks and other heavy cross section ware that

can not be used for roofing tiles, owing to their shortness or the ease with which they break when made into thin ware. Tiles as a rule are of large size, and to permit of handling them safely during glazing and setting it is necessary that the clay be a tough or strong one.

There are clays which under ordinary treatment would be classed as unsatisfactory, but when specially treated may become highly satisfactory.

In the work for Bulletin 11, Ohio Geological Survey, an attempt was made to measure the strength of several unburned roofing tile clays. The work as carried out was to take the several clays, and, from each, bars one-half inch thick by three inches wide and fourteen inches long were made. These bars, when thoroughly dry, were supported on knife edges set twelve inches apart. An increasing load was then applied at the center of each bar until it broke. The results were computed in terms of breaking load per square inch. The highest load was 11.5 pounds; lowest, 2.5 pounds; average, 6.4 pounds. Those clays which stood 5 pounds or above were perfectly safe to handle, while those below this figure were exceedingly short and had to be handled with much care to prevent undue breakage.

Burning Properties.

No matter how perfect a clay may have fulfilled the various stages of manufacture prior to the burning, it is necessary that its burning properties be right. A clay may have some shortcomings in the preliminary stages, but if its burning behavior is good it may be possible to contend with or overcome troubles of the primary stages. However, should the burning properties be at fault, there is very little if any chance to improve them.

Taking up the more important stages of burning, it is found that a period known as oxidation comes very early in the burn, and may prove exceedingly troublesome to pass without the loss of ware. Practically every clay contains more or less carbonaceous matter, materials similar to wood or coal, which will burn when the proper temperature has been reached, provided a sufficient quantity of air is supplied. Taking, for instance, a clay which contains a considerable quantity of carbon, it will be found upon burning it that unless one proceeds very slowly during the period of red to bright red heat that the ware (brick, for instance) will be more or less distorted or bloated. If not this, or even at the same time, there will be a strong discoloration of bricks where set face to face. It is the discoloration of the ware that causes much trouble and loss for the roofing tile manufacturer. While tiles are of a thin cross section, the desire to set a large number in a kiln frequently results in their being set so tight that the mass is nearly solid. Unless due allowance for this is made in the rate of burning there will be many of the tiles more or less ruined by large off-colored patches or areas. Should the clay be a red burning one the discolorations will usually appear as irregular blue, gray or black markings on the face of the tiles, thereby disqualifying them for sale.

While there are clays which will not give the above trouble, even though set reasonably tight, the majority of them will, and some of them very badly. Thus, when selecting a clay for roofing tiles, it is quite advisable to take the one low in carbonaceous matter, though with a proper setting and care in burning it is possible to use clays which would prove troublesome in the manufacture of heavy ware like brick.

Vitrification Range.

In reference to the vitrification range of a clay for the manufacture of tiles, it is unnecessary to dwell at any length upon its meaning, or the fact that it should be wide; that is, the rate at which the clay changes from a dry, open body to that of a glassy, vitrified one should be slow. Otherwise it is extremely difficult to burn a kiln of tiles without loss, due to certain portions of the kiln being overfired in the attempt to bring up the slow or cold spots.

Important as the vitrification range is to the roofing tile

industry, the degree of warpage in a clay is of vastly greater consequence. In the past, vitrification and warpage have been classed together. This, however, is a mistake. Warpage is a factor quite distinctly separated from vitrification. Vitrification, as stated before, is the changing of a clay body to a more or less glassy condition due to heat, while the warpage of a clay is its lack of rigidity or stability while under heat treatment.

It is not uncommon to find clays that warp badly before any noticeable degree of vitrification has begun. This would show quite clearly that the one is not dependent upon the other, though as a general rule it is quite impossible to have warpage in a clay body without vitrification, but, on the other hand, it is entirely possible to have vitrification without warpage.

Thus, in examining a clay for its properties as a roofing tile material, let it be borne in mind that warpage is a very important factor and should be studied closely as a separate factor. The fact that tiles are of large area and thin cross section it becomes a very difficult matter to keep them straight should the clay have anything like a moderate degree of warpage tendencies to it. There are means by which the warpage of the tiles, while drying, may be controlled, but after the ware is set in the kiln and under fire it is beyond our control and we have no means of preventing warpage then.

It is therefore very important that a low warping clay be selected to start with.

Color and Color Range.

What has been said of the vitrification range of a clay can be applied to its color range as well; that is, it should be wide. There are many clays which permit of a good color within certain heat ranges, but should the firing be carried a little too high or stopped rather early the color will be poor in either case.

As the kiln is yet to be designed which will burn uniformly throughout, it is very important that the range in which the color of a clay is good should be wide; otherwise there will be certain parts of each kiln of ware that will be unsalable, due to poor color.

It is also very essential that the clay should develop its best color at the proper degrees of vitrification, in order to have perfect tiles.

As to the desirable natural colors, those to be desired directly from the clays, red is by far the most important. As with brick, the most widely used and desirable color is red. There are, of course, many shades and tints of red, but the most desirable are the bright cherry and ox-blood red. It will be found, though, that where there is one clay which will produce the above desirable reds, there are scores which will only produce a fairly good red. It is possible, though not desirable, to use as a slip a bright red burning clay as a facing over an undesirable color. A procedure of this sort should only be used as a last resort; for instance, in localities where it is impossible to find good red burning clays.

Outside of the red color in its numerous shades and the various effects, such as "blue smoked," flashed or gun metal, which can be derived from it, there are very few other natural colors in demand. In a few instances buffs, grays and browns have been used, but in a very limited way. As a rule these odd colors can be produced when needed, by the plants working on red burning clays, hence it would be folly and useless to start a plant on an odd or buff burning material.

(To be continued.)

We all know that a good way to keep cool is to seek a cool, refreshing summer resort, but what most of us need to know is how to keep cool and our temper sweet while working in the heat making money for somebody else to go to a cool resort.

Written for THE CLAY-WORKER.

BRICK NEWS FROM DIXIE LAND.



SUMMER BUILDING is fairly active at Memphis, and neighboring towns and cities also give good reports. Brick is figuring in most of the jobs. Storehouses, factory buildings, residences and public buildings are among the number to be constructed.

Architect John Gaisford, of Memphis, has drawn plans for a \$24,000 store and office building to be erected at Blytheville, Ark.

The same will be two stories, of brick, with stone trimmings, for Meyers & Sedberry. Mr. Gaisford has also planned a two-story \$7,000 building to be erected at Harrisburg, Ark., by Judge Mitchell, of that place.

C. B. Lyon & Son, brick manufacturers at Memphis, are getting out several kilns this season, and find a good demand, both local and shipping. They are at Station G, New South Memphis.

J. D. Johnson, of Little Rock, Ark., was awarded the contract for the construction of the new school building for Newport special district, to cost \$39,550, and to be completed by October 1. The building will be of pressed brick, with tile roof, and be located at Newport, Ark.

There has been some scarcity of brick in Memphis, contractors in some instances having to work only part of the time.

Architects Hanker & Cairns have drawn plans at Memphis for the R. B. Snowden hotel, to be erected on the site of the Bijou theater. This structure will be of a patented buff glazed brick over reinforced concrete. The Vanderbilt hotel, New York, is said to be one of the few hostleries using this brick, which is very expensive and attractive. The hotel will have four hundred rooms. A Venetian garden and auditorium and banquet hall will be among the features.

Geo. Stiles & Co., of Chicago, are putting the finishing touches to the new government building at Union City, Tenn. The building is of brick with stone trimmings.

Little & Clerkler, of Anniston, Ark., have been awarded the contract for the new courthouse of Jackson county, which will be of brick and will cost about \$35,000. It will be located at Scottsboro, Ala.

E. T. Lewis & Co., brick manufacturers and contractors, of Nashville, have filed plans with the Nashville Builders' Exchange which provide for the erection of seventeen one-story houses on Seventh avenue.

Architect C. K. Colley, Nashville, has drawn plans for a handsome three-story brick apartment house at 115 Eighth avenue, North, Nashville, between Church and Broad streets, that will be erected for Dr. J. L. Johnson.

The Harley Pottery Co., of Nashville, Tenn., quite an old institution, has begun to turn out fire brick and grate tiles.

T. L. Herbert & Sons, of Nashville, have secured the contract to furnish the face brick for the new university at Jackson, Tenn., to be built by the Union University. This firm has had a fine trade on brick this season. They were the only firm in Nashville able to make deliveries during the high water period of the spring. One of their yards was shut off and many green brick ruined, but in other directions they managed to care for their trade steadily.

The E. T. Lewis Company at Nashville has been awarded the contract to do the brick work on the Warner building, corner of Capitol boulevard and Church street, which will be used by the Stief Jewelry Company.

The members of the Nashville Builders' Exchange have figured plans for the erection of a handsome three-story storehouse on the part of a lot formerly occupied by the O'Keefe property and facing the Capitol boulevard. The building will be of white brick. The show windows will front the boulevard.

It has been announced that C. E. James, of Chattanooga,

will commence the immediate erection on Broad street, that city, of a twelve-story hotel, that will stand at the corner of West Eighth. Also that G. N. Hensen will erect a fourteen-story office building, at the corner of Broad and West Ninth streets. The hotel, it is said, will cost about \$500,000, and the office building around the same figure.

The Johnson-Porter Clay Company, of Paris, Tenn., shipped fifty carloads of fine clay from Henry Station, Tenn., last month, and the Henry Clay Company shipped fifteen cars from the same point, making a total of sixty-five cars of clay from the mines there.

Harold Sparks, of the McKenzie Pottery Company, at McKenzie, Tenn., and Miss Ruth Scates, of the same town, were united in marriage a few days ago, and will make their home in McKenzie.

To meet the increased demand at Chattanooga, W. T. James and John Key will have a force of workmen begin shortly on a 50,000 a day capacity brick plant in Alton Park addition. The plant, when completed, will have ten kilns. This is the only brick shale plant in Chattanooga. The new

THE ARCHITECT'S OPPORTUNITY WITH FIREPROOF MATERIALS.

By LOUIS GRAVES, in Building Progress.



IT HAS BEEN SAID that the architect and builder of houses are passing through the end of the "wooden age." To this may be added an American boast: The "fireproof age" is distinctly an American achievement.

Although the average European home heretofore has been safer and more durable than the average dwelling in this country, because stone and brick have been used there while we were throwing together short-lived wooden habitations, the really unburnable structure has been devised, developed and perfected in America.

That structure was hardly known six years ago. The marvelous spread of its popularity has been one of the wonders of the last decade, but even in so short a period the



—Courtesy Building Progress.

A Fireproof House in the Making, Which May be Faced With Pressed Brick.

enterprise will make a specialty of fancy bricks for fronts. Heretofore most of this kind of brick have been imported from Ohio, Birmingham and other points.

The firm of R. H. Hunt & Co., architects, at Chattanooga, has been taking bids this month for a six-story fireproof bank and office building at Jackson, Miss., to cost about \$75,000. It is making plans for a \$65,000 Methodist Church in Jackson, and will soon close a contract for the erection of a powerhouse and lighting plant for the State Normal College, at Hattiesburg, Miss. This college consists of several large buildings, including a large school, a man's dormitory, a woman's dormitory, a students' cottage, a president's home and a dining hall and kitchen erected at a total cost of \$250,000, which was planned by R. H. Hunt & Co. The firm is planning a number of other buildings through the South.

DIXIE.

Can anybody really tell us whether Italy actually did carve Turkey or not?

greatest engineers and house engineers have come to admit its preeminence. That the public at large is convinced of the fireproof building's superiority from the standpoint of safety may be assumed.

I wish to call attention to another phase of the subject, not so self-evident or so widely recognized, though quite as familiar to those who have studied scientifically the new epoch's discoveries, and that phase is the opportunity for architectural ingenuity in the house that is reared to endure against the ravages of time and withstand the dangers of fire.

"Let me design for you a house that will withstand storm or flame," says the American architect who makes a specialty of fireproof houses. "I am not winning any reputation with the aid of such terms as 'English country house,' 'Swiss chalet,' 'French chateau' or 'Italian villa.' But I claim for my type of building as much grace and variety as any of the others possess, with the additional advantage that it will

cost less to maintain, will last you longer, and will be infinitely safer and more comfortable."

Experience has proved the up-to-date architect's contentions. Since the denuded forests have caused lumber prices to soar, economic necessity has given him a chance to show his skill with fireproof materials in every State from Maine to Texas. Principally, of course, the development of fireproofing has been in and around large cities, but it has even found a foothold in far-away sections, on the very edge of the forest lands, where lumber cost is still too low to permit of successful competition by any other material on a mere basis of expense.

That the new kind of dwelling is able to compete with the old in such localities is due to the architect's ability hardly less than to the considerations of safety and durability. If the fireproof home were of necessity an unbeautiful creation the prospective owner possibly would decide to forego the material benefits, but the certainty of having a decorative house, as well as a better investment, clinches

known in the once popular patterns of houses called by high-sounding foreign names. Roofs range from the sudden slope to the flat top used as a children's playground or as an outdoor sleeping apartment, each colored to harmonize with the rest of the house or to suit the owner's particular taste.

A pretentious fireproof residence perched upon a hill, not far from New York, is surmounted by an observation tower which looks for all the world as if it had been stolen from some feudal castle of the Middle Ages.

A seaside cottage of terra cotta blocks, overspread by dazzling white stucco, has its entire southerly side devoted to a glass-enclosed sun parlor, which may be thrown open to the sea breezes when the summer sun is blazing or closed and heated when the storm king is at large.

Interior design of the fireproof house commands all the variety which the architect can display in the flimsiest wooden house, with the sole exception, fortunately, that he is not beguiled into favoring flimsy makeshifts. Fireproof materials, as the house owner will realize joyfully, demand a re-



—Courtesy Building Progress.

Interior of a Thoroughly Fireproof House.

the argument in favor of fireproofing.

What are the possibilities for variety of design in a building that will not burn? To begin with, the outside covering, laid over walls of hollow terra cotta tile, may be stucco of any color in the rainbow. The form of the house, owing to the facility with which the separate blocks of tile may be laid to produce variously shaped wings and projections, may be whatever the designer fancies. The decorations are limitless. If you inspect a few of the fireproof dwellings around New York, Chicago, Philadelphia or Boston, ranging in cost from \$4,500 to \$100,000 or more, you will see outside walls adorned by cement friezes, concrete verandas and balustrades, overhanging cornices, porches with grilled work for trailing vines, columned pergolas and numberless stone or concrete receptacles for flowers and evergreens.

Piercing the stuccoed walls are windows of every pattern

guard for permanence. The architect knows he is creating a structure that weather will not decay nor insects attack nor fire destroy. It is a house put up to stay, so he must see that the decorations are not transitory and tawdry.

Range of adornment, when once a scheme is adopted in keeping with the idea that the decorations must bear the test of time, is limited only by the size of one's purse.

The terra cotta floors, under which are foundations and beams of concrete, may be covered with any material, from the plainest Georgia pine to the most gorgeous inlaid woods. Walls and ceilings allow a choice from the whole scale of colors, moldings, wainscotings, paperings and electric light or gas fixtures. There is, in short, no restriction upon the inside ornamentations of the fireproof dwelling, and the extent to which wood is used depends solely upon your wishes.

Many interior adjuncts which usually are made of wood may now be constructed entirely of fireproof materials. Even

the banisters of stairways are substituted by open work concrete railings, while concrete settees and window seats and terra cotta mantles are quite as capable of decorative shaping as those of wood.

A modest home in one of the Long Island seashore towns exemplifies the architect's skill in planning for a man who was an extremist in his desire for safety. "I want absolutely nothing wooden if it can be made of concrete," said the owner. The architect obeyed the instructions, and not even a floor covering is of timber. Sitting room, dining room, bed rooms, closets, porches—all have concrete flooring. The owner is an expert collector of rugs, and his treasured Irans and Anatolians look well against their dull gray backgrounds.

The architect of today has developed his knowledge of fireproof materials to such an extent that beautification is no longer restricted to costly structures. Hollow terra cotta blocks are the basis of all grades of attractive homes, from the \$4,000 house of seven or eight rooms up to the spreading palace built in the center of a millionaire's landed estate.

To the man of moderate means the architect's argument for fireproofing is that a small residence of hollow tile and concrete can be made just as safe as a skyscraper costing \$1,000,000 and just as attractive in appearance as a wooden home of the same grade.

In respect to comfort the fireproof house is incomparably superior. The hollow blocks, laid so that their air spaces run perpendicularly in the outer walls, furnish a non-conducting protection which makes the house warmer in winter and cooler in summer. When the weather is cold the coal bills are kept down. Whatever the season the doctors' bills are likely to be smaller. As a side argument for the architect who is advocating fireproof construction, who could resist the suggestion of insurance against bad colds?

It is perhaps superfluous to add anything to what has been told of the modern demand for safety in building construction, but, when all is said, the chief reasons which both architect and builder must advance for fireproof homes are their protection against fire and their durability.

The most approved mode of construction is to build walls, partitions, foundations and floors of hollow tile blocks, and to use concrete for girders and beams. The outside walls of a typical average home, built at a cost of \$6,000, measure eight inches in thickness, the floors six inches and the partitions three inches. Except for such wooden finishings as the owner wishes and the furniture there is nothing burnable from cellar to roof in such a house. Whether the danger of fire arises outside from a burning building in the next lot, or inside, from a match against a gas jet, the hollow tiling stands absolutely proof against the flames. There have been many cases of fires in furniture or clothing being prevented from spreading beyond the room where they originated. This confinement of flames, obviously, would be impossible in a frame house, which probably would be a heap of ashes before the local fire apparatus could be summoned.

Variety of design, artistic possibilities, range of size, comfort, safety and lasting qualities—these are undeniably within the scope of the architect who has studied the fireproof house. With the all-important question of cost satisfactorily settled the subject becomes one needing no further discussion, and the cost question is easily disposed of. The long and short of it is that you pay from 12 to 15 per cent. more for a fireproof house in the beginning, but you make back the difference in what you save on maintenance. As your insurance premiums are lower, your coal bills greatly diminished, your annual repair charges and repainting expenses almost nothing, it is evident that a few years of saving will compensate for the extra initial outlay. And this outlay has provided you a home that will last indefinitely, has assured the comfort of your family, and has given you a guarantee of safety not to be equaled in the finest wooden house ever built.

Beginning in and around the large cities the spirit of the "fireproof age" has spread until it is the guiding influence among architects all over America—and over the world, for that matter.

The leaders among home designers are prophesying, in

fact, that the new century will not be far gone before the advocate of timber buildings will seem as much of an "old foggy" as the farmer who prefers ox-teams to motor trucks, or the builder who considers hot-air registers superior to radiators.

ENAMEL CONCRETE BRICK.

Imitation is Sincerest Flattery.

A FIRM IN the Middle West is putting out a machine and system for manufacturing so-called "enamel concrete brick." The brick are made of concrete, and the enamel of sand and cement, to which is added coloring matter as desired. The brick are manufactured after the plan of sand-lime brick, and are "cured" in tunnels and "curtains at the end are lowered and the steam is turned on." "In a short time the tunnel is filled with a heavy vapor which envelopes the brick and allows them to attain their proper hardness."

Webster says enamel is a substance like glass, serving as a smooth, hard coating. The New International Encyclopaedia says that commercially glass is a fused mixture of two or more metallic silicates. Also that enamel is "a glaze coating applied by fusion to any substance which will bear the necessary heat, especially to metals and to pottery. Enamel is really a kind of glass."

It is a gross perversion of the name to call a coating made in a vapor of steam behind a curtain an enamel. Worth and success find many imitators. There have been false prophets in all ages and some people are deceived and led astray.

CEMENT PRODUCTION AND CONSUMPTION.

THE PRODUCTION of cement in the United States has reached the point where we are world leaders. We lead the world both in production and consumption, and, strange to say, this increased consumption does not mean the great replacing of other material that it might at first imply. Cement does take the place of other materials to a certain extent, and prominent among the materials with which cement comes in competition are brick, lumber and structural steel. And yet there is being used today more brick and clay products than ever before, and also more lumber and structural steel. The answer is in the increased consumption and in the new and more extended uses that have been developed.

This country produces approximately seventy-eight million barrels of cement a year now. Germany, from where we got most of our cement-making ideas, and used to get most of our cement, makes about thirty million barrels. England makes less than twenty million barrels, so that today the United States makes at least fifty per cent more cement than Germany and England combined. We still import some, but not much, and are today exporting more than we import, most of our exports of late going to Panama.

The home consumption of cement is estimated at seventy-four million barrels a year. That is a lot of cement, and the wonder is how do we use all of it without driving some of the rival materials out of the market? Here is part of the explanation. Say there is a lot of new street paving to do—and, by the way, street paving is one of the things that has made wonderful progress during the past decade—there is first a grading, and then comes a foundation of concrete. If the street is to be paved with brick, there is the concrete foundation and then the brick facing, making a heavy call for both brick and cement, instead of one replacing the other. And it is just here that lots of home consumption of cement goes, into street foundations probably more than in any other one line of work. This is added to greatly by the kindred work of sidewalk building. Then there is more sewer work, more building in the cities and on the farms, so that with it all there is an enormous consumption of cement, and yet at the same time there is more of clay products, lumber and structural steel used than ever before.

IMPRESSIONS OF CLAYWORKING METHODS IN EUROPE.

By A. E. Eaton.

Part II.—Holland and Germany.

Holland is a country of brick, and nearly of brick alone, there being a considerable number of brick pavements in many cities and also along many of the country roads, some of these pavements being very good, but the average, it appeared to me, not as substantially constructed as they might be. Good raw materials for pavers are almost entirely absent in Holland, hence the brick used are not of equal grade with ours, or with those of other countries, for paving. The manufacture of face brick seems to be almost unknown for the same reasons. Machinery and kilns used is of very little interest, the kilns being principally of some form of "clamp" or of a rectangular form, fired with every variety of fuel.

One of the first things to impress one in the German plants, or, rather, without, for it is not so easy to get admission to the better plants of Germany, is the fine and very substantial buildings that they are housed in. As shown in the illustrations, the plants are mostly of three stories (at least the larger plants, although two-story plants are often found). The making is usually done on the top floor, the drying on the second floor and the burning and part of the

starting from a small beginning, as most of our plants, but are the result of careful design started on a large scale. While labor is considerably cheaper than in England, more labor saving devices are found by far, it being plain that there is constant effort to save every possible bit of labor and fuel, although conditions are such that some of the devices they find most economical would not be satisfactory in this country, as for instance the automatic transporters.

In Germany it is not considered a deadly sin for brick-makers to combine for self-protection and mutual benefit, there being "syndicates," or co-operative associations, formed among the clayworkers of each district, a director being appointed from each company in the combination as a director of the syndicate. Most of these combinations handle all orders through a central office, the office setting the prices, and undertake to dispose of the output of each member of the combine.

In this way the expense of selling is considerably reduced; also there is less chance of loss through bad debts, and no ruinous price cutting, but the effect on a small firm, not in the combination, is problematical. From the opinions given



A Well Built German Clayworking Plant.

drying on the first floor, the kiln being entirely enclosed in the building, its top forming part of the floor of the second story. In this way all of the radiated heat from the kiln is used in the drying, as well as the heat from the cooling goods not used in preheating the air for combustion, it being only necessary to open the top of the cooling chambers for the escape of heat into the dryer above the kiln. Flues are usually arranged for the distribution of the heat and to provide circulation, but the drying is slow and, as it is usually done on racks, the labor used is quite an item, even with the automatic transports used. These transport cars, as shown in the accompanying illustration, run to every part of the plant, it being arranged to take green ware from the making department to the dryers and from the dryers to the kilns, and in some cases from the kilns to the stock sheds. Tunnel dryers are often found, as well, being of similar form to those in this country in some cases and in others having the same methods of handling the goods on trucks through a tunnel of the usual length but with a different arrangement for the heat and air circulation, as explained later.

The first cost of these plants, of the more modern types, is immense, running as high as \$750,000; also they show plainly that they are not the result of a natural growth,

by those fairly familiar with conditions, not interested, it seems that the small plant is gradually being forced into line or out of business in all parts of the country. A peculiar condition in regard to railway or freight rates exists in Germany, there being one rate between all domestic points, depending on the distance, and another much lower rate on ware for export. This enables the companies to compete in foreign markets to advantage, many tiles going to Russia and other countries. Few firms had any accumulation of stock on hand over the usual amount at the time of the season, for the country has been enjoying a very prosperous year in the building trade.

One of the first and most interesting plants visited was that of the Messrs. Fichenchers, in Swickau, where they are making sewer pipe up to one meter in diameter and length, tiles, paving bricks and face brick, also all varieties of jugs and chemical ware, including glazed chemical vats of the largest sizes, running up to approximately 3m x 1m x 1m (10' x 40" x 40").

Clay is gathered at this plant by the regular type of clay gatherer, being stored for weathering near the plant, the clay being kept separate, the upper part being stored for common bricks and the lower for the better wares.

The methods of preparing the clay at this plant are similar to that usually used in this country, ground overburned

brick, obtained from setting the brick in the place of the usual flash walls, are used for grog; regular sewer pipe presses of a type very similar to that used in the best plants of this country being used. In the making of "clinker" bricks, face brick and channel bricks for stables, they use hydraulic presses for repressing the clay, on the flat sides of the bar, and obtain one of the hardest and densest brick observed. These brick compare more than favorably with the best in this country in color, finish and crushing strength, with a toughness that should cause them to stand a most excellent test. It is in the burning that the most interest lies at this plant, all the ware being burned in continuous or semi-continuous kilns, either glazed or unglazed.

The engine room of this plant is one of the best in any plant visited, comparing favorably with the power plants in the best plants in this country—in fact, being far better than the most of them.

The fuel used under the boilers is of a low grade, very fine slack, from the mines of the company, and is fed from overhead bins to a small "fan" built with blades in the form of the blades of a centrifugal pump, this fan distributing the

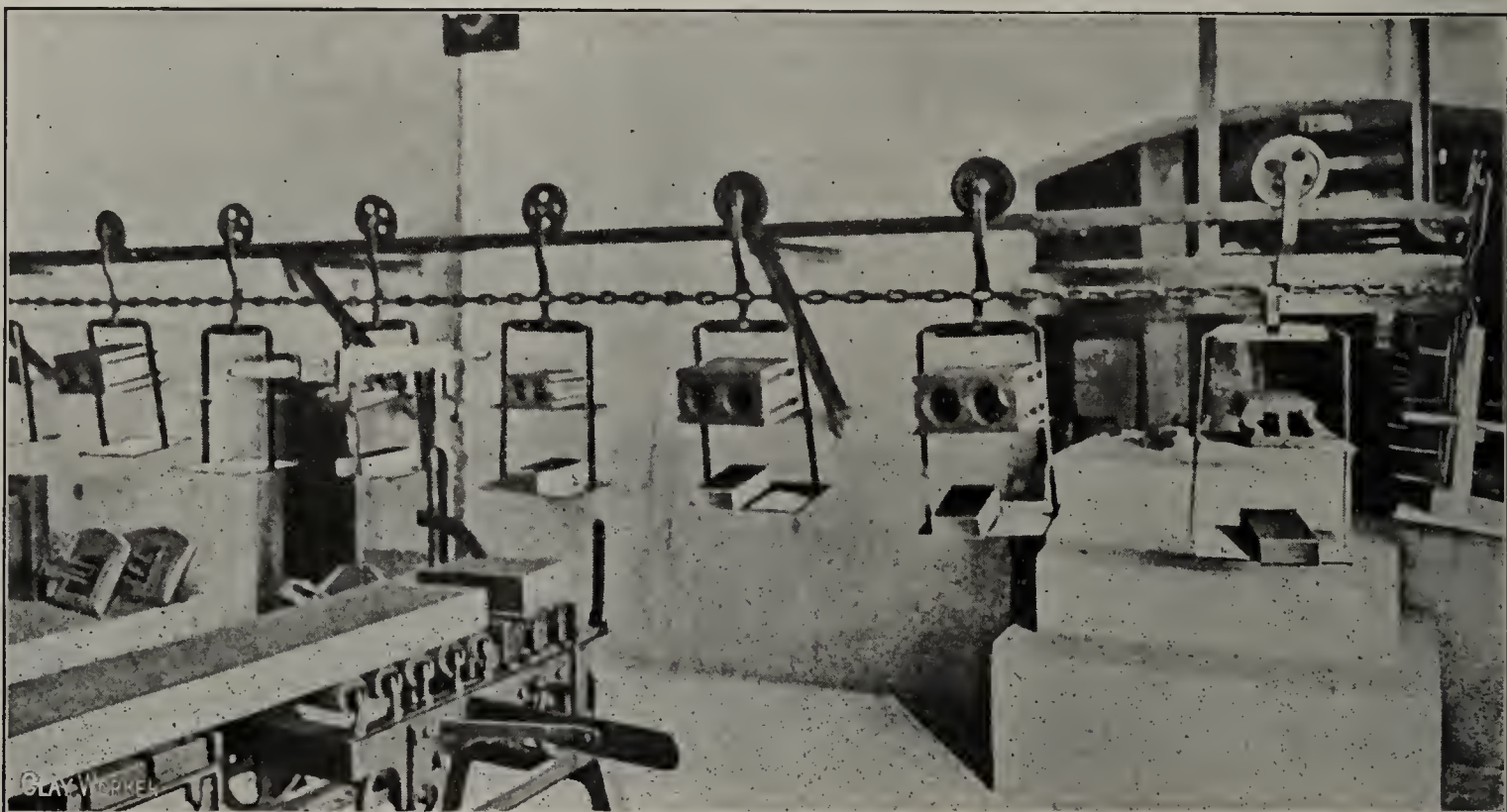
THE NATIONAL DRAINAGE CONGRESS.

THIRTY-SEVEN States were represented by regularly appointed delegates at the congress held in New Orleans in April. Strong resolutions were adopted and a policy of immediate and determined action was agreed upon.

Director-General M. O. Leighton is recognized as being eminently qualified for the position both by preparatory education and practical experience. He has been Hydrographer and Chief of the Division of Hydro-Economics, United States Geological Survey, Consulting Hydrographer, United States Inland Waterways Commission, etc.

The Southern Pacific Railway officials gave the delegates a trip through the reclaimed lands along their lines in Louisiana, and furnished a vivid lesson of the possibilities of the swamp lands of the South.

The need of co-operation of all interests in the larger problems of drainage is seen when we consider the great areas of wet lands, in several instances in unbroken stretches extending from one State into another and directly related to the improvement of navigable waterways. Here it is distinctly



Automatic Transporters Carrying Clay Products to the Dryers.

coal very evenly over the grates. All coal, either going to the boilers or to the kilns, is automatically weighed on a recording scale in the track, so arranged as to weigh all loads going over it without any attention. The water and the steam are both measured with recording devices, as well as all power leaving the plant.

The engine room equipment consists of a large 1,000 horsepower poppet valve engine, running at rather high speed for an engine of this type (107 revolutions per minute), direct connected to an alternator of heavy design, furnishing current for all machinery at 350 volts, except for a few machines direct over the engine room that use rope drive from this engine. The night load is carried by a 400 horsepower engine of a similar type, with a suitable sized alternator.

The switchboard in this plant is one of the most complete in use in a manufacturing plant of any kind today. Each machine has its individual ammeter and circuit breaker, in addition to being on a watt meter, for measuring the total power required.

The engine room is finished in white tiles and the floor is of a good grade of floor tiles, making one of the finest possible power plants.

(To be continued.)

the task of the federal government to supervise. Similarly, no State can permit one man to drain his land to the detriment of another; its duty is to provide means of co-operation of all land owners likely to be affected by the improvement.

In speaking of "The Nation's Part in Drainage," George H. Maxwell, chairman Pittsburg Flood Commission, said:

"In the Mississippi Valley, in the Colorado River Valley, and in the Sacramento and San Joaquin Valleys, in California, drainage without flood prevention and protection from overflow from the navigable rivers, is an impossible proposition, and the same is true of drainage in Louisiana and Texas.

"For that reason the scheme for a National Drainage Commission is superficial and would prove utterly futile unless coupled with a Forestry Commission, an Irrigation Commission, and a Navigation Commission, for the four wheels on which the wagon must run are Forestry, Irrigation, Drainage and Navigation, and unless all four wheels are in place the wagon will not run.

"Co-ordination therefore of the agencies that must solve the problem, is the first pre-requisite. A National Drainage Commission without co-ordination, having no connection with forestry, no connection with irrigation, no connection with

navigation—that is, having no connection with the administrative and constructive agencies of the federal government that are dealing with forestry, irrigation and navigation, would be a useless excrescence on the body politic—a thing 'as idle as a painted ship upon a painted ocean.'

"Just four things must be accomplished before the drainage problem can be solved in the states where navigable rivers or their tributaries cause overflow:

"First—Co-ordination of the work of the different departments of the federal government.

"Second—Co-operation between the federal and the state governments and local districts.

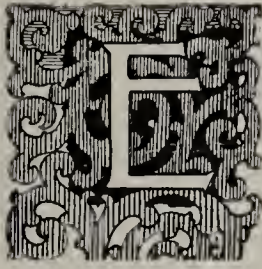
"Third—A policy that will deal with every river as a unit from source to mouth, including all its tributaries and source streams.

"Fourth—Money (and enough of it) to build the things that must be built, and do the things that must be done, to stop destructive floods, stop destructive overflows, stop caving banks, protect and build levees, put enough water in the rivers in summer and none too much in winter—in fact, regulate and control the flow of navigable rivers.

"All these are provided for in the Newlands River Regulation Bill, and until a law embracing those provisions is en-

Written for THE CLAY-WORKER.

KANSAS BRICK AND BUILDING NEWS.



EVERYTHING looks good for the Kansas City brick manufacturers at the present time. They are enjoying a very satisfactory business, with the indications that it will continue well up into the coming winter, and they are better able to figure on a profitable future business than they have been for some time.

Nearly all plants are working full time and have a ready demand for all their product, the question of delivery being the burning one at the present time. Teams are hard to hire, and plants not having their own teams are finding it hard to get a good service from hired ones, where they can make any money. One brick jobber said that he was hiring teams every day and paying \$6 for them, and they were not earning him over \$5 a day. He is compelled to stand this loss in order to keep up his contracts for delivery on the jobs. Some teams are properly driven and make good, but where the drivers do not care, they loaf around saloons on the road between the car and the job and do not make enough trips in a day to let the jobber come out even on their work. As the hot weather advances this matter of delivery is going to be even more serious than at the present time.

Kansas City manufacturers are not figuring on gas as a fuel, and they are not figuring on turning to oil. The advance of 50 per cent. in the price of oil this year has caused a general tendency among brick people towards dropping back to coal and wood as a fuel, and the chances appear to be good for the local plants using such fuel in the near future. Some of them are located badly for the use of such fuel, not being close to a switch where they can have the fuel delivered to them, but depending upon a considerable haul. They are all figuring, however, on the Kansas plants being forced to give up the use of gas, and in that case the brick can be made right here in Kansas City as cheaply as down in Kansas, thus saving the freight, and the freight is such a big item that the local plants feel that there is every prospect for them to make some money the next few years. It is a well known fact that Kansas City has been the dumping ground for Kansas brick plants, and the local manufacturers have been forced to give the greater part of their attention to such periods of the year as found the Kansas people not looking for a market here, and that was when there was a big demand in other directions, where prices were higher, or when they were closed down entirely for lack of a market. With high priced fuel in sight, it is thought the local plants will entirely control the situation here, and that the outside plants will only contribute such an amount to the sales as the local plants are unable to supply at rush periods.

News from the Kansas gas field indicates that only about a third of the plants are now running, and that the shut-downs of the others are ranging from a short period to the entire year. Some say they can not run until they decide on a new fuel to take the place of gas, and others say that they already have enough brick in the yard to take care of the demand for some little time, as business is dull in the greater part of their trade territory.

It seems that right here in Kansas City is the best point for the sale of brick in this section of the West, and that it is about the only point where there is any indication of continued building activity. A number of very large buildings are being started and the smaller buildings are numerous, far ahead of this time last year.

According to reports from the plants making a specialty of paving brick, there is an exceptionally light demand this year, and the prospects are not considered to be good. They say that there has been a tendency for some time among the smaller towns to go too far in the matter of paving, and



The Transporters Delivering Dried Ware.

acted by Congress, our great rivers will continue when at flood, to be unmanageable forces of destruction, instead of beneficent agencies for the public welfare.

"The fundamental things for which every advocate of drainage should contend, with reference to the federal government, are:

"Co-ordination and co-operation.

"Unification of river systems.

"Money—money—money—and enough of it—for construction."

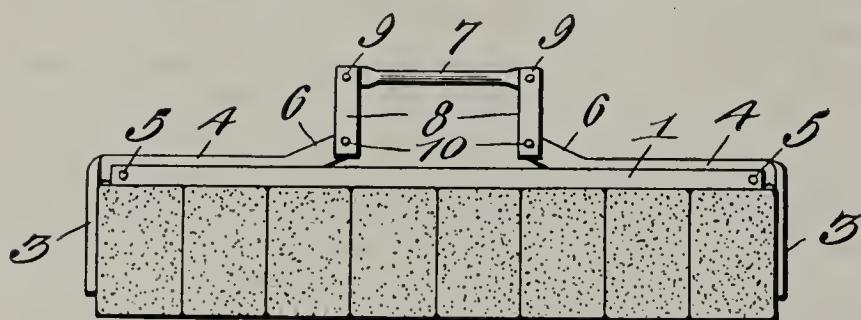
The history of the Panama canal construction—expeditious, economical and efficient to a degree—demonstrates the advantage of having any great work. The whole project of the drainage of the wet lands of the Mississippi Valley should be carried out on a harmonious plan, such as can not be put into effect by States or individuals alone. With the completion of the Panama canal all the equipment in use there would be available for work elsewhere, and much of it could readily be adapted to reclamation and drainage work.

When the politicians get real excited the general public gets an insight into the inner working of things that makes the halo disappear from some of our public characters.

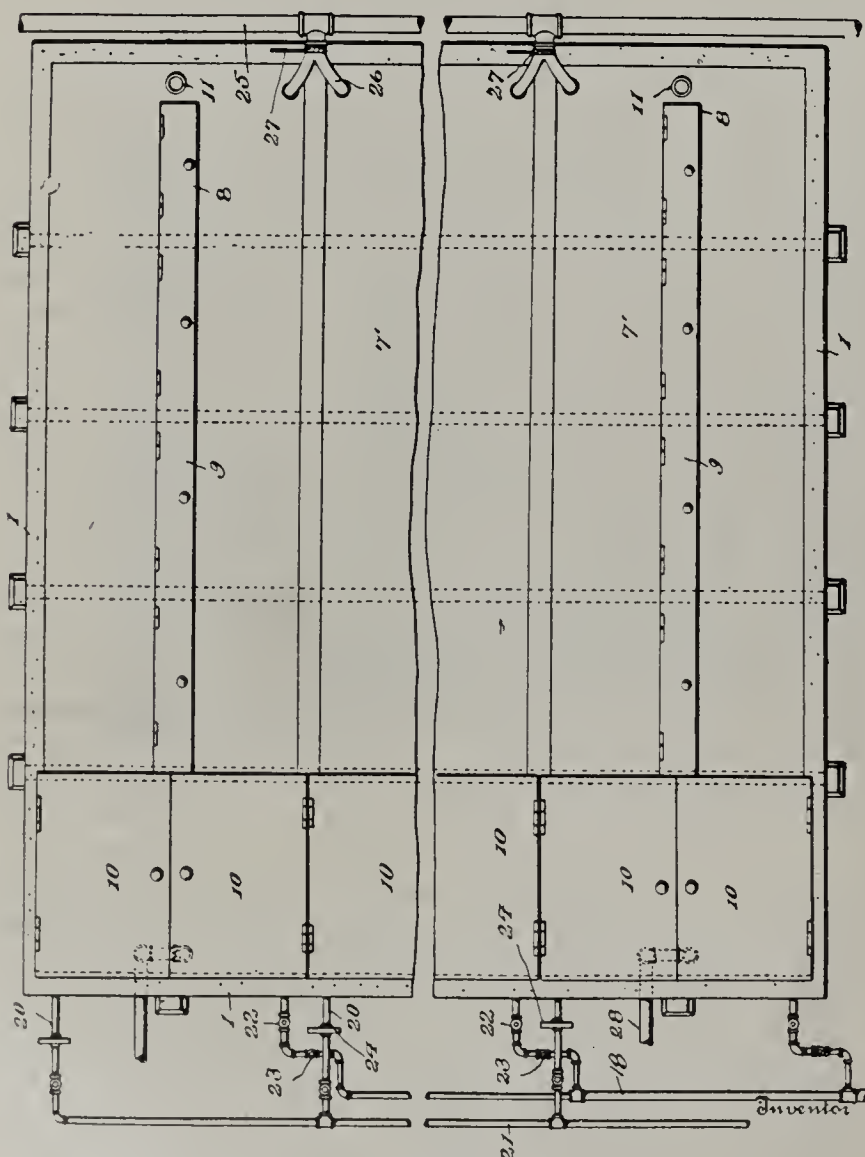
this has made a very heavy paving brick business, but there is now a feeling that retrenchment is necessary, and this seems to be general enough to cut a big figure in the demand. The statement is freely made by all manufacturers that it is not because other paving material is becoming more popular than brick, but that the demand for all paving material in this section has dropped off to a considerable degree.

C. W. Reed, until recently manager of the Kansas City Hydraulic Press Brick Company, has accepted the secretaryship of the Kansas City Brick Contractors' Association, and has an office at 415 Ridge building.

Arthur J. Eadie, junior member of the Eadie Building Supply Company, and son of Thomas Eadie, one of the old-time



1,014,079.



1,029,708.

brick men of this part of the country, was married June 12, and has just returned from a wedding trip to Colorado points. Mr. Eadie is the youngest man engaged in the jobbing of brick and building material in this city.

The Buffalo Brick Company, of Buffalo, Kans., has closed down its plant indefinitely, on account of a big stock of paving brick on hand and a light demand.

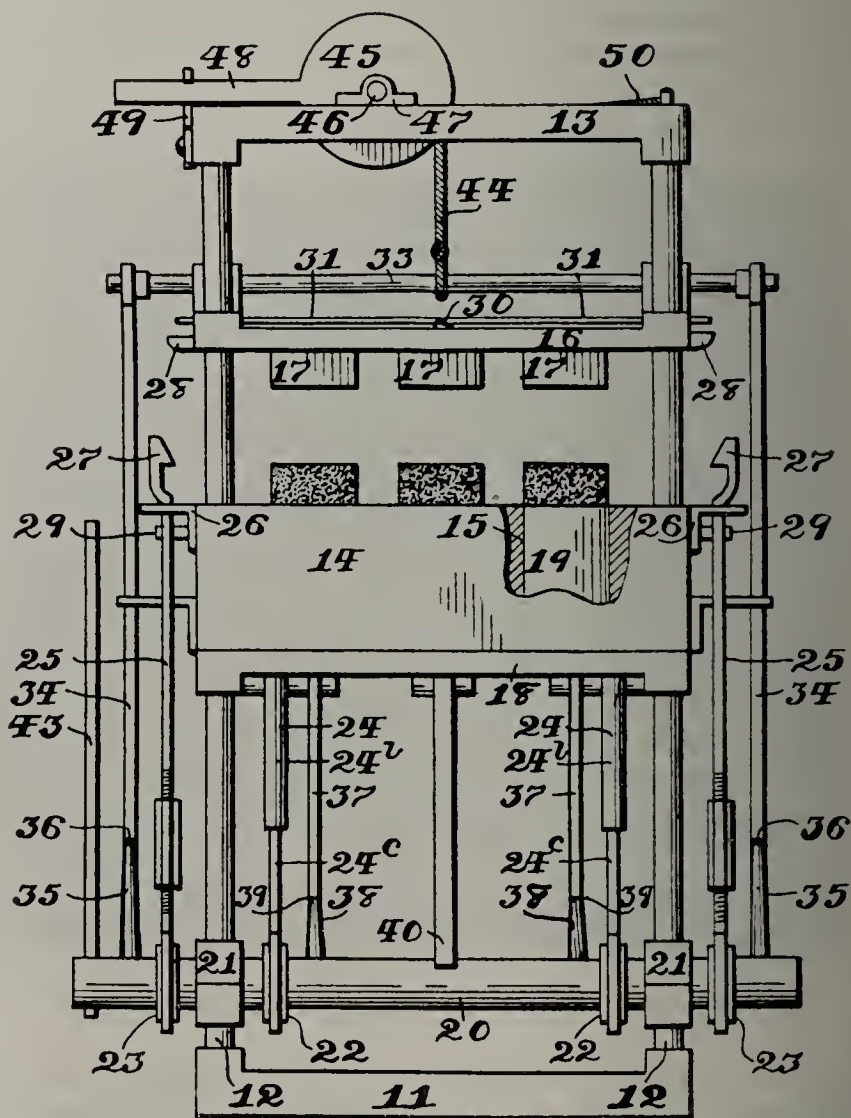
H. M. Bushong has resigned his position as manager and general sales agent of the Standard Vitriified Brick Company, of Coffeyville, Kans., and has accepted a similar position with the Fort Scott Vitriified Brick Company, of Fort Scott, Kans.

K. A. W.

RECENT PATENTS.

Material for this department is compiled expressly for The Clay-Worker by Watson & Boyden, Patent and Trade-Mark Lawyers and Solicitors, 918 F Street, Washington, D. C. and to them all inquiries in regard to patents, trade-marks, copyrights, etc., and litigation affecting the same should be addressed. A complete printed copy of the specification and drawing of any United States patent in print will be sent, postpaid, to any address for 10 cts.

Brick Hook: Jesse Martin McKay and Robert Alfred McKay, of Olathe, Colorado. 1,014,079. Patented January 9, 1912.—This invention is an improved brick hook such as are used for lifting and carrying bricks simultaneously, the object of the invention being to effect improvements in the construction of the brick hook whereby the same is provided with a pair of angularly movable jaws, which are adapted to be simultaneously closed against the outer sides of the end bricks and to combine with the said angularly movable jaws, a handle, and connections between the handle and the jaws



1,017,921.

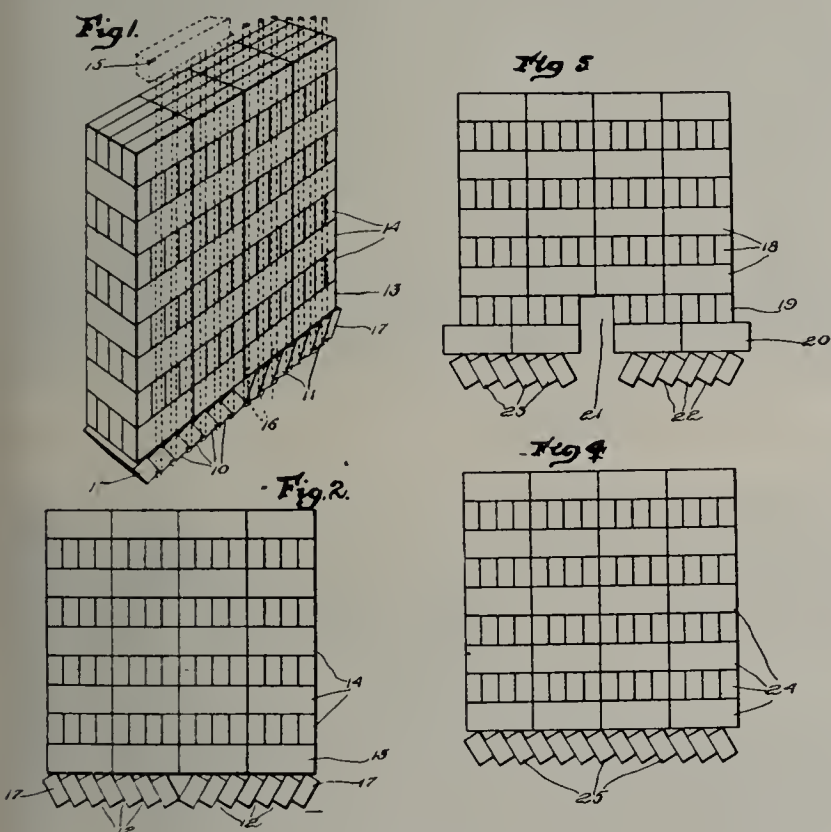
for exerting the same leverage on both of the said jaws, and thereby insuring the gripping of the jaws on the end bricks, so that all of the bricks may be lifted by the hook and also facilitate the disengagement of the jaws from the end bricks when the latter are deposited on a supporting surface.

Apparatus for Treating Clay: John L. Misser, Lancaster, Pa. 1,023,708. Patented June 18, 1912.—The invention relates to an apparatus for treating clay, and consists of a number of tanks arranged and supported side by side and provided with a suitable heating system, each tank being provided with a novelly constructed and arranged device for drawing off and draining the water from the tank. The chief objective of the invention is to effect a saving of both time and labor in the preparation of clay for manufacturing purposes, and to produce a more refined article. The illustration shows the top plan view broken transversely. In operation the tanks are filled with the clay solution through inlet open-

ings to the desired height. Steam is then turned on through the main steam pipe 21 and is fed through the various feed pipes 20, through the manifolds 15, and pipes 13, and is drawn through the various pipe sections through the connections 20 which run into the return steam pipe 18, through the various globe valves, and check valves interposed in the connections. A sufficient temperature is maintained under the various tanks for a sufficient length of time to completely separate the particles of clay and permit the vegetable and other undesirable matter of less specific gravity than the clay, to gradually rise to the top, while clay settles to the bottom. When the clay is thoroughly purified and has precipitated to the bottom of the tank, the water, with its contained impurities, is drawn off through the drain pipe 31. After the water has been completely drawn off and nothing is left in the tank but the purified clay, the heat is maintained for a sufficient time to remove all of the moisture from the clay, which will rise in the tanks and be exhausted through the Y-connections 26, which are in communication with the exit pipe 25. When the clay has become sufficiently dry for handling the hinged doors or covers 10 are opened to permit the entrance of buckets carried by suitable crane devices,

required without disturbing such formation. A serious difficulty which has been encountered in the use of mechanical lifters has been to make provision for engaging the lifting fingers underneath the bottom of the stack at intervals along the sides thereof to effect the lifting. In arranging the stack to permit this insertion of lifting fingers underneath the stack, where the bottom row of bricks has been spaced apart to leave apertures to receive the fingers, it has been further necessary to provide some special kind of lateral gripping devices or jaws in connection with the fingers to grip and engage the sides of the bottom row, so as to lift these along with the stack, or else the bottom row is left behind, so that when the stack is next set down there are no spaces thereunder to again receive the lifters.

The present invention provides a method whereby the bottom row of bricks is specially arranged so as to leave spaces at frequent intervals along the bottom of the stack to receive the lifting fingers, the bricks being so arranged with relation to these spaces that the entire stack, including the bottom row, may be lifted without disarrangement of any of the

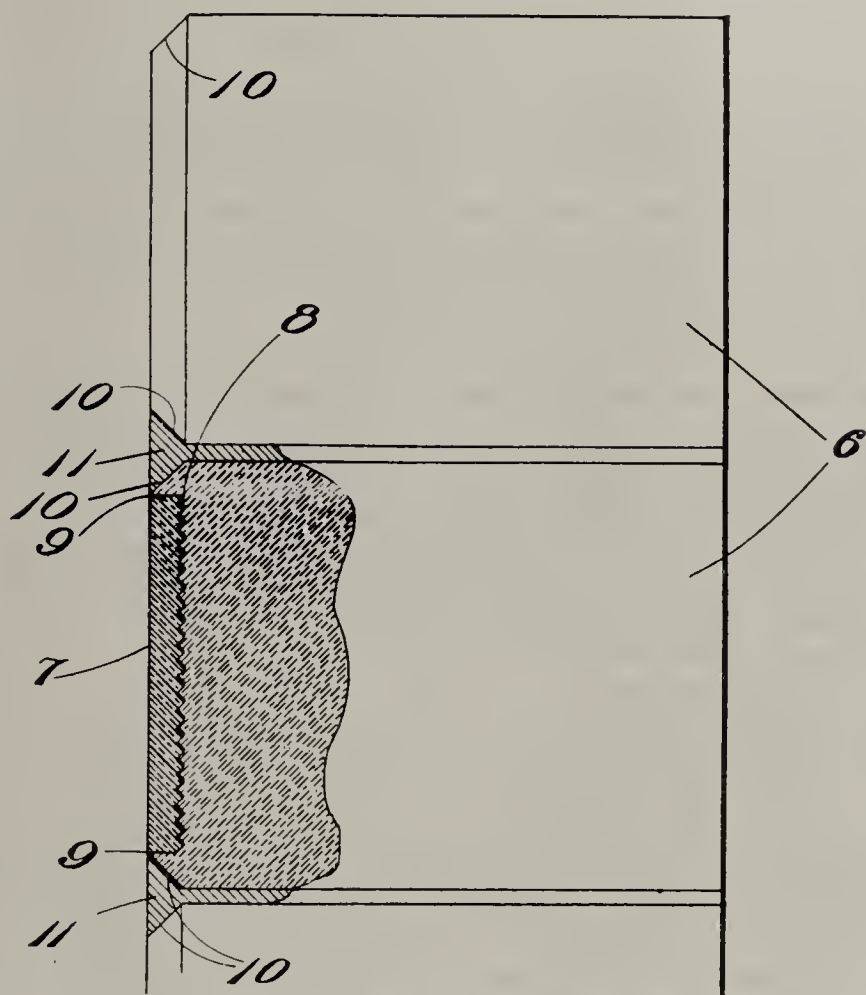


1,030,397.

into which buckets the refined clay is loaded and removed from the tanks.

Machine for Making Brick: John F. Sheckler, of Oklahoma, Okla. 1,017,921. Patented Feb. 20, 1912.—This is an improved brick machine which, it is claimed, is cheaper and more simple in construction than others heretofore designed, and which can be more quickly and conveniently operated. The illustration is a front elevation of the machine showing the parts in one position. The complete drawings comprise twelve figures, and for a better understanding of the machine those interested are referred to the patent itself.

Brick Handling Method and Stack: Wm. H. Francis, Cheryvale, Kans. 1,030,397. Patented June 25, 1912.—In the handling of bricks through the various stages in their manufacture, it is becoming recognized as a requisite for economical and rapid production to meet the demands of present day practice, that provision be made for handling the bricks in units or stacks for transfer in considerable numbers en masse by a mechanical lifter and setter, capable of lifting a considerable pile or stack of brick built up in hacking relation, or other stacked formation, and depositing them as



1,018,747.

bricks by simple, straight-up lifting fingers, the arrangement permitting the stack so formed to be set down and again lifted in this manner as many times as desired, while still maintaining undisturbed the setting of the bricks in the bottom row whereby the spaces for the lifting fingers are provided. This special arrangement of the bottom row of bricks consists in placing the same in tilted edgewise position, the bricks on either side of the stack being preferably tilted with their tops leaning toward their respective ends.

Referring to the drawings: Figure 1 shows in perspective a stack of bricks arranged in accordance with my invention, the fingers of an illustrative form of mechanical lifter being shown in dotted lines in position to engage and raise the stack. Fig. 2 is a side elevation of the stack formed in accordance with my improved method. Figs. 3 and 4 are side elevations, showing possible modified arrangements of the stack.

Glass-Faced Brick: John T. Groat, of Detroit, Mich., assignor of one-half to George Watts, of Detroit, Mich. 1,018,747.

Patented Feb. 27, 1912.—In this improved brick the glass slab is made of slightly less area than the area of the front of the brick, and the brick has projecting rims around the edges of the slab, such rims being beveled as clearly shown in the illustration.

Brickmaking Machine: James A. Dunning, Aulander, N. C. 1,025,133. Patented May 7, 1912.—This invention has relation to brick, tile, hollow block, pipe and other machines for forming plastic material into special shapes by forcing the material, such as wet clay, sand and lime, sand and cement, or other moist plastic material through an orifice or die, and having for its object the improvement of said die, which consists of a plate having an aperture provided with converging side walls and an inward extending endless marginal lip of comparatively slight extent entirely surrounding said aperture and having concave walls of a comparatively sharp convergence greater than that of the side walls of said aperture and gradually merging thereinto and acting to finally and sharply compress the product of the machine just before it emerges from the die.

2. In a column forming machine for working clay and the like, having uninterrupted continuously converging clay compressing walls, a die consisting of a plate having an aperture provided with converging side walls in line with and forming continuations of the clay compressing walls of the machine, and an inward extending endless marginal lip of comparative slight extent and prominence entirely surrounding said aperture and having concave walls of comparatively sharp convergence, greater than that of the side walls of said aperture and merging thereinto, said lip acting to finally and sharply compress the product of the machine to a slight extent just before it emerges from the die.

Brick, Tile, or Analogous Article and the Process of Making Same: Andrew Malinovsky, of Toledo, Ohio, assignor, by direct and mesne assignments, of one-fourth to John H. Taylor, of Schenectady, N. Y., and three-fourths to the Sanitary Brick Company, of Schenectady, N. Y., a corporation of New York. 1,016,345. Patented Feb. 6, 1912.—In the making of my improved brick, tile or the like, I preferably combine the following ingredients in substantially the proportions noted, but such proportions may be varied without departing from the spirit of the invention:

Silicious sand	73 per cent.
Calcium oxid	5 per cent.
Pegmatite	12 per cent.
Magnesia silicate	6 per cent.
Aluminum hydroxid	4 per cent.

To obtain the best results it is preferable to finely crush about 25 per cent. of the silicious sand used, or about 18 per cent. of the entire mass, so that it will pass through a sieve of not less than 140 mesh, and this is then mixed with the calcium oxid. The pegmatite and magnesia silicate are then properly calcined so as to expel all the water of crystallization therefrom. Unless this is completely done, the subsequent heating or firing of the brick or other article will act to expel the remaining moisture and cause a checking or possible fracturing thereof. The crushing or reducing of a substantial portion of the sand to a powder prevents voids from occurring in the product. It may be said that the magnesia silicate used is in the form of serpentine rock, while the pegmatite is a finely crushed granite containing quartz, mica and feldspar. Pegmatite is used in preference to other varieties of granite on account of its greater friability. It is to be understood, however, that the word pegmatite as used in the claims is to be considered broadly as granite and not as a variety thereof.

A portion of the sand, the calcium oxid, pegmatite and magnesia silicate having been prepared as above stated, are placed with the other ingredients and the whole thoroughly dry mixed. Sufficient water is then added to form a heavy mortar-like mass which may be molded in any well known manner into the desired form. Without preliminary air-drying, the molded articles are now ready for the operation of heating, baking or firing, the degree of heat required varying within wide limits in correspondence with the desired appearance of the articles and the use to which they are to be put.

Written for THE CLAY-WORKER.

AN INTERESTING SOFT MUD BRICK PLANT.

NESTLING ON THE southern shore of Lake Erie is the city of Dunkirk, N. Y., the main industries of which are the Brooks plant of the American Locomotive Co., silk mills, planing mills, fisheries and foundries. In the western part of this interesting city are located the two plants of the Dunkirk Brick and Tile Company. These plants were established many years ago, and have turned out millions of brick. The older of the two plants is the one formerly known as the Hilton Brick Yard. This was erected in 1866



Clay Field of Dunkirk Brick and Tile Company's Plant No. 1.



Clay Gatherer Dumping Clay Through Grating.

by two brothers, John and William Hilton. They dissolved partnership in 1876, William Hilton selling out to his brother. That same year William Hilton built a factory about a quarter of a mile from the other, and both plants experienced prosperous times. Upon the death of John Hilton, the heirs sold the old plant to a party of men who adopted the name of Dunkirk Brick and Supply Company for the new firm, which has been operating the plant since 1907.

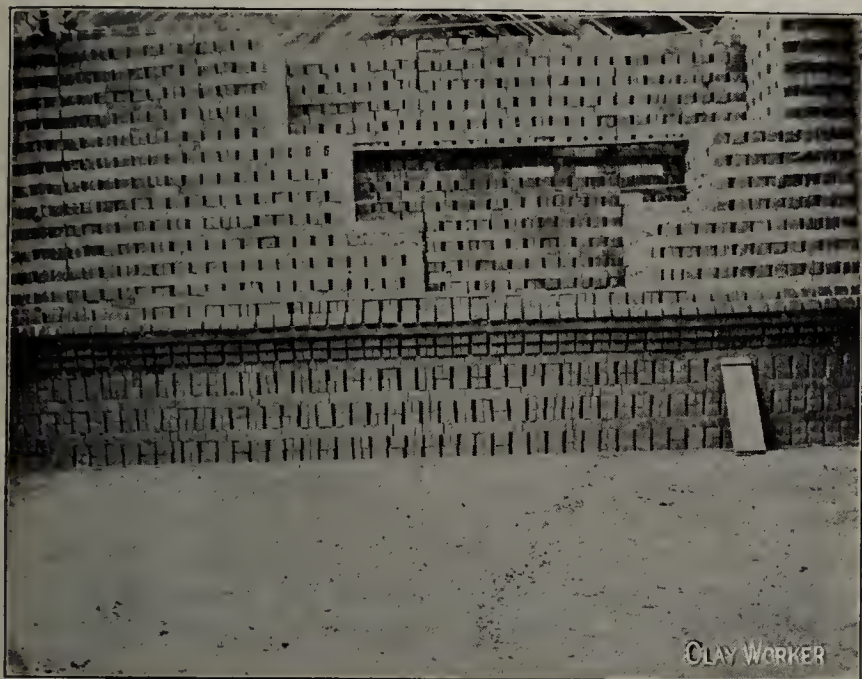
William Hilton sold out to his son, Walter E. Hilton, in 1892, and the plant was run independently until this year, when the two plants were consolidated. The incorporators of the new company were S. M. Hamilton, of Buffalo, and R. W.

Wright, Charles E. Whelpton, Elton D. Warner and Walter E. Hilton, of Dunkirk.

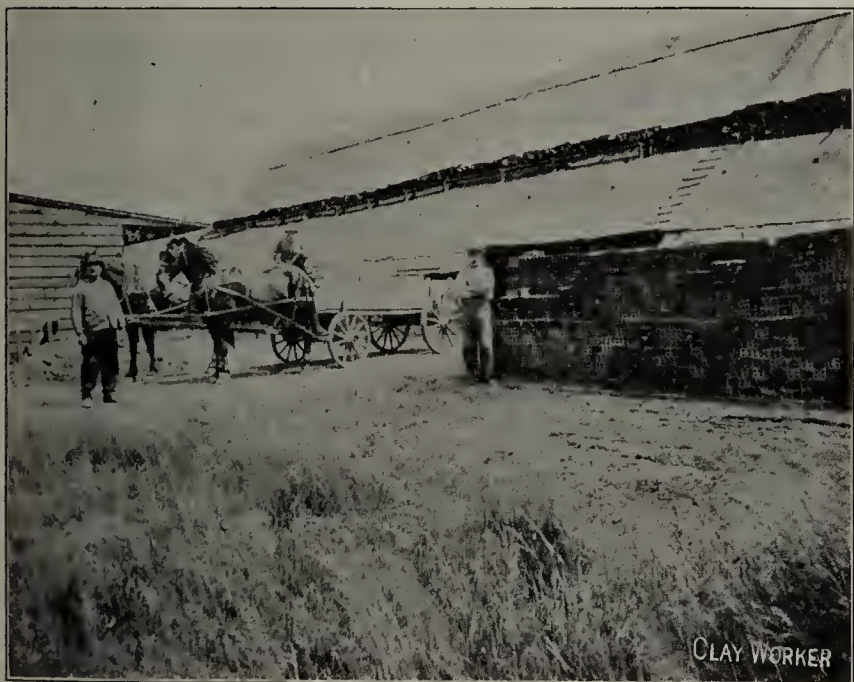
Both plants make soft mud brick, with a total annual output of about six millions. The clay is obtained from a thirty-acre field, with ten-foot average depth of surface clay, which contains some small stones and lime pebbles, and must therefore necessarily be screened.

Quincy clay gatherers holding one yard of clay each are used to bring in the clay, which is first plowed to a depth of about three inches with a special plow which is made for this purpose only.

The plants are twin plants save for the fact that on one is a Penfield upright brick machine, made at Willoughby,



A Kiln of Green Brick.



Dunkirk Brick and Supply Company's Plant No. 1. Mr. W. E. Hilton on the Left.

Ohio, while on the one that was operating during the time of our visit is installed a Hilton horizontal brick machine, manufactured by Walter Hilton.

The filled clay gatherers are hauled on to a bridge at the rear of the plant and the raw material dumped through a grating on to an endless conveyor belt, which carries the clay to a storage pile, where it runs down a chute by gravity. Here it is picked up by a chain elevator, which takes it to a point about twenty feet high and dumps it into the revolving screen.

The screened clay drops into a large hopper and is fed into the Hilton horizontal brick machine, the stones and lime passing out the opposite end of the screen. Brick molds hold-

ing six bricks each are sanded on a Hilton mold sanding machine, which is manufactured by the Hilton Sanding Machine Company, of Dunkirk, N. Y. See their advertisement on page 95 of this issue.

The pallets of green brick are placed on double deck trucks of their own make, each truck holding sixty bricks. These trucks when loaded are wheeled to the open air drying racks, where the pallets of brick are placed in wooden racks. This summer yard has rack capacity for 160,000 brick.

The brick dry in five to eight days, and are then set in up-draft kilns holding 400,000 brick each.

The brick are burned with soft coal, ten to twelve days being required. The company will install gas within the next few months. A switch is to be built running into the plants, which will greatly aid in the transportation. At present the brick are being hauled to the cars and for local trade. The company has a wide selling territory in western New York. This company is also making hollow building brick, and intends making drain tile also on a large scale.

THE READER AND THE ADVERTISER.

Like everybody else, the men who spend their money exploiting their products through advertising learn more as they grow older.

Among the lessons they have been learning lately, and admitting, is that a subscriber and a reader of a publication are two different things, and that in some cases a thousand readers of one kind may be worth more than ten thousand of another kind.

There was a time when what is called circulation carried more weight in the eye of the average advertiser than anything else. It looked like a mere matter of figures and that the publication with the biggest number of subscribers or the greatest quantity of sold copies per issue was the one that would bring the biggest results.

Time and careful experiments have demonstrated that this is not so. That sometimes papers of enormous circulation are practically barren of results. Partly because the circulation is not among people of buying inclination and ability and partly because subscribers are not necessarily readers.

Another thing that has been discovered is that the more respect the reader has for the publication and its standing, the more reliability they find in its utterances, the more respect they have for the things displayed and talked about in the advertising pages.

It is not primarily the fault of the advertiser when a publication is erratic, uncertain, and unreliable in its editorial utterances or policy, but just the same when these conditions exist no matter what the advertising matter contains or what merit there is in the material behind it, they do not properly impress the reader.

In other words, this thing of selecting an advertising medium today is recognized as being a matter that can not be governed by mere volume of circulation or even absolutely by the list of readers itself and their standing. There must be considered not only the quality and standing of the readers, but also the quality and standing of the publication itself.

Then there enters another factor too often overlooked, and that is the disposition of everybody, when they are looking for something, to seek a special trade paper representing that thing for which they are looking. If a man wants to look up the subject of brick or clay products he does not look in a farm paper or family magazine to find the last and best word on this subject, but immediately begins to inquire if there is a publication devoted to clayworking and if so, it is here he expects to find represented the most dependable advertisers of the product he is seeking.

Written for THE CLAY-WORKER.

BRITISH BRICKMAKERS AND THEIR MACHINERY.

ENGLISHMEN and their forefathers have been living in brick houses roughly from the days of the Roman invasion, B. C. 55. The engineers and constructors who followed Caesar into Albion set to work to build brick houses after the Roman fashion but using bricks much smaller than the kind employed in Rome itself, the average size being 12 x 6 x 1½ inches. Examples of Roman brick work still remain in the old country, but the archaeologist has to be careful not to mistake for Roman bricks similar sized slabs of sandstone. The modern brick in England roughly conforms to a standard size, measuring 9 x 4½ x 2½ inches or thereabouts.

The varieties of clays and brick earths found in Great Britain are so numerous that no attempt will be made in this article to classify them completely. On account of the comparative cheapness of most bricks it is desirable that the clay or "earth" should require but little admixture with other materials, though in some cases sand, ashes and other substances are added to produce certain desired effects.

The selection of a suitable brickmaking material is naturally a matter requiring great care and considerable practical acquaintance with geology, chemistry and physics. Many fine opportunities have been missed in the past, and are even now being overlooked simply because those interested do not possess the necessary knowledge. An authority on modern methods of brickmaking, Alfred B. Searle, tells how he was comparatively recently called in to advise on the best methods of working in a case in which the clay deposit had suddenly run out, the brickmaker being unable to trace it in any other part of the neighborhood. In this instance a very elementary knowledge of geological upcasts and faults was sufficient to find the remainder of the deposit some twenty yards away. In another case a firm of fire clay users are carting clay from a wood half way up a steep hillside and are then sending it by train for a distance of twelve miles when there is another seam of identically the same clay within half a mile of their works which is available to them, but of whose existence, on account of their ignorance of geology, they were, until quite recently, unaware.

During the last thirty years house building with bricks has, on the whole, boomed in Great Britain despite the competition of many other kinds of material. The brick house has emerged from the conflict of materials still as the ideal form when all purposes are taken into account. The increased demand for building accommodation has immensely benefited brick and allied trades and the demand for bricks not so many years ago ran ahead of supplies.

As always happens in such cases, new methods of working were soon invented and in course of time the best of these became of commercial importance. In the case of the brick trade the first machines were designed to follow the processes used in the manufacture of brick by hand, the chief function of the new inventions being to fill the moulds ordinarily filled by hand. The demand for bricks increased so rapidly, however, that other and quicker methods were brought out from time to time, until, at the present day, there are comparatively few firms in this country who use machines working in imitation of the hand moulding methods. In America, on the contrary, the writer understands, a large number of these machines are made and used for what is termed the "soft mud" process. British clays are, as a rule, too "strong" and plastic for this process, and the greater success of brickmaking by machinery has been due to the use of machines similar in principle to those making sausages, when plastic clay paste is used, and to the use of a dry or semi-dry clay powder which is compressed into the form of bricks in die boxes fitted with a plunger.

The number of different machines which have been de-

vised in order to imitate hand moulding as exactly as possible is very large, and many of these inventions have totally failed to secure recognition. Several of them appeared likely to be successful at the start, but with two or three notable exceptions they have proved unable to meet the demands made upon them, so far as the British clays are concerned, and are now of little more than historical interest.

The successful machines of this type consist essentially of a pug mill, or mixing machine, so designed that the clay passes through a shaping box into a box mould, or into a series of moulds fastened together to form a single unit. The passage of the clay is preferably assisted by means of a series of special blades which are placed just above the mould. The violent throwing of the clay into the mould, which appears to be so necessary a part of the process of hand moulding, is thus avoided completely, and the paste falls from the pug mill into the mould by its own weight and is then compressed by some mechanical means. The mould is then pushed out of the machine and another one added to replace it, the first mould being treated with a "strike" in order to produce a smooth face and to remove any surplus clay. Many excellent machines of American origin of this type are used in England, being built by the owners of the necessary licenses.

Where a sand-faced brick is not considered essential, a much easier and more rapid mode of manufacture may be used. This consists in forcing the clay in the form of a band of clay, usually about nine inches wide by three inches thick, and this band is cut up into pieces the size of a brick by means of cross wires. In broad outline this process is exceedingly simple, the material being made into a paste of suitable consistency, forced through a die or mouthpiece of suitable shape and then cut up into pieces of the desired size, but in actual working many factors have to be taken into consideration and the radical departures from the older method of hand brickmaking warrant one in stating that the use of expression machines for the manufacture of bricks opened up a new era for this industry. Even so apparently small a matter as the consistency of the clay paste may necessitate great alterations in the mode of operating, as stiff pastes behave differently from softer ones.

Naturally, in an industry where so many inventions result from ideas in the minds of men almost destitute of the theoretical considerations involved in the manufacture, many designs of blades for pug mills and mixing machines are in use, but the tendency of the modern British plant is to confine the attention of the makers to a few standard shapes, the "pitch" or distance and a number of the blades forming a complete revolution on the shaft, being altered to suit the clay, or, as is more common but less satisfactory, a second or even third mixing mill is added when difficult clays have to be worked.

Some clays used in England travel forward so readily when in a pasty form that the propelling portion of the shaft need only be a few inches in length, and two or three complete turns of the worm around the shaft are then quite sufficient. In other cases a much longer propelling portion is necessary if good results are to be obtained.

German brickmakers—following the theoretical arguments of Schlickeysen since 1875—are more advanced in this direction than are most of their British colleagues, and the average power required for pugging and shaping a thousand bricks is, therefore, much less in Germany than it is with the corresponding clays of this country.

Given a constant stream of clay paste of uniform composition, the next requisite is a properly constructed die or mouthpiece; and a lot of attention has been given in England to this. The simplest form of mouthpiece known consists of a rectangular aperture of suitable size and shape, but in most works it is necessary to add various other parts so that the clay may be properly prepared and roughly shaped

before it enters this simple mouthpiece, for the reasons just stated. Such a mouthpiece may be of wood lined with fustian or metal—wood itself will wear away too rapidly to make a permanent mouthpiece, but is excellent for the production of special shapes or for carrying out experiments, and may be in the form of a plate or of a deep frame. If the latter, the mouthpiece may be larger at the end which is attached to the remainder of the machine—as is usual—or it may be strictly rectangular. In the latter case, however, power will be wasted by a considerable part of the clay being forced against a “dead plate.”

After the clay band has left the die it should be in the form of a smooth rectangular strip, the cross-section of which is that of a brick. In this country and in Europe, generally, it is the custom to make the die or mouthpiece opening the shape of a stretcher brick, i. e., about $9\frac{3}{4} \times 5$ inches, the clay band being then cut up into pieces the thickness of a brick, but in America the writer understands it is customary to arrange the cutting wires about nine inches apart. Unless two bricks are produced simultaneously in the latter case (and it is always more difficult to produce two bands at once than one of the combined area of the two) the output of the American machines, it has been urged in brick-making circles in England, must be about one-half that of the European ones if both are driven at the same speed. The clay band is cut into bricks by means of wires stretched on a frame at a suitable distance from each other.

The cutting mechanism is practically always arranged so that the cut is always in one direction; to draw the wires back when the cut has been made will inevitably spoil the bricks, as some clay always adheres to the wires. Various ingenious devices for this purpose are available. In any case bricks should always be cut with a clean wire, the workman in charge wiping the wires after each cut, if necessary. The rotary cutters, so popular in America, are not much used in this country.

Special for THE CLAY-WORKER.

BUILDING AND BRICK NEWS FROM DETROIT.

BUILDING operations for the month of June for Detroit show a slight gain over the previous months and show a substantial gain above the same month of 1910 and 1911, amounting to \$2,115,180, which included 644 new buildings; 453 were wood, 124 brick veneer, and 65 solid masonry, and two reinforced concrete. There were 161 additions, 125 wood, 34 solid masonry and one brick veneer, as shown by the records of the department of buildings.

For the first half of the year Detroit sets a building record for the city, the total amount of building being \$13,612,810, exceeding last year for the same period by \$3,594,600. Twelve of the buildings included totaled \$6,085,000. Some of these buildings under construction: Michigan Central Railroad, 16 story depot; office building, 23 stories, Dime Savings Bank; store and office building for J. Henry Smith; eight story office building for the Fisher Estate; four story Broadway Market building; five story granite bank building for Peninsular Savings Bank; eight story store building for John Prentis; six story Mercantile building for Dodge Bros.; six story store building for Brushaber Bros.; four story store building for Samuel and Isaac Goldberg.

The present volume of building and the healthy conditions of business is for Detroit an indication that business in this branch of industry will not suffer the depression which is usual during presidential year.

The brick situation is one of much interest and demand in Detroit. With the common brick manufacturers running at full capacity it is almost impossible, with the handicapped facilities for handling the brick, to meet the contractors' requirements.

WOLVERINE.

Written for THE CLAY-WORKER.

MILWAUKEE AND WISCONSIN BRICK NEWS.



HILE THE RUSH of the early building season is abating somewhat, local brick men report that business is still good. Conditions received something of a setback as a result of the extensive rains in May, so the season will close considerably later this year.

The unusual number of large buildings which are going up in this city will mean a profitable year for brick men, and the best part of the matter is that brick is being used to a greater extent than last year. Local jobbers and contractors say that the majority of additions and new structures being put up by manufacturing concerns are of brick, showing that the use of concrete has not made the gains that it did during 1911. A record number of apartment houses is going up, and, as usual, brick is the popular material.

Reports from the smaller cities and towns of the state are satisfactory and indicate a fair amount of building, hardly in proportion, however, to the building operations here in Milwaukee. It is a noticeable fact that the majority of business blocks in the average small city of Wisconsin are of brick.

Paving operations are in full sway all over the state, and it would seem that brick is more than holding its own. Racine, Fond du Lac, Madison and various other of the larger Wisconsin cities are going in heavily for brick paving this year. While a considerable amount of brick paving is being laid in Milwaukee, more asphalt work is going on than brick men care to see. This is due largely to the fact that the Socialist administration, which recently went out of power, started a wave of agitation for asphalt paving. The poor manner in which this Socialist paving has been holding up will go a long way, it is believed, toward placing brick paving in public favor here in Milwaukee.

Brick plants all over the state are in busy operation. The prospects are exceedingly bright for a big fall building season and brick manufacturers believe they are warranted in keeping their output up to a high mark this year. Most of the larger concerns about the state installed considerable new equipment and remodeled their plants during the past winter, so the total brick production of Wisconsin is sure to reach a new high mark this year.

Demand for brick is unusually heavy all over southern Wisconsin this season and plants in this section of the state are in busy operation. Plants at Racine and other nearby points are operating day and night these days in the effort to keep up with orders. Demand for brick at Racine was so insistent for a time this season that rush orders were forwarded to Chicago for supplies.

Charles Nelson, aged 27, was killed instantly at the Gunther Brothers' brick yards in Port Washington, Wis., recently. He had charge of the cars handling the clay to the machines when a car jumped the track and rolled down an embankment of 200 feet, carrying Nelson along, crushing his skull and inflicting internal injuries. Nelson had just returned from the navy, where he had served four years.

The Manitowoc Clay Product Company at Manitowoc, Wis., has installed considerable new equipment and will be one of the best equipped in the state, when everything has been completed. Edward Fricke, manager, and Elmer Beach of Oshkosh, Wis., president of the company, recently made a trip to Chicago to purchase a new power hoist for handling clay to the kilns.

A. BADGER.

One of the good things about the building reports this season is that much of it involves large business and public buildings, which means more than the usual ratio of clay products. It ought to be a banner year; let us all turn to and help make it so.

IMPORTANCE OF GOOD ROADS.

Economic Phases of the Problem and How They Affect Every Taxpayer and Breadwinner.

An Address by the Hon. Homer J. Tice before the Chicago Association of Commerce.

Basis Problem of Communications.

THERE is no one element of more vital importance in the development of any country, in the advancement of its civilization and prosperity, than its transportation facilities. The problem of inter-communication has ever been a question of first necessity to be solved by any people, whether it were the marking of the blazing trail through the forest, the planting of the guide posts in the prairies, the constructing of modern macadam or concrete public roads, or the building of a great transcontinental railway. In every instance, commensurate with the degree and extent of the transportation advantages has come increased population, improved social, religious and educational conditions, and broader and more substantial business enterprise.

Producer and Consumer.

Supply and demand, producer and consumer, each dependent upon the other, constitute and embrace every element of the business relations of a nation, state or community. Between the two there must be a means of communication. The

public road is the only practical route which the world has yet discovered for reaching the originating point of the producer's commodities, and over which he must first travel to reach the consumer and the market.

Little Hope for Illinois.

The public road is, and will be for generations to come, so far as we can discern, the communicating medium of business and social life. That it is not keeping pace with the demands of the present day at this time, in every phase of life, is a question which can not be successfully disputed; and we of Illinois, especially we of the farm, are just beginning to awaken to the fact that under our present system of construction and maintenance there is but little if any hope of the betterment of existing conditions.

State Expenditures on Roads.

Illinois has expended in the last fourteen years more than \$60,000,000 upon its public highways. The man who invests his money in a business enterprise expects to receive definite



A Fine Stretch of Brick Paved Country Road Over Which Heavy Loads May be Hauled Any Day in the Year.

returns. For this \$60,000,000, 95,000 miles of the whole of the road system of Illinois could have been graded and properly crowned at a cost of \$2,275,000; 95,000 miles of the whole of the system could have been dragged ten times each year for the past ten years at a cost of \$9,500,000; 54,000 miles of road, or all that would be required, could be drained with six-inch tile at a cost of \$8,878,400. For draining, grading, and dragging public roads, we should have expended \$30,653,400, leaving \$29,346,600 for bridges, culverts and maintenance.

Third of State's Good Money Wasted.

What per cent. of improvement would this amount of work make on the roads as they are at present? What per cent. of improvement do our public roads show over conditions of fourteen years ago? In a report of the good roads committee of the Illinois Bankers' association, issued the first day of the present month, after an investigation covering, as I understand it, a period of about eight months, and extending into every county in the state, we find the conclusions, based upon competent authority, that 37½ per cent. of the road fund is expended in such a manner as to be of no permanent benefit. At this rate we have expended in the last fourteen years, with nothing to show for it, \$22,500,000, or enough to have builded seven great permanent highways the full length of the state, or crown 200 miles per year, at an average cost of \$8,000 per mile.

No Guess Work About Losses.

That is what we have lost in the last fourteen years under the present system of road construction in Illinois. These

items of waste and loss are but the proverbial drop in the bucket as compared with the loss, because of bad roads to the farmer and producer. In 1898 Prof. W. C. Latta, of Purdue university, Indiana, made extensive investigation covering a large number of counties in that state, with reference to the effect of roads upon the valuation of real estate. The data were collected from representative farmers in their respective localities, and were based upon the comparative time and cost of transportation, wear and tear on equipment, and quantity hauled. From the figures collected it was found that in the region of poor roads there was an annual loss of \$2,432.00 for every section of land.

Illinois' Startling Loss.

The increase in the value of each section of land by reason of the construction and maintenance of good roads was, from the same data, estimated at \$5,700, or about \$9.00 per acre. Illinois has a farm area of 50,817 sections; and if the figures given out by the University of Indiana, and substantiated by like data in other states, hold good in Illinois, it means an annual loss of the startling sum of \$123,586,944—not only to the producer, but to the consumer as well, consequent upon necessarily increased prices for food commodities.

A Limited Mileage Stands Most Traffic.

The last census shows that 50,817 sections of improved farm lands of the state represent 251,872 individual farms, with an average area per farm of 129.1 acres. As I have said, we have in Illinois approximately 95,000 miles of public



A Dustless Brick Paved Country Highway Near Cleveland, Ohio. A Permanent Roadway Free From Any Further Expense for Upkeep.

roads, of 190,000 miles of land frontage on the highways. Numerous investigations and well substantiated estimates show that 90 per cent. of the freight is hauled over 20 per cent., or 19,000 miles of the public roads of the state. This means that this 19,000 miles of the public roads of the state constitute the chief highways of travel, and are the great market roads over which must first pass 90 per cent. of the surplus food products of our farms to market or consumer.

The Small Farmer's Problem Too.

It means that 38,000 sections of Illinois farm land have a frontage of one mile per section on these market roads; that 76,000 half sections have one-half mile of this frontage; and that 152,000 quarter sections have one-quarter mile, the least of these subdivisions containing more acres than the average farm in the state. It means that these 19,000 miles of main market roads are not more of proportional benefit or necessity to the large land owner, the man of wealth, or the pleasure seeker, than to the man of moderate means and the small farmer. The Hon. Francis B. Loomis, commercial agent for the United States at one of the principal cities of France, as far back as 1891, in making his report upon economic conditions in that country, said:

Roads of France Source of Power.

"The road system of France has been of far greater value to the country as a means of raising the value of land, and putting the small peasant proprietors in easy communication with the markets, than have the railways. It is the opinion of well informed Frenchmen who have made a practical study of economic problems that the splendid roads of France have been one of the most steady and potent contributions to the natural development and marvelous elasticity of that country. The far-reaching and splendidly maintained road system has distinctively favored the success of the small landed proprietors; and in their prosperity, and in the ensuing distribution of wealth, lies the key to the secret of the wonderful financial vitality and solid prosperity of the French nation."

Why Peasants Can Buy Bonds.

In 1910, the French peasants, not the bankers, the merchants, or the manufacturers, purchased \$20,000,000 worth of the New York Central and Hudson River railroad bonds, which could not be placed in our own country. To resume, this means that these 19,000 miles of principal roads, if they were apportioned to the 242 cities of the state ranging in population from less than 2,500 to 2,185,000 in the city of Chicago, each would have 78½ miles, connecting every one of these cities, and touching the greater per cent. of the smaller towns. It means that the cities and towns are vitally interested in the improvement of these great food and commodity conveying highways, because of their affecting the supply and demand, and market prices.

Go at the Big Job with Sense.

The question is, how best to improve the roads and what will it cost, and what the benefits will be. The first requisite is to use good ordinary horse sense. (Applause.) No man is so visionary as to contemplate at the present time the surfacing with macadam or concrete of the entire road system of the state. Equally a dreamer is he who would expect to see a perfected system within a few years. It has taken 100 years to build the roads of France. The only practical way is to classify the roads according to their requirements, and apportion the amount of improvement as such classification would indicate the greatest benefit to the greatest number, and the largest volume of business. (Applause.) Then so build that a dollar's worth of road will be obtained for every dollar expended; build for use in all seasons, and every day of the year; build with such permanency that when the work is completed it will not only be for the present time,

but for the dwellers in our cities and hamlets 100 years hence. (Applause.)

Build Well and for Years.

I would rather build a shorter distance in miles, and let what is builded be for a longer time in years of service than build for a great distance, and build something that would not last. Expert authority estimates that the cost of water-bound macadam road, sixteen feet wide and eight inches deep, depending on the haul, is \$8,000 per mile. The same class of road twelve feet wide costs approximately \$5,000 per mile. At that estimate, 19,000 miles of sixteen foot road would cost \$152,000,000; or the same number of miles at twelve feet, a road twelve feet wide, would cost \$95,000,000.

Illinois Has the Stuff.

The wealth of Illinois in the year 1912 is almost \$14,250,000,000. A fraction over \$1.06 on the \$100 of the wealth of Illinois will build 19,000 miles of macadam trunk road; or 5.3 on each \$100 for twenty years will do the work. The assessed equalized valuation of property for taxation purposes is a little less than three billion dollars. Estimated upon this basis, a little over \$500 on the \$100 of equalized valuation, or twenty-five cents per year on the \$100 for twenty years, will build the macadam trunk roads.

Ten Cents Per Each \$100.

But there are 74,000 miles of other roads requiring, and justly, improvement. Roads, the greater per cent. of which for many years to come will remain in the earth road class, by drainage, open and sub-surface, grading, crowning and dragging, can be made good for an average of ten or eleven months of every year. Open drainage will probably be secured in the grading. Sub-surface drainage will be required for more than 35,000 miles of this 74,000. To bring this 74,000 miles of earth roads to a highly improved condition will cost \$14,286,000, or a little more than 10 2-5 cents on the \$100 of the wealth of the state; or, estimated on the equalized valuation of property for taxation purposes, a little more than forty-eight cents on the \$100, or 2 2-5 cents for twenty years on the \$100.

Eighteen Cents Per Ton Per Mile.

With a normal season, and an average yield per acre, the Illinois farmer hauls over the public roads each year 182,629,463 bushels, or 5,478,871 tons of corn, and 20,848,487 bushels, or 625,454 tons of wheat. It is estimated, after exhaustive investigation by the officers of the public road section of the department of agriculture of the United States, that it costs twenty-three cents per ton per mile to haul freight over the public roads of the United States, and that the average haul is nine and four-tenth miles. Considering Illinois alone, I am of the opinion that eighteen cents per ton per mile, of an average haul of possibly a little over five miles, is a conservative estimate.

The Farmer's Own Transportation Tax.

On this basis it costs the Illinois farmer \$5,493,997 per year to market his corn and wheat alone. In England, Germany, France and Switzerland, European countries having the best improved roads, it costs a rate less than one-half that in Illinois. In one year, because of public road conditions, the Illinois farmer pays out for delivering his corn and wheat to market and mill the sum of \$2,746,998 more than his foreign competitor in the markets of the world would be required to pay for like service. Every year this condition takes \$2,746,900 from the farmer's ability to purchase the wares of the merchant or the products of the manufacturer.

Adjustment of Supply to Demand.

A great and far-reaching effect on the public of the public road, from a business standpoint, is its influence upon the fluctuations of markets. The abnormal demands for accom-

modations at certain seasons of the year cause a totally different condition than would obtain under permanently improved public roads, whereby supply could meet demand practically on call.

Influence of Good Roads on Wheat Prices.

During the year 1909 the price of wheat upon the Chicago market ranged from 99¼ cents to \$1.60 per bushel, a spread of 60¾ cents. The lowest price never increased when the roads were good, and the grain could be delivered without hindrance; but the highest price prevailed during the months of bad roads, when it was practically impossible to haul the grain to market. Had road conditions been such as to permit delivery during the important months of the year, it stands to reason that neither the lowest nor highest prices quoted would have obtained, but a more evenly distributed price materially in advance of the lowest. This spread in price in 1909 was perhaps more than ordinary; but it is true that it is not unusual to have a spread of 20 to 30 cents per bushel during the year. If the demand could have been supplied, as indicated, it would at a very conservative estimate, have placed a price of 5 cents per bushel more than the lowest price quoted, and in that one year it would have added more than one million dollars to the farmers' income from wheat alone.

Benefits of an Even Distribution Movement.

The same rule will apply to corn, though perhaps not quite so great per cent. However, if only 2½ cents per bushel were added to the price of corn in the same year, it would still further have increased the farmers' revenue by \$4,560,000; or, in other words, he would have had more than five and one-half million dollars on deposit in the banks of the country, and there would have been five and a half million dollars more of ability to purchase from merchant and manufacturer.

Benefits of an Even Distribution Movement.

Less than a week ago I noted a news item in a Chicago paper, stating that the railroads were assembling their idle grain cars for the rush of threshing soon to begin. By far the larger per cent. of the surplus wheat produced in any one year in Illinois is moved from the farmers' lands within sixty days; and practically the same in other states. This means that the railroads must have large investments in rolling stock, the earnings of which are limited to a relatively short period of time; and consequently the highest freight rate must be charged. It means that enormous amounts of capital must be put into grain elevators and storage houses, either at substations or central distributing points. That, under an evenly distributed grain movement, would not be required. It means that the elevator men and distributor must keep millions of dollars either invested or ready for use. All these elements enter into and have a large bearing on both the farmers' selling and the consumers' purchasing.

If the farmer could deliver his product any time in the year it would mean cheaper handling, and the lowest investment in farm equipment: If we had splendid roads all the year around from the farm to the market, the farmer could and would store his products himself much more cheaply than the rates charged on those same products by the elevator and public warehouse. It would mean the placing of all such business upon a much more substantial footing, eliminating to a large degree the element of risk; and with all, and above all, increase the purchaser's income and decrease the purchase price to the consumer. To bring about this condition will mean a radical change in our present system of road construction and maintenance.

The order of the day now is—take a vacation, or the nearest thing to it you can. A good and profitable vacation for the clayworker is to visit up-to-date clay plants.

Written for THE CLAY-WORKER.

FIRST GUN FOR THE SECOND CLAY SHOW.

AN INTERESTING entertainment was afforded the friends and associates of R. C. Penfield, at the Sherman Hotel, Chicago, June 28. The card of invitation read, "Admit bearer and guest, informal dinner and personally conducted excursion through the Clay Products Exposition via the moving picture route." Nearly one hundred accepted the invitation and thoroughly enjoyed the luncheon and picture show which followed. Most of those present had been identified with the Clay Show and enjoyed anew the pleasures of that great enterprise.

The film starts with the arrival of President Taft at the exposition. Alighting from his automobile he goes into the building and is seen delivering his address to the clayworkers of the United States. After the speech the spectator is taken, by the moving picture, around through the exposition and is shown a number of exhibits, views of the jostling crowd, the bungalow and many other things of interest. The whole film is of wonderful interest to the clayworker and to those persons selling and using building material. In order to make the film of general public interest to everybody and carry its moral and advocacy of clay products, a little story has been woven about the film by Frank L. Hopley, secretary of the Clay Show, which makes it an interesting rival of any picture drama which is seen in the picture shows of today. The thought running through the drama and a short synopsis follows:

Percy Jones aspires to the hand of Mabel Jackson. Unfortunately, father Jackson is not willing and orders Percy off the place. The young people, however, decide to elope and Percy calls early next morning with a fleet automobile to accomplish their getaway. Just as they enter the car their flight is discovered and old Jackson presses a horse and buggy into service and gives chase. Owing to extremely bad streets and roads which hamper the progress of the automobile, old Jackson gains steadily. Just as he is about to overtake the pair they strike a "well paved brick roadway," and this brick roadway makes it possible for them to escape to the minister. Just after the ceremony has been performed Jackson arrives on the scene, but they again elude him.

The young people decide to buy a home and are inclined towards one like the nice "frame" building in which Mabel has lived all her life. Happening to see a poster advertising the Clay Products Exposition and the \$3,000 brick bungalow which is to be given away, they decide to attend the show, and together they go through the exposition and view the different exhibits. From the exposition they go to an architect, who strongly advises them to build of brick, because of the insignificant extra cost and the overwhelming advantages of brick construction. In company with the architect they inspect some beautiful low-cost brick homes and make a wise selection as a result of their attendance at the Clay Products Exposition. A few days later, having become settled in their new brick home, which they are careful to see is located in a "well paved" street, they decide to call on father Jackson and see if they can effect a reconciliation. On alighting from the street car at the Jackson corner, Mabel is completely overcome on her seeing her much-beloved "frame" home in flames and her distracted father surrounded by his shattered household goods and the fire fighting firemen. Old grump is led away from the ruins in a dazed condition and is taken to the new brick home, which so impresses him with the wisdom of the young people that he cheerfully gives them his blessing and makes his home with them for the future.

The great and shining moral of the film is that burned clay will work wonders in many ways, including love and matrimony.

In addition to this film, films were also shown giving a complete picture history of the manufacture of paving brick,

the proper construction of a paved roadway, and some of the beautiful brick paved highways in Ohio. Another film shows the manufacture of brick in Chicago, clearly portraying a speed of 350,000 brick in eight hours.

A few remarks were made by Mr. R. C. Penfield, president of the Clay Products Exposition Company, who touched upon the excellent results which had been secured from the last exposition and promised even greater benefits from the next exposition which will be held at the coliseum, Chicago, February 26th to March 8th, 1913. Those in attendance were not only enthusiastic over the past exposition and the results which the exhibitors secured from the exposition, but also over the new show, and everyone expressed the intention of going into the new exposition more enthusiastically than before.

The occasion may be considered as the first gun for the second clay show, which Mr. Penfield predicts will exceed in importance and attractive features the first clay show given at the coliseum last March. He announced that the films would be supplied to picture shows throughout the country, and it is hoped in that way to awaken a lively interest on the part of home builders throughout the land in all clay products, especially brick and terra cotta. Those of our readers who wish to awaken enthusiasm among their local builders by giving a similar entertainment can obtain the use of the films on application to Mr. Penfield.

THE AMERICAN ASSOCIATION FOR HIGHWAY IMPROVEMENT.

Picking out individual States, each in its turn, and covering them from end to end with local associations dedicated to the movement for the improvement of the public highways, is the method that is being pursued by the American Association for Highway Improvement in its campaign to co-ordinate and crystallize the road movement in the United States. Fred S. Smith, the special representative of the American Association for Highway Improvement, has just reported to J. E. Pennybacker, Jr., executive secretary of the association, that the State of Florida has been covered from end to end with local road improvement associations.

Mr. Smith has been traveling in Florida and his results give a fair indication of what the American Association for Highway Improvement, which was formed by leading officials, railroad men, professional men and others for the purpose of establishing a clearing house for the road movement, expects to accomplish in every State in the Union. In the twelve weeks in which Mr. Smith worked in Florida he covered 3,200 miles in an automobile, traversing twenty-four counties and thirty-seven towns.

None of the representatives of the American Association are of the dilettante type and in his trip Mr. Smith never hesitated to get down off the platform from which he was speaking in order to show the farmers just how to construct certain types of road. While Mr. Smith's work is largely along the lines of organization, he actually aided in the work of connecting the good roads of one county with those of another county, bringing the whole State into closer and quicker communication. Many miles of road were actually constructed as a result of Mr. Smith's tour of the State and he had an opportunity to witness some of the results of his own missionary work.

The representative of the American Association for Highway Improvement addressed sixty meetings in the various counties, in some of which bonds have since been issued for the purpose of investing in improved public highways, which Mr. Smith assured them was the best investment on earth. The American Association is now preparing for similar campaigns in Illinois, Ohio, Indiana and West Virginia. Meanwhile, Field Secretary Light is doing similar work in the western States.

Written for THE CLAY-WORKER.

CLEVELAND BRICK NEWS.



BRICK MAKERS and manufacturers operating in this territory indicate that business for the first six months has been very satisfactory and that the outlook for the balance of 1912 is unusually bright. Brick yards are all running to capacity. This refers not only to the building and sewer brick plants but also to the paving brick yards. Agents for various out of town building brick companies are very busy lining up new orders. The volume of business continues large throughout the entire city.

More residences were built in Cleveland this year than ever before. In the first six months of 1912, ending June 30th, 320 permits for the erection of new dwellings were issued as against 312 permits for a similar purpose during 1911. More apartment and tenement buildings are also being erected this year than last year. Under this head buildings housing 106 families were begun during the first half of 1911 while 113 were started in the first half of this year.

The total cost of new buildings for which permits were issued by the city building department in the first six months of this year was \$7,203,702. The total number of permits issued was 4,346 as against 4,153 for last year.

Myron B. Vorce, architect of this city, has planned a complete set of new hospital buildings for the city of Cleveland. Contracts amounting to \$500,000 will be let by the city on July 17 and ground for the new structures will be formally broken on Cleveland day, July 22. The new group of buildings will be erected at a total cost of over \$2,000,000 during the course of the next two or three years.

Architect G. B. Bohm has prepared plans for a six story brick building to be erected on East Fourth street between Euclid avenue and Prospect avenue. It will be 30 feet wide and 120 feet in depth. The contract for the work has been allotted to the Bolton-Pratt Co.

A very handsome church costing about \$30,000 is being erected for the Highland Avenue Congregational Church, Detroit Avenue, Lakewood. The new building is of attractively colored face brick with stone trimmings.

The Fourth Building Company, organized by T. M. Swetland & Sons, has started work on a new six story building on East Fourth street, near Euclid avenue. Plans for the building have been prepared by Architects Willard and Hirsch and contracts have been let.

Another twelve suite apartment is being erected on University Circle from plans by Architect S. H. Weis. The building is to cost in the neighborhood of \$125,000. It is to be three and one-half stories in height with a frontage of 80 feet and a depth of 120 feet, exclusive of porches. The building will be brick with stone trimmings, each suite containing seven rooms. Contracts have been let for the new project and work is now under way.

Improvements costing \$140,000 are being made to the plant of the Ferro Machine and Foundry Company at East Sixty-sixth street and Hubbard avenue, S. E. A new foundry and a new machine shop with modern equipment are being constructed. The foundry is 307 x 98 feet in size and the machine shop 123 x 242 feet. The latter will be three stories high with provisions for two stories more later on. M. C. George, engineer, is in charge of the work.

Cleveland architects have planned a handsome new edifice for the First Christian Church at Canton, Ohio. Architects Fountin and Moratz, 900 Euclid Building, have charge of the work on the new church, which contains an auditorium with a seating capacity of 2,800. With a Sunday-school room adjoining, the auditorium has a total seating capacity of 4,000. This is said to be one of the largest churches in the country.

The church has a Sunday-school enrollment of 4,000, said to be the largest in the world. The building is three stories above the basement and contains 56 rooms. The dome over the main auditorium is 75 feet in diameter and 125 feet high. The building is of brick and steel.

Record time is being made in the construction of the administration building at the Warrensville city farm. Director Cooley declares that if the present rate is maintained the structure will be well under roof before winter. The building will contain a tower rising to a total height of nine stories.

Good bricks can be made from the clay at Cooley Farm according to Professor Edward Orton, of the Ohio State University, and Professor G. H. Brown, United States Government clay expert, who has reported to city officials that they can go ahead and establish a brick plant at the Warrensville farm. Considerable top soil must be removed before the clay beds are exposed. It is proposed to spend about \$15,000 in machinery and equipment for the purpose of manufacturing paving brick and clay tile to be used on the farm and throughout the city parks. Prison labor from the workhouse adjoining will be used. It is hoped that considerable of the city's paving brick can eventually be made in this way.

An eight story hotel building is one of the newest structures to be announced for Chestnut avenue, corner of East Twelfth street. It is being planned by Architect Harry Cone

should be mixed with a less amount of water. The trouble will be then that the slip will be too thick, and will not run smooth enough. The addition of 5 grammes of caustic soda to every liter of water (1 ounce to a gallon of slip) will greatly thin the slip and make the same ready for use.—Sprechsaal No. 20, 1912.

BRICKYARD SKETCHES.

A Well-Known Detroit Brick Plant.

THE George H. Clippert & Bro. Brick Co. is one of the largest brick manufacturers in Detroit and one of the oldest, having started in business in 1889 with a small plant within the vicinity of the present location, which was at that time nothing but an uninhabited woods. The inadequate art of making brick, the facilities, etc., made the brick business one of difficulties. Today, the company has two plants equipped with all the modern machinery, railroad sidings, etc., and are able to make 170,000 brick per day with an annual output of 50,000,000. They are equipped with two large steam shovels for handling clay in the pit and conveying machinery for carrying the clay to the machines and later to the steam and waste heat kilns, which enables them to operate the entire year. Roads into the city have



The George H. Clippert & Bro. Brick Co.'s Plant, Detroit, Mich.

for B. Schatzinger. The structure will have a frontage of fifty feet and will have a depth of 124 feet. Its cost is estimated at \$125,000. Contracts for the building will be let shortly.

An operation of considerable interest to local contractors and builders took place during the past month when a large three story brick building, 50 x 205 feet in size was lifted bodily and moved a distance of 700 feet without a crack showing anywhere. The building is of solid brick and mill construction and was formerly owned by the Taylor Boggis Company, and used as a foundry. The ground on which it rests was needed for a railroad yard so it was moved to an adjoining site. This is said to be the largest building ever moved in Cleveland.

BUCKEYE.

The Cracking of Slip Clays.—It is a well known fact that slip clays will crack when they are used too fresh. They should be mixed some days in advance before using. Through the aging process the plasticity of the mixture will also increase and will work so much better. However, the cracking may also be due to a mixture which is too sandy and non-plastic. In such a case a change of clays used will be necessary. The addition of a 10 to 15 per cent. of a plastic clay will overcome a great deal of the trouble. Should it be found that a good mixture has been obtained with a plastic clay, but that cracking will not be reduced, then such slip clays

been greatly improved by the Good Roads Commission, which adds considerable to the delivery by teams.

The company has recently purchased ninety-six acres of land adjoining their present plant in Spring Wells, and construction work will soon be started for the erection of a new plant, to be known as plant No. 3. This new plant will be one of the most modern and up-to-date common brick plants in the country and will have a capacity of 100,000 brick per day, or the entire plant running at full capacity will have a daily output of 270,000 per day and an annual output of 100,000,000, making it the largest brick plant in the State of Michigan.

Construction work throughout the city of Detroit is being handicapped by a shortage of common brick which presents the appearance of a famine. This is said to be largely due at this time of the year to the previous cold and damp weather which has prevailed and which has made it impossible to dry the brick fast enough to meet the demand.

Many of the large plants produce brick all the year around, but others depend on the weather to dry their product and have been seriously hit by the bad weather. This has increased the demand upon the large manufacturers to such an extent that they were unable to meet all orders, also much trouble has been experienced in being able to get a sufficient number of railroad cars, and the unusual large amount of building at this time of the year has also helped the famine.

WOLVERINE.

QUESTIONS OF INTEREST TO CLAYWORKERS

ANSWERED BY J. J. KOCH.

We are making dry press brick from an alluvial clay which contains some small limestones and quartz pebbles and thin layers of gypsum. The clay burns red.

Our kilns are circular, down draft, and we use the Boss system of burning under induced draft, firing with lignite coal. Faced setting, five over two.

The brick are flashed for from three to six courses down from the top. The flash is even and extends about one-half inch on the face edges, shading from blue to brown, the center being red, and although effective and desirable, I should prefer to carry it, say, half way through the kiln or prevent it entirely.

Can this be done? When the brick are burned in an up draft kiln, under similar circumstances and conditions of setting and burning, there are none flashed. Why is this?

The above query (question) is rather complex in its character and with the information given can hardly be replied to in its entirety. It is apparent that the troublesome flashing in the circular kilns is not due to the clay, as it is stated that the bricks come out all right in the square open up draft kilns. Neither could it be due to the lime and gypsum content of the clay. Hence, it would seem to follow that the trouble is caused by the way the fires are handled relative to the two types of kilns. In the up draft kiln it is probable that the natural draft acts as a quasi gas producer and the resultant gas, owing to up draft conditions, is mixed with auxiliary air and combustion can take place in the arches; thus, in effect, the arches are converted into combustion chambers and in this way oxidizing conditions can be created, which said oxidizing fires are of vital importance in producing red color in the ware made from clay containing iron. From the inquirer's letters it appears that there is not enough lime or gypsum present to sadden the color of the red burning ware. However, if the fires are not managed correctly in the up draft kilns the same detrimental conditions can be created as stated as relating to the down draft kilns. In the circular down draft kilns the draft is in an opposite direction to the rise of the gases, therefore the mechanical draft should be in proper relation to the resistance of the expanded fire gases and also to the depth of the fuel bed. If the fuel bed is too deep it is questionable if enough air can be passed through the grate openings to burn up all of the gases. Again, if the fuel bed is too shallow, not enough gas will be furnished for the air supply delivered, and therefore fail to keep up the desired temperature. It is thus shown that the depth of fuel bed is an important factor in controlling intensity, quantity and quality of heat, as it is a well-known fact that a lack of air during combustion produces a smoky or reducing flame, neither of which are conducive to the desired red color. There should be arrangements supplied to the down draft kilns for furnishing sufficient air to effect oxidizing conditions. There should also be combustion chambers formed in the setting of the down draft kilns to effect an intermingling of the combustible gases and air in suitable proportion to effect burning conditions that are desirable. The fact of the matter is that the same burning conditions should exist in the down draft kilns as in the up draft kilns, if the same ware is to be produced. However, if a different color is desired, then the burning and setting should be changed. Air supply for combustion should be cut down so as to create reducing conditions. The setting should also be made wider so as to prevent the perfect commingling of combustible gases and air, incident to perfect combustion.

There are so many different ways of setting brick which

are practically standard that there should not be any difficulty in settling on a wider flue space setting different from the one now in use. It might be advisable to try the setting methods used for flashed brick which have been described and illustrated in *THE CLAY-WORKER* at various times. It is within the range of possibilities that the ware properly set and the fires handled suitably that the bricks may be flashed from top to bottom.

Will fine or coarse ground clay make better clay ware?
Which is the best apparatus for grinding clay?

Whether the clay should be ground fine or coarse is largely dependent upon the type and class of ware that is to be made, and also upon the mode of manufacture. Take for examples: A red body, yellow spotted (mottled) brick made by the dry clay process, and roofing tile made by the mud process on plaster paris molds. At the dry clay press brick plant referred to, experience has taught the best practice to be: using for their ground clay mixture a certain proportion of finely ground red burning clay (everything under 3-64 mesh) suitably dampened, with a smaller proportion of dry, sized, buff burning clay (sized between 3-64 and 6-64 and free from dust). Such a mixture made a true red and a true buff, practically of a uniform effect, whereas if the clays had been mixed before grinding, then with the subsequent grinding it would have always been guess work as to the color effect. This concern had bins for their large sized, dust-free products, and used a mechanically gauged feeding device, so that only extra large tailings went back to the grinding apparatus, and they could also switch around so they could make red body with yellow spots or yellow body with red spots.

At a certain roofing tile plant, using plaster paris molds, they used a 3-64 inch screen for separating the ground clay from the tailings. When time was taken for the moisture to be distributed through the rough pugged mass they made a good roofing tile. But when in a rush, this originally dry screened clay had to be passed over another finer screen, thus separating the new coarser particles, and only with this finer clay would a good roofing tile be made, without the clay mass passing through the aging pit.

At another plant, owing to lime in the clay, the clay is ground excessively fine; in fact, it will ball up or get lumpy (just like flour and water sometimes does) when pugging in the usual manner. Owing to the lime content, this clay must be ground very fine to save the plaster paris molds and to prevent the ware from popping. Of course, this excessive fine grinding means increased cost, but that is the best that can be done, for the plant is built and this clay is the only available source of supply for the raw material, even though they have to pug this clay with a slop made from clay and water.

Clayworkers should lay particular stress on this fact: Plasticity is given to coarse, hard shales and other clays by fine grinding. H. B. Fox had found that all grades of fineness possessed a plasticity that varied directly with the fineness of grain, and that the coarse grains which could not be disintegrated by twenty hours of shaking in water developed plasticity that increased as the size of the grains decreased. Clay as found in the bank or bed is denser than when ground, and, as shown above, coarse hard clay disintegrates very slowly. However, for the little time such clay stays in the pug mill very little change would take place in the size of the grain. It has also been found that finer grinding induces

more rapid fusion, and this fact is taken care of in the manufacture of paving brick, both in a negative and a positive way. One of the modern ways of making pavers consists of using a predetermined mixture of fine and coarse clays. In the pugging and passing of the bar of clay out of the mouthpiece, the coarser particles of clay are surrounded by the "paste" of the fine clay, and thus makes a stronger bar of clay than if the coarser clay alone had been used. In burning, the fusion of the finer particles of clay will attack the surfaces of the coarser particles and makes the cementing power stronger. This action causes a granite-like structure in the paver which is desirable. If all fine clay is used there is danger of lamination in the bar, fracture in the drying and glassy vitrification taking place in the burning, all of which are detrimental to a good paver.

When plaster paris molds are used, as in potteries, terra cotta or roofing tile plants, it is desirable to have all clay particles as fine as possible, as coarse clay induces rapid wearing of the molds.

Grinding Machinery.

This, to give satisfaction, must be adapted to the kind of clay which it is proposed to use, for one certain kind of grinder will not handle all kinds of clay, no more than one style of auger in a stiff mud machine is adapted to all kinds of clays. For the softer kinds of clays the roller and disintegrator types are very efficient. The writer had to work up a very soft, sticky clay on a typical two-roller grinder, but as the clay stuck to the rollers and "pancaked," these pancakes had to be scraped off by a scraper blade, and when broken up by a "beater" the clay was brought to the desired condition. This beater consisted of a shaft full of spike-like projections, running at a very high speed. The two-roller grinders are generally equipped with a spring retaining device, so that when any material which is too hard gets in between the rollers, the rollers may be spread apart, so that no breakage can take place. The disintegrator essentially consists of two circular cages with beater bars between their respective rims, and are located one within the other in a suitable housing. These cages are run at a high peripheral speed, and owing to the wear of the beaten bars they have to be kept at both a running and a true geometrical balance. Otherwise they are difficult to operate. The writer has used them to good advantage on "loess" clay and a soft, sandy clay.

They are not so well adapted to wet and sticky clays, but some manufacturers add a steam heating device to overcome the stickiness of the clays. They have to be run at a high speed and it takes powerful machinery to drive them.

Another type of grinder is the so-called hammer pulverizer, which consists essentially of loosely connected hammers on a revolving shaft, beating clay on a grate sieve. These are not easy to keep in a true running balance, owing to the unequal wear. In the ring pulverizers this defect is overcome in a great measure by using movable rings, giving a certain elasticity, instead of the hammers.

But for grinding hard clays, the most suitable is the dry pan, which generally consists of circular, rotating, perforated screens, through which the ground clay passes as it passes from the grinding plates, where the clay is ground by superimposed muller wheels. The dry pan is better suited for the drier, harder clays, rather than for the softer, wetter clays, as they are liable to choke up the screen plates. The perforations in the screen plates wear to larger openings by use, and if the tailings from the clay screens are put back directly into the dry pan, they are liable to circulate and pass around and around, thus curtailing the output. Hence, it is a good plan to employ an extra tailing grinding mill. The Bradley three-roller mill has proven very satisfactory for this purpose and has a record for few wearing parts, big production

which can be regulated for sizes, and runs with an upkeep of one-half cent per ton.

One thing should not be forgotten: Irregular feed to a grinding apparatus leads to irregular results and where possible the feeding should be done by automatic machinery.

Abstract.

Clays should be ground, sized and prepared suited to the type of ware, mode of manufacture and tests the finished ware may be subjected to. The grinding machinery should be adapted to the type and condition of the clay.

BRICK VENEER.

BY WALTER C. HARVEY.

A BRICK VENEER house has some advantages and many disadvantages. Among the first are—that it can be constructed more cheaply than one of solid brick; that an air space is provided between the brick and the sheeting, thus making the building cooler in summer and warmer in winter; that a protection is afforded against fire from adjoining buildings; that painting is not a necessity, and its appearance makes it look well to an investor, especially one who is not familiar with building construction.

A new building, brick veneer, is satisfactory in many ways. A provision is generally made to support the weight of the walls, the window frames are made one inch wider to allow for the air space, heavier sheeting is used, and there is good opportunity to apply easily and quickly the metal ties or clips that ought to be used every fifth course to tie the brick work to the sheeting, and there is no excuse for the courses not to be level and the corners plumb.

Among the disadvantages of brick veneer are: It is deceptive; it does not support any of the constructional parts of the building; it does not afford any protection from an interior fire, and the cost of repairing any such damage would be materially increased. Veneering an old frame house is generally an unsatisfactory job for many reasons. At the time of erection no provision was made to carry the extra weight, as in a frame building the weather boarding and framing is carried to the outside of the basement or cellar walls. Then the building has settled in parts and angles and corners are out of plumb, and the bricklayer has his own troubles. He is also forced to nail his clips to the sheeting, and as this is an awkward job for him the number used is liable to be greatly reduced. If a stone window sill is used, the weight is too much for a single brick course, and the result is either a cracked sill or a badly settled one. Then the cutting out of the old sill and sub-sill and making a good job require considerable time on the part of a carpenter, and in a majority of cases the results are not satisfactory.

If the walls or corners are more than an inch out of plumb, it is almost impossible to remedy the trouble even by dispensing with the air space. I have found that after ten years, rust has eaten away all the metal and an attempt to plug or cut the veneer wall resulted in driving in an area of from one to three feet flat against the sheeting and the wall had the appearance of collapsing. Again, I have seen an attempt made to cut into the veneer to support the joists of a front porch, with the result that the whole front slipped to the ground.

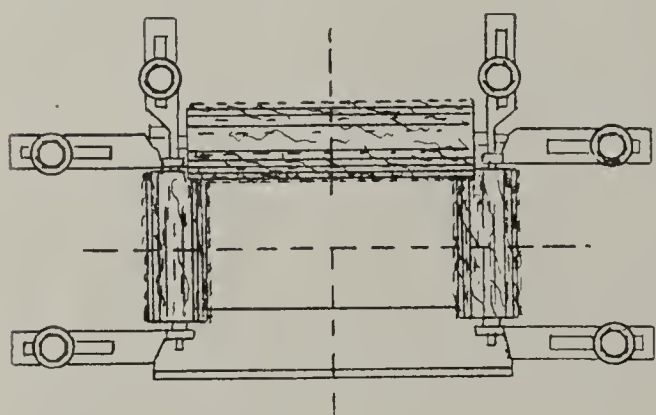
I would never advise a man to buy a brick veneer house, either as an investment or a home, but in many cases would advise him to buy an old frame house and plaster the outside, and he would have a cheaper and better job and there would be no attempt to represent anything but what it really was.

A briefly as possible, I have endeavored to make clear what has been the results of observation and practice of twenty-five years in the building trades, and I leave the matter with my readers, assuring them that I am not too old to learn or to be convinced when good reasons are given.—National Builder.



Danish Clayworkers Agreement.—The employes of most of the clayworks in Denmark have been on strike pending a settlement of their troubles. After many conferences between the different firms and committees of the different classes of the laborers, they have settled their troubles and made a new agreement for four years, which will expire on February 1, 1916. The agreement was signed in Copenhagen, and all clayworks will now start up again full force. Inasmuch as the open yards will just commence operations, the labor troubles have therefore not seriously interfered with the business.—*Lehrindustrien* No. 11, 1912.

Rough or Rock Face Bricks.—In order to make rough or rock face bricks in any quantity by machine, an attachment to the auger machine which will make an impression on the clay columns as the same comes from the machine will make such brick very cheaply. The cut herewith shown as Figure 1 will work very good. Another method which has given good satisfaction is the stretching of a wire along the mouth-



Front Elevation.

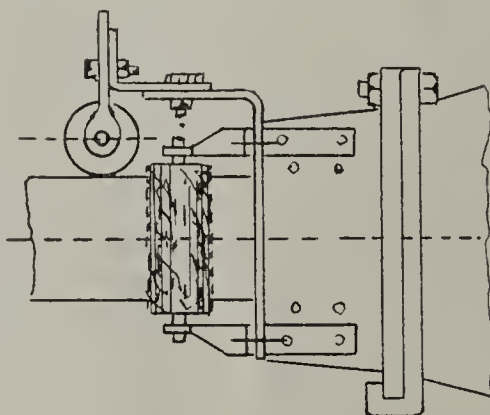


Fig. 1.

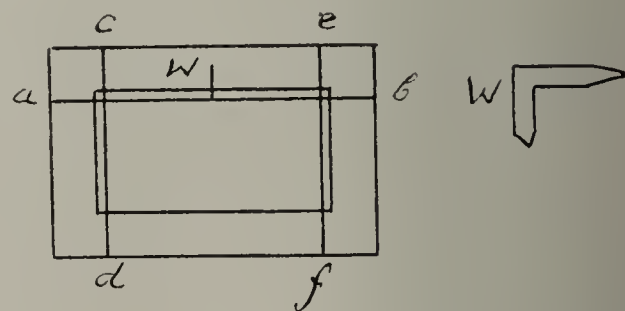


Fig. 2.

piece of the machine as shown in Figure 2.—*Tonind. Z.* No. 53, 1912.

Brick and Tile Industry in Turkey.—A great deal of clay products are used and manufactured in Turkey, and the principal market is Constantinople. According to estimates about 30,000,000 brick are used there. The better class of brick are shipped in from France. About one-fourth of all brick are made by machine, while the balance are made by hand. The average size of the brick is $8\frac{3}{4} \times 4\frac{3}{4} \times 2\frac{3}{4}$. The daily capacity of the yards is 30,000 brick. The brickmakers can only count on from eight to nine months operation on account of the slight freezing weather. The large brick yard at Pacha-Bagtche is operated by French capital, and is one of the best yards known. The oldest brick yard is at Buyukdere, where roofing tiles are also made in great quantity. At Salonique is also a large yard with a Hoffmann kiln, but so far its output has not been a success, and none of it is shipped to Constantinople.—*Revue Generale de Ceramique* No. 5, 1912.

The Glazing of Green Stoneware.—In many potteries the question has come up whether it is cheaper to glaze the ware in green state than in biscuit state, and while there always has been some objection to the biscuiting of the ware, it must be conceded that this is the best method to produce good ware. When a kiln takes a day to set and two days to burn, it will be found that the biscuiting is just a trifle cheaper, as that class of ware will bring higher returns than the green

glazed ware. The extra expense for a biscuit stoneware kiln figures about 82 marks (\$20.50), while the extra return, taking into account the saving of damaged ware, saving in glaze, and higher selling price, will be just about the same figure, so that the advantage lays in better ware and more satisfied customers.—*Keramische Rundschau* No. 20, 1912.

Ceramic School at Bunzlau.—The annual report of this school has just appeared, and covers the period from April 19, 1911, to March 28, 1912. The school term was 40 weeks. The number of students in the summer months, 1911, was 51, while in the winter term there were 48 students. Sixteen students graduated at the end of the summer term, and 14 at the end of the yearly term. The school took very active part in the state exhibitions, and was represented with 208 pieces of clay products at the East German Exposition at Posen. The school is in a very good condition, and a very prosperous school year will mark the next term.—*Keramische Rundschau* No. 21, 1912.

Clamp Kilns.—With the continuous and down draft principles of kilns the use of the old style clamp kiln is growing less year by year. However, since it has been proven in a number of cases that the continuous kiln is too expensive a proposition, we will find that clamp kilns will be built again in many yards. The clamp kiln does not take any investment to speak of, it has a great many advantages which the continuous kiln does not have. The disadvantages should be

carefully taken into consideration, and one of the main points, that 20 per cent. of the burnt product is soft brick. But when the yard is running on just common brick this disadvantage is not very great. The fuel question is also one which plays a great part, and while the saving in fuel in continuous kilns is quite pronounced, the clamp kiln does not take such a large percentage of fuel. When new plants are to be built a clamp kiln is a handy thing to burn the necessary brick quickly and without much expense. When clamp kilns are built with permanent walls and good fire boxes, it has been shown that the results produced in the burning are excellent as compared with the continuous kiln. The question of good burners which will handle clamp kilns is of great importance, but with our modern apparatus of testing and controlling heats, and the advancement of science and clayworking schools, there will always be found men who can burn clamp kilns to perfection.—*Deut. Topf. & Z. Z.* No. 37, 1912.

Dark Glaze for Sewer Pipe.—When the salt glaze of a sewer pipe is not dark enough for regular trade, a glaze should be made to take the place of the salt glazing. Such a glaze can be made from white lead 210 parts, flint 45 parts, clay 21 parts, and manganese $13\frac{1}{2}$ parts. In case a glaze can not be used, a slip clay which will give the sewer pipe a dark color by salt glazing can also be used. On 200 pounds of clay 16 pounds of manganese should be used to get a dark color. When the sewer pipe is made of a red burning clay, it

is an easy matter to get dark glaze, if the burning process is regulated right. When the kiln atmosphere has been reducing before and at the time of salting, but after that period for several hours as long as the body will stand it oxidizing, then the sewer pipe will be dark glazed. The salting should be done by about cone 3, and the sewer pipe should be burnt to a vitrified body between cones 8 and 9.—Sprechsaal No. 21, 1912.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.



THE SCARCITY of labor in the Hudson river district and the consequent decrease in the output of brick has operated as a benefit to the Raritan river section and immense shipments are going forward to New York and the New Jersey markets which have, to some extent, depended upon the Hudson district for supplies. Prices continue high, in some instances reaching \$7.00, the price of Hudson river stock. Every plant is running to its full capacity and demands for supplies keep the quantity in reserve very light. Indeed, it is difficult for manufacturers to get anything ahead. They go out about as fast as they can be made.

Perth Amboy has had a strike of considerable magnitude, in which the operatives of a terra cotta factory joined. But the workers in clay were granted an increase in wages and went back to work without much trouble. That is all over now and Perth Amboy's brick business is in no danger from further disturbance. The other strikers have not been so docile and further difficulty is hourly expected.

The tremendous contract demand in New York, coupled with the requirements in all suburban districts, have made a desirable condition for New Jersey manufacturers. They are making hay, or brick, while the sun shines and are collecting their money. It is a condition which not only pleases them, but adds materially to their bank account.

The Hackensack river district is busy. Some of the first burnings are now being shipped and they go out as fast as they can be taken from the kilns, with demand sufficient to clear up practically everything made. In most instances New York prices prevail, though in some cases there is a slight reduction. The weather has been ideal for brick making the past two or three weeks. Scarcely any rain has fallen and it has become very hot and dry, with rather cool nights. The brick dry quickly on the yard without loss resulting from washing. The quality is, therefore, somewhat improved compared with years with abundant rainfalls.

Mattewan has recently come to the front as a brick center and many shipments have been made from there to the New York market recently. In most instances these brick come from other points, but it is convenient to ship from there, and accordingly it is done.

Newark has become something of a distributing center of late, owing to its central location. Many brick are taken there on barges and then distributed through its district either by boats or train. Sometimes a dozen barges are tied up to the wharf along the Passaic river awaiting distribution.

The destruction of the works of the Didier-Marche Company, at Fords, early in June, helped the New Jersey manufacturers because it released a number of desirable workmen who went immediately to other plants, pending the reconstruction of the burned works. The shortage of labor has not, therefore, troubled New Jersey men as seriously as it has those in New York. This was solely because of one firm's misfortune, however, and not because the actual supply is any larger.

The Sayre & Fisher Company, of Sayreville, employing 1,500 hands in its extensive plants, is running to capacity. The demand is equal to the output and very little surplus is

accumulated. This firm is among the largest brick works in the state and its output ranks with the very largest. The management of the company is progressive and the growth of the business is satisfactory. It is one of the largest institutions of its kind in the East and its product goes wherever brick are used in this section of the country.

The Edward Furman Company in the same town has some two hundred men at work making brick, and they, too, are receiving sufficient orders to keep them busy for a long time to come. The demand has increased consumption of product under the influence of the increased consumption of brick in and about New York upon public and semi-public works.

The Crosman Company, employing eighty men, in the same town, mines and handles fire clay and sand. It is crowded with orders this year and finds a ready sale for everything it can develop.

The American Enameled Brick and Tile Company, of South River, is busy with important orders. In fact, its plant is working to capacity and its one hundred and ten men find plenty to keep them busy this season. The demand for the product of the firm has improved, as compared with previous years, and the situation is better than ever before. Prices remain high, with a tendency upward rather than downward. Conditions are quite satisfactory, with indications of increased orders for the future.

The New York Silica Brick Company, in the same town, is doing a good business with its product and has increased its force slightly, which formerly numbered about one hundred persons. Builders are pleased with the fire brick turned out by this firm and architects have specified it more frequently than ever before this season.

The South River Brick Company is running about seventy-five men, turning out a high grade of common brick, for which they find a ready and profitable market. The management reports good business and some difficulty in getting surplus.

Petit & Co., same town, are working about one hundred and fifty hands and there is plenty for them to do. The firm turns out common brick, but of good quality, and disposes of them at the highest range of values. The market has improved under the increased demand due to increase in building operations.

The Great Eastern Clay Company, of South River, makers of chimney brick, are operating about 600 hands and find contracts sufficient to keep their output virtually cleaned up all the time. The brick are wanted in all high stack construction and there has been a good deal of this in the manufacturing sections of New Jersey the past season, and this season, as well as elsewhere.

A Correction.

In my June letter I was made to say that "the Atlantic Terra Cotta Company is the only firm manufacturing architectural terra cotta in the state of New Jersey," which, of course, is an error, as most of the readers of the CLAY-WORKER will appreciate and understand without being told. What I meant to say was that it is the only company in this state operating two plants. New Jersey is rich in terra cotta plants, some of which have been in operation a quarter of a century or more. There are three large and well established plants within a few miles of the city of Perth Amboy, namely: The New Jersey Terra Cotta Company, at Perth Amboy; the Federal Terra Cotta Company, at Woodbridge, and the South Amboy Terra Cotta Company, at South Amboy. All of these companies have done work of distinction, their work being of a high character.

BURTON.

Every time rival building materials get into a war of advertising words it does a good turn for brick. It sets people to thinking, and when they get to thinking about it right it is no trouble to realize that brick is the last and best word in building material.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Grates vs. Grateless Furnaces.

Editor THE CLAY-WORKER:

The writer has burned building and paving brick for over forty years, and during that time has traveled much and seen many brick plants and many different furnaces, and experienced a lot of trouble with furnaces put in by men who claimed to know all about fire-holes, though they had never handled a shovel of coal. They designed grateless furnaces called coking tables, claiming to save half of the coal. I have never known them to make good in actual practice. They ought to call those furnaces "killing tables and coal eaters." I know from experience that some kilns changed from grate bars to a much advertised grateless furnace, burned more coal than before, and we had to put on an extra man to help clinking. Now I want to ask where the saving comes in. There is in my knowledge nothing better than the old-fashioned grate bars or the new grate that Anton Vogt uses. This grate is on the principle of slanting grates, but much cheaper and more durable.

I was in Indiana last year, burning paving blocks. The fire-holes had grateless furnaces; that is, they had brick arches, on top of which were brick benches running half way back into the fire-holes.

We had to burn those kilns fifteen to sixteen days to get the proper settle, and then we had six to eight courses of soft brick on the bottom. We could only figure the settle that far down. If we attempted to go farther we ruined the brick on top and around the bags. We, of course, burned a lot of "black diamonds."

I argued with the members of the company about changing to grates, for I never had so much trouble in burning before. The fire-holes were full of green coal all the time; we had no draft through the coal, and we could not make the heat, working like slaves.

The company was considering changing or doing something to remedy the faulty fire-holes, but before changing anything they agreed to send for an expert that had a reputation, so they sent for Anton Vogt, from St. Louis, and after looking over the kilns he said that there was nothing wrong with the kilns in general nor with the shale, but that the construction of the fire-holes was faulty and that even he, with all his varied experience, would not undertake to improve the burning with the fire-holes as they were. The changing was begun at once, and it did not cost very much either.

We changed every kiln and reduced the time of burning from four to five days, using nearly one-half less coal, and got 95 per cent. first class paving block. I wish to say that with my forty years, I was not too old to learn many good points about burning round down-draft kilns of Anton Vogt.

There has been so much written lately about whitewash on brick. It has been my experience that whitewash on brick is caused often by dirty fire in watersmoking. Keep the fires clean and you will not only save time in watersmoking, but also prevent whitewash.

Start the brick steaming and keep it up until they are dry. Then start to heat up the kiln as fast as your shale will stand. Of course, every burner must find that out observing the results.

Don't have any kilns built without a grate of some kind.

I know the difference of the grates. I can not admit that a furnace with a brick bench instead of grate bars is better than grates, when it makes harder work and takes more coal. The best furnace as yet for square kilns and burning slack are the rocking and shaking grates. You save 40 per cent. of coal. Even in this age of progress I feel like the old "nigger" who sang in the camp meeting, "The old time religion is good enough for me." I join him by singing, "The old-fashioned grate bars and the shaking grates are good enough for me."

C. RICH.

Bessemer, Pa.

Continuous Kilns Versus Down Draft Kilns.

Editor CLAY-WORKER:

Regarding letter by W. D. Richardson to the Canadian Fireproofing Company, in a recent issue of THE CLAY-WORKER, for best and cheapest kilns to burn brick, also any kind of clay goods, just allow me to give my experience on this subject—and I have had a lifelong experience in burning all classes of clay goods and all kinds of kilns. Now, the continuous kiln is all right to burn all classes of common goods, but to burn the best goods I myself prefer the down-draft kiln, as you always get a more even burn. The continuous kiln is not built to burn the best goods and it is an impossibility to get as even a burn in the continuous kiln as in the down-draft kiln, and to get a good burn at all you want an expert burner or a man in charge of the works who has a thoroughly practical knowledge of the handling of same, as they need a great deal more knowledge and experience to work them, for they are always complicated and have to be carefully handled to get any results at all. A man can be on a continuous kiln all of his life and then he might not understand the working of same; then another man might work one in the course of three or four months. It all depends on a man's ability and quickness to take to the difficulties that come the way of all men burning continuous kilns.

Mr. Richardson says that he always advises the use of the continuous kiln where coal is \$5 a ton, which would work out at seventy-five cents per thousand brick, burned to cone 01. Is not this too much for the American size brick? It is more than is used here in England at cone 01, and the English brick is a great deal larger than the American brick. A chamber in a continuous kiln in America holding 30,000 brick would hold about 17,000 English-made bricks, and these could be burned at cone 01 with less than 300 pounds of coal, if properly worked. But there is another point—there is a great deal in what continuous kiln the goods are burned. Some kilns take more than others. Then there is the point of always keeping your kiln traveling fast enough. Burning seven chambers a week does not take as much fuel to burn as four chambers a week would, for if you are burning the seven chambers you are only keeping your heat there and traveling along faster than the cold air behind you. If you were only burning four chambers, you will be wasting more fuel than you are using to burn the bricks. The reason is, you are always fighting cold air by not traveling as fast as the air behind you.

Give me the down-draft kiln for all classes of goods, as they can be burned nearer to the cone than in the continuous kiln, and you always get all best goods if your kiln is properly worked. The down-draft kiln can be worked on the continuous principle. I have a semi-muffle down-draft kiln which burns bottom of kiln first. This kiln would just suit your American people for burning such goods as enamel, paving and all classes of building goods, and if more than one was put up, it could be worked to take the heat from one chamber to the next, therefore saving a great deal of money on coal.

I notice that the Canadian Fireproofing Company is employing an expert to construct their plant. Now, if this is so, why be trying to get knowledge through THE CLAY-WORKER, as by employing an expert they ought to be safe as to their plant working all right, as the expert is responsible for the starting of the yard and putting everything to work before he receives more than half his money for

same. What is an expert for? If he signs himself an expert he gives a full guarantee to build the plant and put same to work. But I know sometimes they fail.

Now, if anyone would like to ask anything regarding the down-draft kiln I have described, they may, by writing THE CLAY-WORKER, get in communication with me. I often wish I was amongst my American brothers. I hope from this my Canadian and American brothers will be able to gain by what I have written, as, being in the trade all my life and always with the best made goods both in pottery, brick, enamel ware and sanitary salt glazed ware, I should know a little. I helped to burn one of the first Hoffman kilns put up in England.

Yours respectfully,
H. W. HARDY.

Written for the CLAY-WORKER.

AMONG PHILADELPHIA BRICKMAKERS.



EARLY ALL the large brick manufacturers and operative contractors in Pennsylvania have appointed a committee to work on a draft of an employers' liability bill which shall be entirely satisfactory to both the employe and employer. These employers do not approve of the present draft of a workman's compensation law, as drawn by the industrial accidents commission, appointed by Governor Teuer.

Edward J. Stokes, 1208 Harrison Building, Philadelphia, is on a trip to the South arranging some important contracts for the coming fall. Mr. Stokes has built up a very good brick business in the surrounding territory and is now giving most of his time and attention to the extreme southern market.

Labor shortages among the trade have been little relieved during the past several weeks, and from all sides come statements that the insufficiency of working forces is seriously interfering with production. Added to the prevailing scarcity of labor, there are visible signs in different directions of discontentment among the men now employed and there have been outcroppings of strikes for higher wages in several large manufacturing plants and on some big operations. It has been announced by most of the big manufacturers that as soon as they are able to get the men they will be in a position to meet the demands of business.

The operative work in Philadelphia and surrounding territory has fallen flat this summer and is in a worse condition than at any time for the past five years. There is, however, considerable office building work, and at least an aggregate of one hundred and ten stories of hotels, which will take about ten million bricks, all supplied from the local yards.

The Independent Brick Company, 1002 Crozier Building, has a contract from Irwin & Leighton for 15,000 bricks for a job in Camden, N. J., and a \$10,000 contract for roofing tile for Lynn Milliken & Company, Indianapolis, Ind., to be used on the Wheeler estate in that city.

The city of Philadelphia has awarded contracts for work on the sewer system which will require at least 15,000,000 bricks. The officials have inspected and approved and placed the order with the Independent Brick Company for furnishing the material. This company has also been awarded the contract for furnishing the brick to be used in the rebuilding of the Whitney Glass Works, Glassboro, N. J., and the contract for the roofing tile to be used on the Carmean operation of 30 houses at Forty-ninth and Locust streets. The Detroit roofing tile, for which this company is the agent, will be the material used.

The Mack Brick Company, Fidelity Building, reports business to be in a normal condition and the one feature in which business shows any marked improvement is the paving brick. They claim that the outlook for autumn is very encouraging.

Richard Cromwell, Jr., vice president of the Baltimore Brick Company, and well known in Philadelphia, died recently at the Maryland University Hospital, Baltimore, Md., from uric poisoning.

A. QUAKER.

Written for THE CLAY-WORKER.

THE SITUATION IN NEW YORK.

TWO LARGE life insurance companies made loans for the construction of two apartment houses during the latter part of June. Probably this marks a change in the general situation in New York. It has been understood, and has been repeatedly stated and emphasized, that apartment houses had been overbuilt in New York and large financial institutions refused to make loans until population caught up. This move on the part of these two companies seems to give the lie to the assertions and to point to what is likely to prove a new era in construction during the coming fall.

Meantime new brick is arriving only about as fast as it is consumed. The excess cargoes are rarely more than two or three in a week and in numerous instances they are less. The price holds up to \$7.00 for best quality and the scarcity of labor reduces output so seriously that it is unlikely the quotations will decline through the season. While builders complain somewhat at the high price, on the other hand they are ready to admit that they are getting a better quality of product and some declare that the difference, after all, is not very marked. There is no waste now, which perhaps accounts for the better feeling toward the present control than has hitherto existed.

Every manufacturer along the Hudson river is operating as near full capacity as the obtainable laborers allow. The public and semi-public work now in progress in and about New York requires so many laborers that the brick men are suffering the consequences. They cannot obtain sufficient to operate all their machines, so are doing the best they can. About Haverstraw the situation is worse, though it is nearly as bad at Newburg, with Kingston best situated of all. The public works do not attract so many men from there, consequently the brick men can obtain what they need without much difficulty.

Incipient labor troubles were nipped at the beginning and today there is scarcely a ripple to show where such difficulties came near breaking out into a war. The manufacturers succeeded in convincing employes that they are paying as high wages as possible, and equal to last year. The result was that the troubles ceased and now the laborers are at work without complaint.

Some manufacturers up the Hudson river have difficulty in getting men to load their barges. They solve the problem by giving their men extra time to load nights, or work rainy days. The latter have not been numerous of late so the work has been done principally at night. It is double work, but the additional pay is tempting and in some instances may have had its influence in staying strike discussion.

The filing of proposals during the past two or three weeks has been heavy. Some will not go ahead until after the election, but they are good projects and the number and value leads last year at the same time. Indeed, the conditions which have suddenly developed are surprising to those who have watched the course of events. The increase has been largely unexpected and the prospect of improvement in the future is promising. The market has benefited proportionately and there is prospect of still further improvement with the coming weeks.

Face brick are somewhat scarce and prices remain very firm at quotations. Indeed, it is difficult for builders to obtain what they want to fill their orders. Fireproofing plants are all active. The Woolworth contract is about completed. Terra cotta is active and manufacturers are accumulating no surplus to assist them over a period of scant supplies. Pressed brick is steady and there has been some extra call for paving brick during the past few weeks. As a whole, therefore, the market is in good condition and bus-

iness is proving better than the most sanguine anticipated earlier in the season.

The political turmoil created discouraging conditions for a time, but sensible men understood, when they came to think about it, that the country will not sink beneath the waves with the fabled Atlantis because this or that man is or is not elected president. All men are reasonably patriotic at heart, and whatever may be their different views upon questions of policy, in the main they are Americans, and America will scarcely suffer at their hands in the administration of affairs. They have, therefore, decided to invest their money and everybody pull together for the benefit of the entire commercial world.

The review of the first six months of the year in all business enterprise astonished those who had been devoting the major portion of their reading to the sensational political press. They found that the securities issued exceeded by hundreds of millions any previous six months in the history of the country, with one exception. It is scarcely necessary to say anything further regarding business conditions after making that assertion. The sensational press and the partisan political papers have been endeavoring to create unsettled business conditions, but in most instances without material success. It will be well to remember these facts when the heat of the presidential campaign is exciting the nation.

A. L. B.

NORTH CAROLINA BRICK MANUFACTURERS HAVE BUSY SEASON.

IN COMMON with their brothers in other parts of the country, the North Carolina brickmakers without exception report an unusually good demand and no complaint as to prices.

At Charlotte, where the Cunningham Brick Company, the Carson Brick Company and Queen City Brick Company all have up-to-date plants, the outlook is the best in years. J. H. Cunningham, secretary and treasurer of the Cunningham Brick Company, says they are selling their brick as fast as they can make them, and have many orders ahead. The Carson Brick Company were unfortunate in having a large twelve chamber kiln collapse in June, which has handicapped them to some extent. This is the best season they have known in years.

R. H. Ramsey, proprietor of the Queen City Brick Company, says they have to hustle to keep up with their orders, selling all they can possibly make.

The Goldsboro Brick Works, at Greensboro, of which L. N. Grant is general manager, has a capacity for 1,000,000 brick per month. Business with them is better than it has been since 1907, and the prospects are good for a continuation of present conditions.

The plant of the Jeffreys-Ricks Clay Company, at Rocky Mount, is running up to capacity. Mr. Jeffreys reports that good prices prevail for all they can make. This company would like to make hollow building tile and drain tile, and are making some investigations along these lines. They have suitable clay and are on the lookout for a good man to take charge of that end of the business.

The only place in the state where hollow tile are made is at Pomona, near Greensboro, where the Pomona Terra Cotta Company has three plants in operation, the chief output of which is hollow ware and sewer pipe.

A. S. W.

REPORT FOR KENTUCKY GEOLOGICAL SURVEY.

Mr. F. Julius Fohs, Mining Geologist and Engineer of Lexington, Ky., who for more than seven years past has been Assistant State Geologist of Kentucky, and has made numerous investigations of clay areas and clay plants, and is at the present completing a report for the Kentucky Survey on "Some Kentucky Clay Product Plants," will hereafter devote his time to private professional practice.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO.



LOCAL BRICK YARDS are running full time and full capacity, and at that are having unusual difficulty keeping sufficient stocks on hand to take care of the demand. Building in Toledo is unusually heavy, in fact Toledo has not experienced such a building boom in years as at the present time. The doubling of the capacity of the Willys-Overland Automobile Company, which now employs 3,000 men, and when the additions are built will employ twice that many, has something to do with the condition. Several new allotments in the vicinity of the plant have been opened up since Willys-Overland stock has been increased, and hundreds of new homes are in course of construction in the west end of the city. The homes are all of a good character, having modern improvements and all conveniences.

Toledo people have come also to recognize the value of brick in home building and an increased demand has come from such sources. The factories are many of them adding to their floor space, and these additions call for a goodly number of brick, as do many of the flat buildings and investment structures of various kinds now under construction. Several new school buildings, including the magnificent new Scott High School, have also been constructed, pressed brick being used in their construction. The call from adjoining cities and towns has been heavy, also, and the brick yards have all been kept running to the top-notch to keep up with their orders.

There has never been a season when road building and paving has been more general in this section than this season, and a great quantity of brick has been in demand for this purpose. Prices are holding firm on both building and paving brick and brick men, far from being pessimistic, have been too busy taking care of their orders to even talk. Toledo has not in years been so good a market for brick as at the present time.

A three-story brick factory building is to be erected on Southard avenue, immediately back of the Bour Coffee Company's plant, by Fred L. Seibert, motor truck and carriage manufacturer. The structure will be built at a cost of \$10,000 and the dimension will be 118x75 feet.

A portion of the proposed improvements to be made by the Lake Shore Railroad Company at Toledo Heights is an extensive sewer system. The Lake Shore officials, at a recent meeting with Service Director Cowell and other city officials, pointed out the advisability of the city joining in the sewer building project to take care of University Place at the same time. The railroad company declared its willingness to go ahead and provide proper sewerage for its own property. It was decided that the work would be cheaper if both the railroad company and the city take care of the work jointly, and of the \$29,000 job it was decided that the city should pay \$12,000. The work will be commenced in the near future.

The City Board of Control of Toledo, recently awarded the Short street paving contract to Joseph McMahan at his bid on vitrified brick of \$6,854.61. The improvement will extend from Erie street to Swan creek and adjoins the new \$500,000 market building, which will be opened to the public within a few days.

S. O. Richardson has secured a building permit for the construction, on Collingwood avenue, the most beautiful residence street in the city, of what will probably be one of the handsomest residences in the city. The edifice will be three stories high and will be constructed of pressed brick. Mr. Richardson is an official of the Libbey Glass Company.

Wayne Stephy, an eleven-year-old boy of Upper Sandusky, caught his right leg in a cable at a tile factory in that town and was badly lacerated. It is thought the leg will be saved.

Karl Heilman, of the engineering department of the Ohio

State University, at Columbus, Ohio, has accepted a position with the Tregillus Clay Products Company, at Calgary, Alberta, Canada, and will assume his new duties the last of this month.

C. H. Cook, of St. Mary's, Ohio, has been appointed receiver of the Gehrlich Tile and Brick Company, of Wapakoneta. The appointment followed the action of the People's National Bank, which asked judgment in the sum of \$12,000.

A nice brick contract awaits someone on the new Women's State Reformatory buildings, at Marysville, which will be commenced August 10. Architect George S. Mills, of Toledo, is preparing the plans. There will be several cottages and a school building to begin with. The reformatory will cost \$350,000.

The Hotel Wayne, one of the first brick buildings to be built in Defiance, Ohio, is being torn down to make room for the new \$24,000 Masonic Temple. The building, which was at first and for years after known as the Russell House, was one of the finest hotels in the Northwest at the time. The handsome new temple which is to replace it will be built of pressed brick.

T. O. D.

Written for THE CLAY-WORKER.

BRICK NEWS OF MAINE.



MAY SEEM a very strange thing to brick manufacturers of the Middle West that here in Maine a sand-struck brick yard, one of the largest in the state, should be superseded by a water-struck brick yard, for the single reason that water-struck brick are much more in demand than the former variety. Such has been the action of the Horace Purinton Company, of Waterville, however, one of the biggest brick manufacturing companies in the Pine Tree State. In a conversation with the writer, Cecil M. Daggett, an officer of the company, told of the situation as follows:

"In Bangor and central Maine, brick manufacturers have found that water-struck brick are much preferred to sand-struck, contrary to the experience of our brothers in the West. There are not as many pressed brick establishments in this state, and the result has been a tendency to use the best of our own product for all brick buildings. Water-struck brick are superior to the sand-struck for facings—and all uses demanding a better than ordinary brick. In the yard at Bangor, which had been used for making sand-struck brick by the Bangor Brick Company for many years, and which we acquired last winter, we decided that the better plan would be to take out the sand machines and substitute water-struck machines, which we have done. Five machines have been installed, and the cry for water-struck brick is strong. We have already contracts to supply brick for Bangor's new \$300,000 high school, and public library to cost about \$150,000. Our experience has been the same in Waterville, and in our yards at Skowhegan, Augusta and Mechanic Falls, water-struck brick are infinitely preferred to sand-struck.

Some of Bangor's finest brick structures are made of water-struck brick. The Penobscot County court house, for instance, which is pointed out as an extremely handsome building, is made of this variety of brick, with granite trimmings.

Bangor's experience in the \$3,500,000 fire which swept her business section in May, 1911, is that water-struck brick are admirable in case of fire. It was found that a great many of those, manufactured in this city and Brewer long before sand brick machines were ever heard of in that vicinity, came out of the awful conflagration sound and whole, while some of the sand-struck brick, made later, were not quite as fortunate. It was noticed that in the piles of second-hand brick which had been cleaned by the boys after the fire, water-struck brick largely predominated.

The yard of the Bangor Brick Company, which made the

sand-struck variety, was as large as any in central or east-Maine, turning out something like 40,000 a day, but nevertheless, when the property was acquired by the Horace Purinton Company, Mr. Purinton came to the decision that the old style of making brick was the better.

John Flanagan, of Bangor, who has made probably more water-struck brick than any other man in the Pine Tree State, is the contractor in the Bangor yard for the Purinton Company. He will make 2,500,000 or 3,000,000 brick this season. Mr. Flanagan comes of a brickmaking family, his father having been one of the first brickmakers and burners in Brewer, and Brewer was very early a brick manufacturing center. Mr. Flanagan has made bricks for more than forty years. He has had contracts for making water-struck brick in Bangor, Brewer, Ellsworth, Madison, Squa Pan, Pittsfield and Presque Isle, and the number he has made will run up beyond the 100,000,000 mark.

The Horace Purinton Company will make about 10,000,000 bricks this season in the following yards: Bangor, 3,000,000; Waterville, 3,000,000; Skowhegan, 1,000,000; Augusta, 1,200,000; Mechanic Falls, 1,200,000.

That Bangor people are firm believers in brick for building purposes is shown by the activity since the fire in constructing brick blocks.

With but two or three exceptions, all of the buildings rebuilt since the fire have been made of brick. Bangoreans apparently don't think much of concrete and have used it but sparingly. It is noticeable, too, what great variety of brick facings have been used on the structures erected in the business section. All kinds, from white enamel to tapestry, brownish and yellow effects, light gray, such as is used on the largest brick building erected since the fire, the Graham block, have been employed, and the result is a very great improvement in the appearance of the downtown section. Plans are under way for the erection of many brick blocks, also.

BRICKMAKER'S SON.

OPENING FOR BRICK MANUFACTURERS.

The very rapid growth of the towns and villages which have sprung up in many states of the West as the result of development of large government irrigation projects, has created numerous opportunities for the establishment of manufacturing plants of numerous kinds.

A number of favorable locations for brickmaking are reported to the Statistician of the Reclamation Service, at Washington, D. C., who will be pleased to furnish information on request.

In some of the new towns the building permits range from \$200,000 to \$500,000 per year. As many of the towns are located at points remote from lumber mills and are in the neighborhood of the materials required for brickmaking, the manufacturers of brick should find an excellent market for their products.

Among the best locations reported, attention is called to the Belle Fourche project, South Dakota, where an abundance of excellent shale is found. Coal mines are only eighteen miles distance, insuring cheap fuel. There are a half dozen towns on the project to provide a market for the output of the brick yard.

Klamath Falls, on the Klamath project, southern Oregon, wants a brick yard, and this growing community deserves consideration.

Carlsbad, New Mexico, in the rich valley of the Pecos, surrounded by beautiful orchards and prosperous farms, is another favorable location.

Machinery men are mighty good people to be on friendly terms with, for improved machinery has done wonders for the brick business, and it is not through doing yet by any means.

Written for THE CLAY-WORKER.

BOOSTING BRICK IN LOUISVILLE.

Local Advertising that Pays by Centering Attention of Prospective Builders on the Superiority of Brick.

SO FAR THIS has been an excellent season for building brick in the Louisville territory, and all the local and nearby yards have been kept hustling to supply the demand. There have been more building permits than ever before, and more of them are for big down-town structures, buildings that mean more brick and clay products. On almost every corner up town there is a new building going up or being planned, and with it all there is more building going on in the heart of town than ever was known before. And there is more brick entering into the building operations in the residence sections, enough more that it is evident that brick boosting is having a good effect.

About the most persistent brick booster in town right now is Owen Tyler, who is running a steady series of advertisements in the daily papers, the burden of which is, "Use Brick." He has made a study of the publicity question and has been doing some very effective advertising as the reader may judge from the accompanying specimen. He is running a series of these ads and they are not only keeping the name of Owen Tyler before the building trade, but is also boosting brick and thus incidentally helping every brick business in town. He reports business pretty good—and just keeps boosting.

There is now developing an opportunity for the local brick men and all others interested in the Louisville brick trade to boost their product with a permanent exhibit.

There is being organized a permanent exhibition of building material. The moving spirit in it is Leo M. Parsons, who is fairly well known in the lumber trade. While in Indianapolis recently at the exhibition there, Mr. Parsons got the idea that something on the same order would be a good thing for Louisville. So he got busy on his return home, with the result that the project has now assumed definite form. He has secured something over 15,000 feet of floor space in the Tyler Building, with the entrance on Jefferson between Third and Fourth streets—the ground floor of the same building in which Owen Tyler has his offices, and this is being converted into exhibit spaces. The plan is to have all the exhibits in charge of the Louisville Exhibit Company, which Mr. Parsons has formed for the enterprise, and there will be a consultation room for local representatives for any of the material exhibited to meet customers and talk over business, but no desk space for regular attendants at exhibits. The cost of space and service varies with location, the front part being \$6.00 per square foot a year, and the back part \$5.00. Temporary offices of the Louisville Exhibit Company are on the third floor of the Tyler Building.

This proposition has hearty indorsement from the archi-

tects, and it looks like a pretty good thing for the brick and clay products men to get into to boost their product. It is planned to have the exhibition formally opened October 1st, and it is desired to have all exhibits complete before that time. Floor plans will be furnished anyone interested on request.

Andrew Hillenbrand, senior member of the East End Brick Company, has recently purchased from the Louisville Hydraulic Brick Company, the Eastern yard, or the Lyon Press Brick Company's plant out on Poplar Level road, and will operate it under the name of The Hillenbrand Brick Manufacturing Company. There are four sons with him, and between them they will keep both plants going. The East End plant, Mr. Hillenbrand says, has been as busy as can be all summer, and they expect to make things hum a little out at their newly acquired plant, too.

HOW THE PRINTER'S ART HELPS.

Every once in a while something happens which serves to remind us of the wonderful service the printer's art has been to the world, and of the great importance of new inventions in connection with it. During a meeting of wholesale milliners, in June, one of the most important subjects considered was that of dispensing with the bulky multitude of

drummer's samples, and of using colored photographic prints to show the style, nature and color of the offerings.

Now, anticipating the question, here is just what that has to do with brick and other clay products—it shows how the printer's art may be made to help boost clay products. Say you have a fine line of face brick, of various shades. A man has to see them to appreciate them. So put them on display at home,

and in many prominent places, which helps along. Then you can take that advantage of a comparatively new invention in printing, the halftone color process, and have circulars and catalogues made that will reflect pretty true to life the colors of your face brick. These you can send by mail and lay before individuals everywhere, and in this way help build up your business.

And, instead of always lugging around a heavy box of samples, you can borrow that idea the milliners are working on. Surely, if the printer's art can be made to show all the colors of millinery successfully, it may be safely trusted with the portrayal of brick and other clay products. One cannot only make up catalogues of the different brick offering, but the attractiveness and usefulness of the work may be further extended by including color prints of buildings that have been put up. That is the way one often makes the most impressive appeal, by showing what the colors look like after they are blended in a building.

This is not an out-and-out new idea, for the printer's art has been reproducing the color of face brick for some time. There has not been enough of it, that's the trouble; not enough realizing on the possibilities of the printer's art to help market the product. We need more color printing for catalogues and circulars, and we need more advertising and using of printer's ink generally—need to appreciate more fully just how much the printer's art helps business.

Stop the Loss—Fires Unnecessary

Brick is absolutely fireproof in any ordinary conflagration.

Brick buildings never burn, although they are sometimes injured by falling timbers or combustible interior woodwork.

A brick building is absolutely fireproof if wire glass is used in the windows and if burned clay floors are used.

An interior fire in such a building is confined to the room in which it originates; no outside fire can attack it.

The proportion of burned clay in a building construction measures its fireproof qualities.

Burned clay is the only building material that has been through the fire before you get it, in such a manner that it will resist fire. All combustible material is burned out of the brick before you get it.

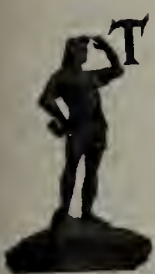
WHEN YOU BUILD USE BRICK.

OWEN TYLER BUILDING MATERIAL

OFFICE AND EXHIBIT ROOMS TYLER BLDG., LOUISVILLE, KY.

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.



THE BUILDING situation in Chicago is now most promising, running far ahead of last year's records. Except for a trifling disagreement between the wrecking companies at work on the site of the new Continental-Commercial National Bank Building, and their teamsters, no labor trouble mars the prospect.

The timidity which usually marks a presidential year has had no discernible effect upon the steady growth of Chicago's real estate prosperity. Values have continued firmly on the advance, and it is difficult to get out of sight of buildings in course of erection in any quarter of the city.

The new era of building within the loop has been spectacular in its extent, but there have been other movements as significant. The most important has been the bursting of the loop's business boundaries in all three sections. Prospects for the early culmination of plans for Twelfth street and for the improvement of the lake front south of Grant Park have placed property on a new basis, with every indication that the district between Michigan avenue and State street in this vicinity is destined to become one of the choicest business sections of the city.

To the north of the loop business has jumped the river and established itself in the region south of Lincoln Park and along the lake shore in the region that a few years ago consisted of wastes of sand.

Location of the new Northwestern terminal on West Madison street has entirely changed the character of that thoroughfare for nearly half a mile west of the loop. Several notable buildings are being erected in this region, including the new twenty-story building of the Chicago Telephone Company and the structure being built at Madison and Clinton streets by the Madison Terminal Syndicate. Those buildings which are not being torn down are nearly all of them being completely remodeled. Aside from the office and store buildings in this section the largest single improvement will be the \$1,750,000 building to be erected by Butler Brothers on Canal street between Randolph and Lake streets.

Among the more costly of the skyscrapers within the loop that will be completed either this year or next, are included the Continental and Commercial Bank, which will cost \$7,000,000; Marshall Field & Company's thirteen-story addition to its retail store, to rise on the site of the Trude Building at the southwest corner of Wabash avenue and Randolph street, \$2,000,000; the Colonial Trust and Savings Bank on Adams street, just west of LaSalle street, \$1,000,000; Adolph Linick office building at the southwest corner of Van Buren and Dearborn streets, \$1,000,000; The Westminster Building on the site of the old Howland Block at Dearborn and Monroe streets, \$1,250,000; J. L. Kesner's State and Quincy Building, \$1,500,000; La Salle Terminal Syndicate's hotel at Van Buren and La Salle streets, \$1,000,000, and numerous others ranging in cost from \$300,000 to \$1,000,000.

This does not include the numerous important buildings that were opened up this spring, nor a number of others which have been decided upon, for which ground has not been broken.

Outlying business sections are also springing constantly into life in every direction. Within the last year or two they have been built out to beyond Forty-eighth avenue on the west, almost to South Chicago on the south, and nearly to Evanston on the north.

Building operations in Chicago were sadly hampered for the first few months of the year by the continual round of labor disputes, which involved almost every branch of the building industry, until a few weeks ago, when matters were amicably settled to the satisfaction of all concerned.

That normal conditions again have arrived and building

operations instilled with new life, with an incentive to requite for the poor record early in the year, is evident in the building figures for the month of May, 1912. Permits were taken out during that period for 1,222 buildings, involving a total of \$10,373,200. This record shows a gain of 119 per cent. in comparison to the same month last year, when permits were issued for 790 structures, with a total cost of \$4,720,600.

An innovation in State street buildings will be the new nineteen-story structure to be erected at 17 to 25 North State street by Charles A. Stevens & Bros. The building is to be occupied by this firm as well as by specialty shops with entrance through an arcade extending the entire block in length from State street to Wabash avenue. The building will front 92 feet on North State and 48 feet on Wabash avenue, comprising a total area of 19,860 square feet. It has been designed by D. H. Burnham & Co. Golden green striped marble and white glazed terra cotta will be used on the exterior, while white marble, mosaic and mahogany will be used in the interior finish.

Work has been started on a thirteen-story structure to be erected at the southeast corner of Wabash avenue and South Water street by the Marshall Field estate for occupancy by D. B. Fisk & Co., importers and manufacturers of millinery goods. The building will cost in the neighborhood of \$400,000. It will occupy a site fronting 140 feet on Wabash avenue and 68 feet on East South Water street and Had-dock place. The plans for the new structure, as designed by George L. Harvey, architect, follow the modern French style. It will be constructed of gray granite, colored terra cotta and buff-colored brick. The granite and terra cotta will extend to the third floor. The entire structure will be of fireproof construction throughout. Ornamental verde antique iron work will be used in the interior. The entire first floor will be devoted to the offices of the company, being constructed on the interior of gray brick, floors of Holland red tile, with old English office fixtures. The company which will occupy the new structure was established in 1853, with headquarters on Wells street, between Lake and South Water streets. It is now located at the southwest corner of Wabash avenue and Washington street. It is expected the proposed building will be ready for occupancy by January, 1913.

SCRIP.

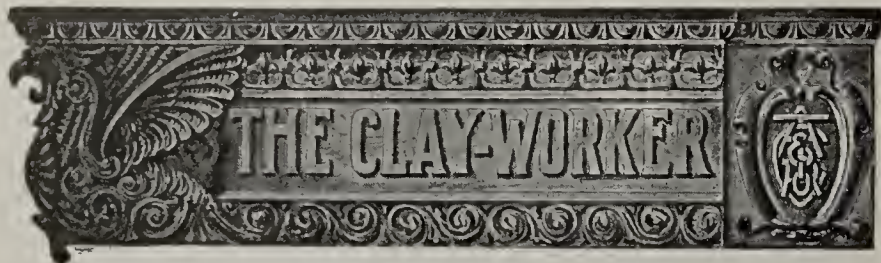
OBITUARY.

Prominent Brick Manufacturer Dies of Heart Failure.

Theodore Lewis Holbrook, president of the New Washington Brick Company, at Washington, D. C., died suddenly of heart failure, June 9th, at his home in that city. Mr. Holbrook has been in the brick business for more than thirty-five years. When he first became connected with the company, only a small plant was in operation, and the growth of the business was largely due to the skillful manner in which he handled the company's affairs. Mr. Holbrook was born in Boston, in 1839, but has resided in Washington since 1867. He had enjoyed the best of health until a year ago last February, when his only son died suddenly as the result of an operation. This was such a blow to Mr. Holbrook that he seemingly never recovered. He leaves a wife and three daughters.

Fatal Automobile Accident.

Albert Leach, manager of the Kenfield-Leach Company, Chicago, publishers of "Brick," was killed in an automobile accident on the Fourth of July. He and Mr. John J. Moroney and other friends were making an auto trip from Chicago to Michigan City, Ind. It is said that at a turn in the road near Valparaiso, Ind., they turned to avoid a collision with a motorcycle, and the auto turned turtle, killing Mr. Leach almost instantly and seriously if not fatally injuring the chauffeur, a colored man. The other members of the party escaped with severe shaking up.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-NINTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " "	10.00
Ten copies, " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

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Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis

Vol LVIII.

JULY, 1912.

No. 1.

CURRENT COMMENT.

Little incidents are the brick and mortar with which great characters are built.

* * *

No matter how much science we get in clayworking there is always room for horse sense, too.

* * *

Tell the farmers about the ditch digging machines if you want to develop that late summer drain tile business.

* * *

The political pots of this season will likely need a fire clay lining if the fireworks continue all summer at the rate they have started.

* * *

Sewering is a big item in city improvement these days and it is going on all around us. Are you boosting clay products for this work?

* * *

The crop report is a little bit spotted but is is not as bad as it looked awhile back, and while it will still cost us to live, there is no fear of starvation to worry over.

* * *

Silo building is a live issue among the farmers and both cement and wood are being extensively exploited, so keep the clay tile for this work in the lime light. The brick or tile silo is the best.

* * *

Some people take business efficiency as a science while others seem to look on it as an easy road to a good job at a fat salary. It is needless to add how too many of the latter may spoil efficiency.

* * *

Town planning is now receiving the attention of the University of London, and it is proposed to have some summer schools to teach the work of town planning. Its a good idea that might be taken up in this country, and it should

include lessons in paving streets with brick to make the best kind of a town.

* * *

What some folks term scientific salesmanship might also be called 57 different ways to get the business.

* * *

How about the county fairs and the showing of clay products—how many of you are on the job and doing things to help boost clay products in the rural districts?

* * *

The Italians and the Turks are supposed to be still warring a little, but the political band wagon has drowned out the noise of it for the time being, so they might as well call the game.

* * *

Making a motor truck that will dump its load, and making one that will dump a load of brick in an easy and orderly manner are two things that those interested are striving right now to find the difference between. Here's hoping they find it, and find it easy.

* * *

There is hardly a thing we can fuss about in the way building brick is progressing. There could be more of it used right now, of course, but still it is gaining ground so generally that there is every reason to feel pleased and not much excuse to grow impatient.

* * *

The first experiment with sick insurance for working men in Norway is running in the hole financially before a year is out. It makes too strong a temptation for men to get sick, call in the doctor and take a few days off, and as a result the number of applications for sick benefits are increasing at such a rate that it will likely turn the experiment into a failure.

NOT HOW CHEAP BUT HOW GOOD.

It is good argument when you can show that the cost of a brick building is not so great as people may think as compared to a frame building, but it is a mistake to make this point strong enough to encourage cheap building. Not how cheap, but how good, is a better slogan for brick than to encourage too much cheapness even in a brick structure.

THE CLAY SHOW IDEA AND ITS LOCAL APPLICATION.

That the clay show idea is a good one has already been thoroughly and convincingly demonstrated. What is more, there are other people going to follow the same idea. The lumber people are now getting things shaped around to give a great wood products show. And they will likely follow the big one with a lot of others. They already realize that one big show will not serve for all the time, nor for all parts of the country. So they will likely give a series of shows in different parts of the country, or take a part of the big show and make a sort of road show of it, taking it in a tour of many of the larger cities.

The logic back of this part of their idea applies with modifications to clay products. One big show is not the whole game, and neither will it be if repeated in the same place. There are too many other prominent places in this country, and too many nooks and corners that need reaching for any one central show to do all the work needed. We must take this show idea home to the people, to those who cannot or will not go once a year to some central point. We can still have an annual big show if desired, either at some fixed point, or shifting about year after year from one big center to another. But that is not enough. We need to get at the home folks and impress the same lesson there.

The county and state fairs of the summer and fall season furnish good opportunities that look good, opportunities that will likely be taken advantage of by the lumber people, and

that have already been used by the cement people, and should prove good things for the clay products people to make use of in carrying the show idea home. There is a more intimate touch about the home show idea, for it will naturally include the home products that are right at the hand of the prospective customer.

Why not do some local getting together, with the clay show idea as the central point? Get a meeting of the clay-working industries of the county and see what can be done in the way of getting up an impressive show for the county fair. It can include not only the home products in brick, tile and sewer pipe, but also offerings from outside in the way of face brick and other products that are offered for sale in the territory. It should be an excellent way to impress brick as a home building material, clay blocks for silo building, and tile for land drainage. And there are many counties in which it should be easy by a little concerted effort to get up a clay products exhibit that will be the big and impressive feature of the fair. Not only an impressive lesson to the visitors themselves, but also it should excite comment from the local papers, and thus help the advertising game along.

And the county fair should be a sort of starting place for the state fair, where, as at the county fair, the clay products people, if they will co-operate, can easily get up a show that will be a strong feature, and do a lot to spread the clay product idea where it will do good. Think it over and work out your details, and work it; don't stop at thinking it over. The clay show is a part of the advertising game, and advertising is a game that does not stop at thinking; in fact, if played right it does not stop at all, but keeps going and springing new ideas. That's what we are trying to do with this clay show scheme; get some new ideas working. The picture show affords a means of localizing the national clay show that may prove of great advantage to manufacturers located off the beaten paths of travel, for by means of the moving pictures the great clay show itself can in a sense be taken to the local builders who cannot be taken to the clay show.

AN UNINTENTIONAL BRICK ARGUMENT.

Down in Louisville, the metropolis of the colonels, the blue grass and the mint, they are having quite a set-to between the commercial bodies and the Board of Underwriters about the cost of fire insurance. In this wrangle and along with the plea of the Board of Trade of Louisville for more equitable insurance rates there is tabulated some figures that make a graphic though unintentional argument in favor of brick for construction work of all kinds, including dwellings and business houses.

The tabulated figures make a comparison between the insurance rates in St. Louis and Louisville, and while it is not necessary to quote all the figures showing points of contention about the rates, it is well worth while to quote a sample set of them, because they show the difference in the cost of insurance on brick buildings and frame. Here is one set showing the difference in cost in St. Louis and Louisville:

	Brick Metal Roof	Brick Shingle Roof	Frame Metal Roof	Frame Shingle Roof
St. Louis,	20	25	30	35
Louisville,	35	50	50	75

It is stated in a note that the rate quoted for St. Louis is the maximum and the existing rates in St. Louis are 15 cents for both classes of brick, instead of 20 and 25 cents, and that the higher rates have not been accepted as complying with the law.

Letting it stand at the 20-cent rate for brick and metal roof and the 30-cent rate for the frame metal roof, we have an increase of exactly 50 per cent. over the brick building for the expense of carrying insurance on a frame building.

If we figure from the 15-cent basis on a brick building and 30-cent on a frame building, then we have the frame building costing exactly double the amount, or 100 per cent. more than the cost of insurance on a brick building.

There are quite a number of other figures made in this comparison, all of which are equally interesting in this respect, but those quoted will serve to show a case of an unintentional argument of brick for building purposes that will perhaps be overlooked entirely under the circumstances. Items of this kind, however, should be siezed upon by the brick manufacturers in various cities and made use of both in their personal talks and in their literature to the trade, in their advertising in local papers, and elsewhere, and thus be made to assist in driving home to the general public both the importance and the final economy of building right while they are about it and building with brick.

CEMENT AT A STAND-OFF.

It is a sort of horse and horse with the production and value of cement for 1911, according to an advance report of the U. S. Geological Survey. As compared to the previous year the production increased 2.58 per cent., while the total value decreased 2.87 per cent. In other words, while the cement industry made two million barrels more cement in 1911 than it did in 1910, it lacked nearly two million dollars getting as much for it. Or, to state it another way, the using public did not pay as much money for cement last year as it did the year before. The average price per barrel of cement in 1911 was 84 cents, compared with 89 cents in 1910. Some of the eastern mills are said to have sold cement as low as 65 cents per barrel. This is evidently as low as the mills can possibly make it, and there is evidence that but little profit was returned from the industry. Cement is at the low ebb in price, and is expected to rise, which would make it better for the cement mills, and make the competition less severe for the brick men to meet. The total production of Portland was 78,528,637 barrels, with a total value of \$66,248,817. The production of natural cement was less than a million barrels.

BUILD WITH BRICK.

There is hardly a better feature line or slogan that one can use in advertising and boosting brick than the headline given above—"Build with Brick." It has the euphony, enough alliteration to make it catchy, and it goes straight to the point of interest. It carries quite a lot of the power of suggestion right along with it, and if one will use pictures of neat attractive houses that have been built with brick it will materially strengthen the suggestive feature.

This power of suggestion is a mighty strong and useful one, too, that never grows old nor loses its power if it is handled right, with enough changes to keep it from growing tiresome. Pictures of houses made of brick not only suggest this material for building as well as specific designs, but they serve an educational purpose within themselves if they are varied enough. For example, a prospective builder was asking advice about what kind of material to build with. In this case it was a woman, and she wanted a sort of bungalow type of house, about one and a half stories high in the walls, so as to get a couple of bedrooms upstairs. She confessed to an admiration for brick, but was wondering whether or not brick would look well in a house of that type. It seems that some one had told her it would not—some carpenter or lumberman, perhaps—and left her with the idea that brick shows up best only in large buildings.

It is prospective builders like this that the "Build with Brick" slogan, accompanied with varied pictures showing different types of houses, would have an educational effect on, as well as carry the power of suggestion that they build with brick. And if one can follow it up with colored illus-

trations in special circulars, showing not only designs, but actual colors, too, the effect should be even stronger.

Anyway, all the time, the idea to keep in mind, for personal talks as well as for the printed words of advertising, is to build with brick. Be prepared to give specific answers to questions about it, questions of cost, of value, of lasting and fireproofing qualities, and everything else one may want to ask. They are the things that will help get the business after the prospective builder is once interested, and then each new building that is good will help some to get others if you make the most of your opportunities.

NATIONAL TERRA COTTA SOCIETY.

This society was formed by twenty companies of the East, Middle West and West for the purpose of:

Encouraging the production of the best material, and the maintenance of a high standard of work;

Spreading the knowledge of the many advantageous qualities of good Architectural Terra Cotta through the medium of advertising and the publication of books, pamphlets and other forms of trade literature;

Co-operating in the investigation and study of the more important technical and other problems of the business; and Advancing the general interests of the Terra Cotta industry in every legal and proper way.

The offices of the society are in the People's Gas Building, Chicago.

WILLIAM D. GATES, Secretary.

FRITZ WAGNER, President.

THE CALLAWAY SYSTEM OF DRYING AND BURNING BRICK.

Readers of The Clay-Worker know from sad experience, many of them, that "experience is a dear teacher." Because of this fact those who are having dryer and kiln troubles should profit by the experience of others. This they can do by consulting with the Callaway Engineering Company, whose ad. appears on page 96 of this issue. The senior member of the firm, Ed H. Callaway, has had many years of experience, practical yard experience, and our readers may profit thereby if they will. To be brief, tell your brickyard troubles, whatever they may be, to Callaway.

THE TECKTONIUS LUG HIGHLY RECOMMENDED.

Scores of complimentary letters have been received by the E. C. Tecktonius Manufacturing Company, in which their kiln lug has been highly recommended. In fact, every user of the Tecktonius lug is well satisfied and would not do without it, for it is cheaper, stronger, safer, neater and easier attached than any other kiln lug.

We are pleased to publish the following letter, which is typical of many other letters received by this well-known firm during the past year:

Office of Fulton Fire Brick Company,

Fulton, Mo.

E. C. Tecktonius Mfg. Co.,
Racine, Wis.:

Gentlemen—Your favor of February 13 at hand, and in reply we take pleasure in stating that we have used your lugs exclusively on our kilns for the past fifteen years, and we have found them eminently satisfactory in every way, and we take pleasure in recommending them to any one using round kilns, as we find them very simple, easy to put on and take off and adjust.

We will be pleased to have you enter our order for shipment about April 1 for six 1½x6 lugs.

We are just completing one kiln, using the last lot you shipped us, and will be ready about that time for these.

Yours very truly,

FULTON BRICK CO.,

L. Wickell, President.

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has been given as a definition of good en-
gineering such as is done by

**The Richardson-Lovejoy
Engineering Company.**

[See page 90.]

FOR SALE, WANTED, ETC.

FOR SALE.

Two hundred steel brick cars, 20,000
foot pallets, three boilers and stacks,
20 tons of T iron.

GEO. H. GYNN,

3325 Independence Road,
Cleveland, O.

7 tf d

A FINE BRICK CLAY AND TILE DEPOSIT.

With trackage to two railroads and
deep water delivery. For lease or sale
to responsible operators by a big cor-
poration. Market excellent.

BOX 6—PETERS,
Care Clay-Worker.

61 d

For Sale, Wanted, Etc., Ads Continued on
pages 80, 81 and 82.

A QUALITY OF MACHINERY ABOVE ALL OTHERS.



THOUGH our "Aim is High" our marksmanship is accurate, as attested by the "High Quality" of our Clayworking Machinery. No line can approach it in extent or excellence. No organization is so well fitted to take care of the problems of the Clayworker, be they great or small. We are specialists in all departments of clayworking and give disinterested advice in every case, keeping the interests of the manufacturer as of most importance. We will be pleased to give prompt attention to all inquiries.

In our large line of machinery the Eagle Repress is a worthy unit.

You can only get out of your Repress what the maker has put into it.

There is no fairer test of Repress value than its performance and product. The American Eagle gives a greater output than any other Repress and costs less for service. A big item. Consider it well.

The Eagle saves you money by using fewer repairs; they suffer fewer breaks and less severe injuries. The big overwhelming fact of Eagle supremacy is quality.

"Quality is the keynote of Eagle success—and yours.

In the Eagle we "Aimed at a High Quality," and we have "Hit the Mark."

Our New Catalog for the asking.

The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.

Much the largest manufacturers of Clayworking Machinery in the world. And much the best.

Mention THE CLAY-WORKER.



TWO types of our Auger Brick Machines which vary widely in appearance are the No. 65 Brick Machine and the No. 218 Tile Machine. These two machines though distinctively opposite in general appearance possess the same high grade of quality which insure their successful operation and the production of the maximum amount of high grade quality of ware. Those clayworkers who are in the market for machinery, whether it be for the manufacture of brick or tile will be interested in a detail description and illustrations of these machines. Both have many points of superiority. These are two representative machines of our long line of Clayworking Machinery and appliances.

We are the largest manufacturers of Clayworking Machinery in the world and are able to place in your plant that machinery which will most satisfactorily transform your raw clay into the best of finished product. We will be pleased to hear from you relative to any wants along the lines of Clayworking Machinery or appliances.

Our new catalogue is yours for the asking.

The American Clay Machinery Co.
Bucyrus, Ohio, U. S. A.

A QUALITY OF MACHINERY ABOVE ALL OTHERS.



There is no higher type of Kiln Quality than is embodied in the Haigh Continuous Kiln.

There is no higher per cent of first quality ware than where the Haigh Kiln is used.

There is no higher per cent of fuel economy than in the use of the Haigh Kiln.

The Haigh Continuous Kiln is particularly adapted for burning all kinds of clay products. Because of the advantageous principles embodied in the Haigh Kiln, your products can be more economically burned than in any other kiln. The economy applies not only to the fuel required, but also to the high percentage of No. 1 Product and the economy in handling the ware in and out of the kiln. The advancing heat feature of the Haigh Kiln makes it possible to burn a kiln with not over sixty per cent of the fuel required in other kilns, and the finished product is much superior. The Haigh Kiln is in daily successful operation on hundreds of yards in this and other countries. Persons interested will be furnished names of satisfied users of the Haigh Kiln. Plans and estimates of this best of all burning systems will be furnished.

Messrs. H. Haigh and L. Haigh are a part of the American Clay Machinery Company organization and will be pleased to consult with you about your burning problems.

We also build waste heat dryers which are admirably adapted for economical use in connection with the Haigh Kiln. We are the world's largest manufacturer of Clayworking Machinery and appliances, our line including everything required for the manufacture of every class of Clay Products by all processes. Our new No. 90 catalogue, just issued, is a peerless piece of printing and is a veritable Clayworkers' Encyclopedia. Nothing in any way approaching this catalogue was ever before issued to the Clay Trade of the world.

The American Clay Machinery Co.
Bucyrus, Ohio, U. S. A.

Much the largest manufacturers of Clayworking Machinery in the world. And much the best.

Mention THE CLAY-WORKER.

A QUALITY OF MACHINERY ABOVE ALL OTHERS.



The Difference in Dryers

Years ago we built a good Dryer.

It made an excellent record. Each yard upon which it was installed was wonderfully benefited.

Then we sold one with the understanding that it would do as well as all the others, but it didn't come up to what we expected and promised.

There was a reason, and that reason was because it wasn't adapted to that particular clay.

Right there we began to investigate Dryers, and as a result we built a Dryer that was specially adapted to that particular clay—and it worked successfully.

Ever since then we have been building Dryers to suit the clay and have not been trying to make the wrong dryer do work for which it is not adapted.

All this happened years ago, and we now have a line of Dryers which will successfully dry any clay or any product. We do not try to make one Dryer do the work which some other Dryer would do better. We have various kinds of Dryers and can install the right one at the start and it will continue to be satisfactory.

Our Dryer experience and our Dryer line ought to be valuable to you because they forestall experiments and expense. We will be glad to take the Dryer question up with you because it will be mutually profitable.

Your inquiry will receive prompt attention and careful consideration, and whether your need is in the Dryer line or any machine or appliance for the manufacture of Clay Products we can supply your wants with machinery best adapted to the purpose for which you wish to use it.

The American Clay Machinery Co., Bucyrus, Ohio, U. S. A.

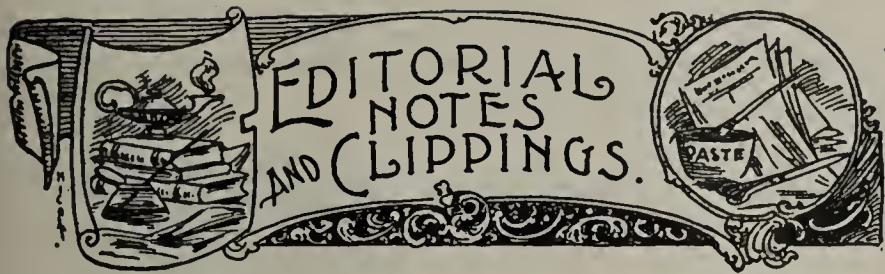
Sand Lime Brick Machinery

Our complete line of Sand Lime Brick Machinery makes it possible to secure just that machinery which is required to make your plant a success. We favor no particular type of machinery, but are guided by the needs of the customer. Our wet and dry grinding mills have transformed a number of unsuccessful plants into dividend producers, while our Presses, Mixers, Hardening Cylinders and other equipment are of equal quality. We can exactly meet the needs of any manufacturer with a quality of machinery which will operate at a profit with a minimum amount of attention and expense. Correspondence is solicited.

The American Clay Machinery Co., Willoughby, Ohio, U. S. A.

Much the largest manufacturers of Clayworking Machinery in the world. And much the best.

Mention THE CLAY-WORKER.



H. S. Ussery and others will build a pottery plant at Prattville, Ala.

R. C. Kelsey, of Gold Hill, Ore., wants the address of manufacturers of horse power brick machinery.

The Consolidation Coal Company is building a brick plant at McRoberts, Ky., of 25,000 daily capacity.

The Curtis Brick Company, of Chicago, Ill., will spend \$35,000 on improvements at its plant near there.

T. J. Anderson, Springfield, Tenn., has installed recently an iron Quaker soft mud machine and equipment.

H. S. Rankin, of Golden, Col., has organized a company with \$250,000 capital stock, and they will erect a plant near Denver, Col.

Sam Park, of Houston, Texas, has filed suit in the district court asking for the appointment of a receiver for the Gulf States Brick Company.

George B. Pettit, of 41 Park Row, New York City, writes that he desires to communicate with paving brick middlemen who can handle 50,000 brick per day.

The Price Bros. Brick Company, of East Jordan, Mich., has been organized and incorporated under the name of the East Jordan Clay Products Company, with \$25,000 capital stock.

John Kulp & Sons, Columbus, Ohio, recently installed the second "Duke of Wellington" soft mud brick machine, of the latest improved type, from the shop of the Wellington Machine Company, Wellington, Ohio.

William Hardaker has brought suit against the John Kline Brick Company, of Euclid avenue, Cleveland, for \$10,000 damages. He claims that he was caught and crushed in the machinery at the plant March 4th.

W. H. McGuire was caught in a cave-in at the Table Rock (Neb.) Brick Company's plant and buried up to his head. Although no bones were broken, he was badly bruised and was incapacitated for work for several days.

M. C. Cope, of Abilene, Texas, will build a press brick factory at Plainview, Texas. Work on the plant has been started, and it is expected to have the factory ready to turn out brick in time for the late summer and early fall trade.

The Meredith Brick Company is the name of a new concern that is erecting a large brick plant near Reynoldsville, Pa. Thomas White and W. C. Meredith, of Punxsutawney, Pa., and A. O'Connell, of Reynoldsville, compose the company.

The Washougal Brick and Tile and Sewer Pipe Manufacturing Company has been organized at Washougal, Wash. Dr. R. L. Smith is the president of the company, and states that they expect to have the plant ready to turn out 35,000 brick per day by the middle of August.

The Farr Brick Company, of Cleveland, Ohio, whose plant was destroyed in May, has awarded contracts for the construction of a new dryer building, which is to be 37x104 feet in dimensions and one-story in height. The work on the new plant is being rushed to completion as rapidly as possible.

Twenty-five thousand dollars is the amount of damages asked from the North Iowa Brick and Tile plant at Mason City, Iowa, by William Nettleton, the administrator of the late William O. Sorrenson. The latter was killed in an elevator accident, and the petition cites that the ring which was made to hold the elevator was not properly welded, the elevator falling and killing Mr. Sorrenson.

Thomas A. Harding was crushed beneath a fall of clay following the discharge of a shot of dynamite in the clay mine at the plant of the Robinson-Graves sewer pipe factory at Uhrichsville, Ohio, and killed almost instantly. It took the workmen three-quarters of an hour to recover the body, when it was found that his neck was broken, and it is believed his death was instantaneous. Mr. Harding had charge of the

clay mines and had been employed by the company for many years. He leaves a wife and two children.

John A. Schmitt has sold his brick yard on Scott street, Wilkesbarre, Pa., to the Spring Brook Water Company.

The River Brick and Tile Company, of Stanton, Ky., has been incorporated by H. T. Derrickson, G. W. Conlee and others with \$10,000 capital stock.

The Alberta Clay Products Company will establish a new plant at Iris, Alberta, Canada, which they will operate in addition to their immense plant at Medicine Hat.

The Mays-Goode Company, a new brick company of Donald, Ore., recently purchased of the Wellington Machine Company one of the reliable iron Quaker machines, with all accessories.

The brick plant formerly operated by the Parkville Electric Brick Company, at Parkville, Conn., has been purchased by the Hartford Brick Company, a concern which has but recently been incorporated.

John Preschern, Roseburg, Ore., has just placed on his new yard at Springfield, one of the Wellington Machine Company's No. 2 stiff mud machines, together with cutter, elevator and other necessary equipment.

The Excelsior Brick Company, of Menomonie, Wis., has filed an amendment to its charter certifying to an increase in its capital stock from \$25,000 to \$50,000. The additional capital will be used for the improvement of the plant.

The Cliffwood Brick Company, Cliffwood, N. J., one of the largest brick concerns in that state, has just put in operation one of the big No. 3 Wellington stiff mud machines, with automatic cutter, for making hollowware.

The Dunkirk Brick and Tile Company, of Dunkirk, N. Y., manufacturers of brick and other clay products, was recently incorporated with \$30,000 capital by W. E. Hilton and R. W. Wright, of Dunkirk, and S. M. Hamilton, of Buffalo.

The Tip Top Brick Company has been incorporated at Tip Top, Va. The officers of the new company are H. Mason, president; W. H. Shuff, vice president; J. H. Hodge, treasurer, and O. G. Scott, secretary. The company is capitalized at \$10,000.

The Illinois Clay Products Company is the name of a new concern recently organized at La Salle, Ill., of which Otis L. Jones is vice president and general manager. The company is capitalized at \$500,000 and will start the erection at once of a large fire brick plant.

Louis Lonyo, member of the firm of Lonyo Brothers, brick manufacturers of Detroit, Mich., died at his home in that city, in June, from a complication of diseases. He was sixty-two years old and had been engaged in the brick business all his life, having started in with his father when he was but a mere boy.

Mrs. Lottie Hughes was awarded \$6,000 damages against the Danville Brick Company, of Danville, Ill. Mrs. Hughes sued the company for damages for the death of her husband, who was killed while working on a steam shovel in the brick yard, in May, 1911. Immediately following the verdict the brick company moved for a new trial.

The Albany Clay Products Company has been incorporated at Boston, Mass., with \$800,000 capital stock. The company's plant will be located in Albany, N. Y., with main office in Boston. The incorporators are F. H. Swift, of New Bedford, Mass., J. B. Duchemin, L. Howland and others, of Boston, and G. D. Ellwell, of Albany.

Suit has been brought against the Hydraulic Press Brick Company by Ida Binger for \$25,000 damages, which she claims her son, John Bingers, who is fourteen years old, suffered on account of a fractured jaw, sprained back and other bruises when he was kicked by a mule employed by the company last March. The mule was harnessed to an excavator and, becoming frightened, ran away, threw the boy from his seat and dragged him some distance before the animal was stopped.

The Canada Brick and Fireproofing Company has been chartered with a capital stock of one half a million. The directors are W. W. Canham, K. McWhinney, S. J. Plant, H. E. Hand and W. H. Parsons, of Toronto, Can. Arrangements are under way for the erection of an immense plant. Mr. Plant, who is an expert in the brick business, will have practical management of the construction of the plant, which will have a daily capacity of 150,000 brick. Work on the new plant will be pushed as rapidly as possible, for the

(Continued on next page.)

EDITORIAL NOTES AND CLIPPINGS—Continued.

demand for brick in Toronto this season has been so great that the brickmakers cannot begin to fill their orders.

The Kittanning Face Brick Company, of Kittanning, Pa., has been incorporated by A. Oliver, of Sewickly, Pa., and L. Conlin and Max Spann, of Pittsburg.

The Berlin Brick Company, of Torrington, Conn., has been organized with \$60,000 capital stock. Ed M. Hotchkiss is president, H. A. Pease secretary, and H. J. Wiley, treasurer.

B. Dawson Coleman is at the head of a new company which will build a brick plant at Harrisburg, Pa. Mr. Coleman will have charge of the construction of the plant.

The plant of the Berg Brick Machinery Company at Toronto, Canada, was badly damaged by fire recently, which started in the big pattern shop.

Fire at the plant of the Philadelphia and Boston Face Brick Company, at Charlestown, Mass., caused a loss of \$6,000. The origin of the fire is unknown. The plant will be rebuilt as quickly as possible.

That state governments think well of the brick machinery built by the Wellington Machine Company, is attested by the fact that another iron Quaker was recently ordered for the Oregon State Penitentiary, Salem, Ore.

George C. Videtto, secretary of the American Pulverizer Company, writes that they have moved their offices from 410 Mermod Jaccard Building, St. Louis, Mo., to their factory at Thirty-first and Ridge streets, East St. Louis, Ill.

Horace S. Allen, a member of the Allen Brick Company, at Elsnor, Del., fell into one of the brick machines at the company's plant and was seriously hurt, sustaining lacerations about the head and his right arm and hand.

The Shale Products Company, Hope Bay, Pender Island, B. C., recently organized, purchased a complete soft mud outfit of the Wellington Machine Company, including a big No. 6 Monarch combined disintegrator and smooth roll crusher, sander and other yard supplies.

H. G. Hale, 804 Palace Building, Minneapolis, Minn., advises us that he is going into the brick and tile business near Houston, Texas. He would be glad to receive catalogues and price lists of brick and tile machinery. He is particularly interested in the manufacture of drain tile.

John R. Copeland, of the Copeland-Inglis Brick Company, of Birmingham, Ala., has been making a business trip through Florida, during which he booked a large number of orders for paving brick, at Tampa, Key West and Lakeland. The Key West order calls for over 2,000,000 paving brick.

The Central Clay Products, of North Tonawanda, N. Y., has recently been incorporated with \$75,000 capital stock. The incorporators are H. J. Knapp and L. R. Stevens, of North Tonawanda, and E. B. Reed, of Clearfield. They will build a large plant for the manufacture of both paving and building brick.

The Mansfield Clay Products Company, of Mansfield, La., has under contemplation the erection of a brick plant to cost in the neighborhood of \$100,000. Walter Wiley, who is at the head of the company, has had some brick made of clay on the company's property with which he is well pleased. They will make paving brick as well as building brick.

Edward Armstrong has installed a new soft mud brick plant of 30,000 daily capacity at Cincinnati, Ohio. He selected one of the Wellington Machine Company's combined outfits, including iron Quaker machine, pug mill and sander, driven from one pulley, after thoroughly investigating other machines.

Roeske Bros. Brick Company, of Michigan City, has had an unusually good season. They are turning out 35,000 brick a day and are hardly able to supply the trade. They ship to many points in the Middle West. The firm comprises two brothers, Chris and August Roeske, who have been in the brick business for thirty-five years.

At a meeting of the stockholders, on June 10, the Sphar Pressed Brick Works, Incorporated, of Maysville, was reorganized under the name of Sphar Brick Company, and incorporated under the laws of Kentucky. They will continue the manufacture of red pressed brick, and machinery which they have already purchased will be installed at once for the manufacture of common, sand finished brick.

Harold P. Tompkins, mayor of the town of Cedar Grove, W. Va., would like to correspond with manufacturers who are interested in locating brick plants. There is an abundance

of clay and an unlimited supply of cheap gas and other fuel at Cedar Grove, where excellent shipping facilities both by river and by rail are to be had. Those interested should correspond with Mr. Tompkins direct.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

THE first half part of the year just passed has been beneficial to the clayworkers in general in this section.

They can not say that it has been booming, but nevertheless all brickyards have been busy, especially those which are so situated that they can run with any kind of weather. To the open yards the season so far has been disappointing. We have had only a few days of real warm, drying weather, and otherwise we have had more rain and wet weather than is usually the case at this time of the year. The prices have been low, with a tendency to cutting prices for large jobs. In the better class of brick the demand has been good, and the supply has kept up with the demand. The Denny-Renton Clay and Coal Company has secured some very large contracts for their paving brick, especially for county roads, and this feature of the paving business should give a good demand for that class of brick.

Pacific Coast cities, says the Pacific Builder and Engineer, outside Oakland, do not show heavy gains in building operations over May of last year. Oakland makes a gain of 128 per cent., San Francisco and Los Angeles are holding their own, Portland, Seattle and Spokane are slightly falling off. New building construction for the past five months is making therefore no perceptible gains over the corresponding period in 1911. In fact, Vancouver, B. C., where the Seattle brickmakers have found such a good field for their product, is more than a million behind its record. Portland is now at the head of the list of territory, with Vancouver and Seattle second and third, respectively. The building outlook for Seattle is much brighter than it has been for many months. There is every likelihood that the permits will average more than a million dollars a month for the year. The city and the county of Seattle have now come together, and will submit to the voters at the next election a proposition to erect a large skyscraper to be used jointly by the county and city, on the property owned by the county at Third and Jefferson.

The Denny-Renton Clay and Coal Company is contemplating some large improvements at the Renton paving brick plant. With the large capacity of paving brick which the company has at present, they claim that it is the largest paving brick plant assembled under one roof. There are several concerns in the country which have a much larger capacity, but they have several factories, while at the Renton plant of the Denny-Renton Clay Company everything is under one roof.

A new clay company will be launched in the near future if the subscriptions to the underwriting syndicate are successful. The details of the organization have not been worked out, but according to some of the tests made the clay properties which these parties control have been entirely satisfactory. It is the aim of the promoters to make this new company a strictly Seattle proposition.

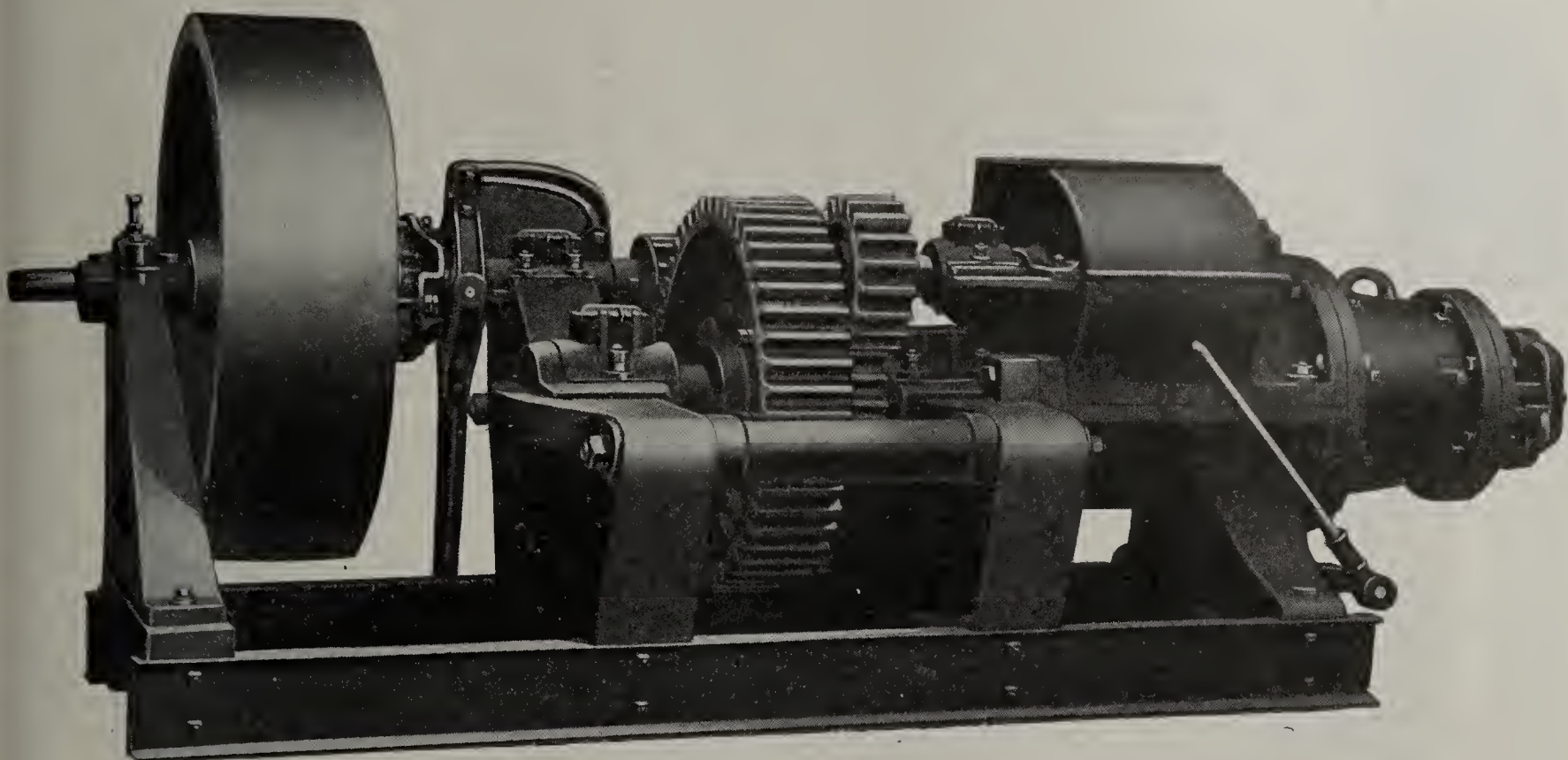
W. C. Mitchell, who has been for the last few months in the claywork engineering business in British Columbia, has returned to his native country again, and has accepted a position with the Builders Brick Company, of Seattle.

The Abrahamson Brick Company, whose plant is located on the Duamish river, has just installed a new Bensing automatic brick cutter to take the place of their old cutter, which has been in use at that plant for the last ten years.

Mr. George W. Beam, formerly of St. Louis, but who has been superintendent of the Far West Clay Company at Clay City, has resigned his position and moved with his family to Gig Harbor, where he will try the farming business for a while.

Since the business of the old Little Falls Fire Clay Company has been bought by the Standard Clay Company, of Tacoma, this new company has been making plans to improve their plants at Little Falls and Bayne, and they expect to spend a large amount of money in order to put these plants in first class condition. The company reports a very good business and plenty of contracts both for paving brick and sewer pipe.

SIWASH.



Model "GA" Auger Brick Machine

In general design, this machine is similar to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and avoiding the use of high speed gears. The result is less wear and tear on gearing, less noise, less power lost through gear friction and consequently less expense for maintenance. Owing to the slow speed, the operation is unusually smooth and quiet. There is very little vibration to work loose nuts and keys. It is a reasonable conclusion that an almost noiseless machine will require less care and last longer than one which is continually shaking itself to pieces.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled for the foundation bolts, thus providing a very rigid construction. The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

This type of machine is built in several sizes—further particulars on request.

E. M. FREESE & COMPANY, Galion, Ohio

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



WHILE THE CAPACITY of the various clay product plants on the coast is in no danger of being overtaxed, yet the condition of the market at present is such that a large average of business is possible and fairly good profits assured. The building season is now practically at its height, and the amount of new building this summer is greater than a year ago. In the neighborhood of San Francisco, at least, the outlook is for a greatly increased building activity from now on until the Panama Pacific Exposition is completed. Before very long now between ten and fifteen thousand men will find employment building structures in connection with the fair. The fair directors are favorable to working three eight-hour shifts a day on the exposition, and if this is done all the buildings will be finished easily on or before the date of the opening.

The plans for the new city hall have been accepted by the city and the working drawings are now being prepared. The exterior of this building will probably be of stone, yet undoubtedly a great amount of brick, tile and terra cotta will enter into the construction. The completed structure is to cost about \$4,000,000.

The brick market here is still firm at \$7.50 per thousand, and though figuring is keen on the higher-priced brick work, there is not much inclination on the part of manufacturers to make concessions. Since the establishment of the Brick Builders' Bureau a month or so ago, material dealers in clay products and structural steel have been feeling decidedly more optimistic for the future. The name of this bureau is somewhat of a misnomer, as the bureau is primarily a publicity bureau organized for the purpose of carrying on a persistent and far-reaching educational campaign in the interests of brick, terra cotta and other clay products used in building as well as for structural steel. Though not fully under way as yet by reason of the short time since its organization, the bureau has already exerted a wholesome moral influence on the building trade and to some extent on the public. Mr. Nat Ellery, the manager of the Bureau, said recently: "I am at present busy getting together an array of facts and technical information on the merits of clay products in order to be able to present the subject in a thoroughly satisfactory manner to parties concerned. I propose to outline the subject, showing the advantages of using brick and other clay products in connection with structural steel or alone, and have always available for immediate use the specific data necessary. Later, no doubt, we shall publish literature for distribution. But first we have to perfect many details of our organization and get things started on the right track. It will not be our policy to antagonize any other interest, but simply to demand for clay products the consideration from builders that their merits warrant. Where it is very evident that some other material is superior to brick for a certain purpose, we do not intend to waste our energies boosting for brick. However, there is a marked tendency to use other materials these days not because of any special fitness or cheapness, but because it seems to be the fashion. By thorough tests of materials we intend to show just what the merits of brick are in comparison with other materials. Our publicity work will be the practical kind which demonstrates scientifically." The headquarters of the Brick Builders' Bureau is at Room 1034, Merchants' Exchange Building, San Francisco.

The Pacific Clay Products Publicity Bureau, Room 312 Crocker Building, San Francisco, is concerned principally in encouraging the use of vitrified sewer and water pipe. Frederick C. Davis, the manager, is having marked success in his

work and he reports the demand for vitrified pipe growing steadily on the coast. The Bureau puts out educational pamphlets from time to time, and Mr. Davis spends a large part of his time traveling about the state conferring in person with the authorities of the different municipalities which are contemplating sewer improvements. The factories of the coast can make just as good vitrified pipe as is made in the East, and the present tendency of these factories is to maintain a high standard of output. No vitrified pipe over 36 inches is at present made here, however. Besides sewer work, there is a steadily growing demand here for vitrified pipe, of from four to twelve inches, for irrigating uses. The prices of sewer pipe remain unchanged and there is no disposition on the part of the makers to raise them.

The Golden Gate Brick Company have the contract to supply buff clay pressed brick in three shades for engine house No. 28, on the exterior, and their white enamel brick for the interior. About 50,000 brick will be needed. They are supplying 60,000 buff brick for the new Engels Building at Bay Point, Cal., and 50,000 sand-lime brick for the new postoffice at Madera, Cal. Two new spur tracks are being put down at the company's sand-lime plant at Antioch, Cal., one for loading sand and the other for loading brick.

The United Materials Company are delivering 6,000,000 common brick for the refinery of the Standard Oil Company at Richmond, from the kilns at that place. They are also to supply 60,000 Los Angeles pressed brick for the Sullivan estate building at Sixth and Market streets.

N. Clark & Sons, who have the contract for supplying 600,000 gray pressed brick, as well as a great quantity of terra cotta, for the new St. Ignatius Church, in San Francisco, have begun to make deliveries from their Alameda plant.

The new sewer system at San Diego, Cal., has just been completed. The original intention was to have the system in concrete pipe, but the concrete pipe did not in all cases stand the required tests and as a result two-thirds of the system was built of vitrified pipe and one-third of concrete. It is stated that the city saved money on every foot of vitrified pipe laid down.

The bond issue of \$210,000 for a new sewer system at Bakersfield has now been approved and plans are being perfected so that the work can proceed without delay. Vitrified pipe has been recommended for all sizes needed in the sewer system.

The old brick making plant of Gray Bros., at the foot of Twin Peaks, San Francisco, was partially destroyed by fire recently. The damage amounted to about \$25,000.

A new tile factory is being erected at Carson, Nev., by Henry Luhrs and George Brown. Tile for irrigating purposes is to be the chief output.

The new brick plant which is being put up at Springfield, Ore., by John Preschem, will have a capacity of 40,000 brick a day. The plant is just starting active operations.

San Francisco, Cal.

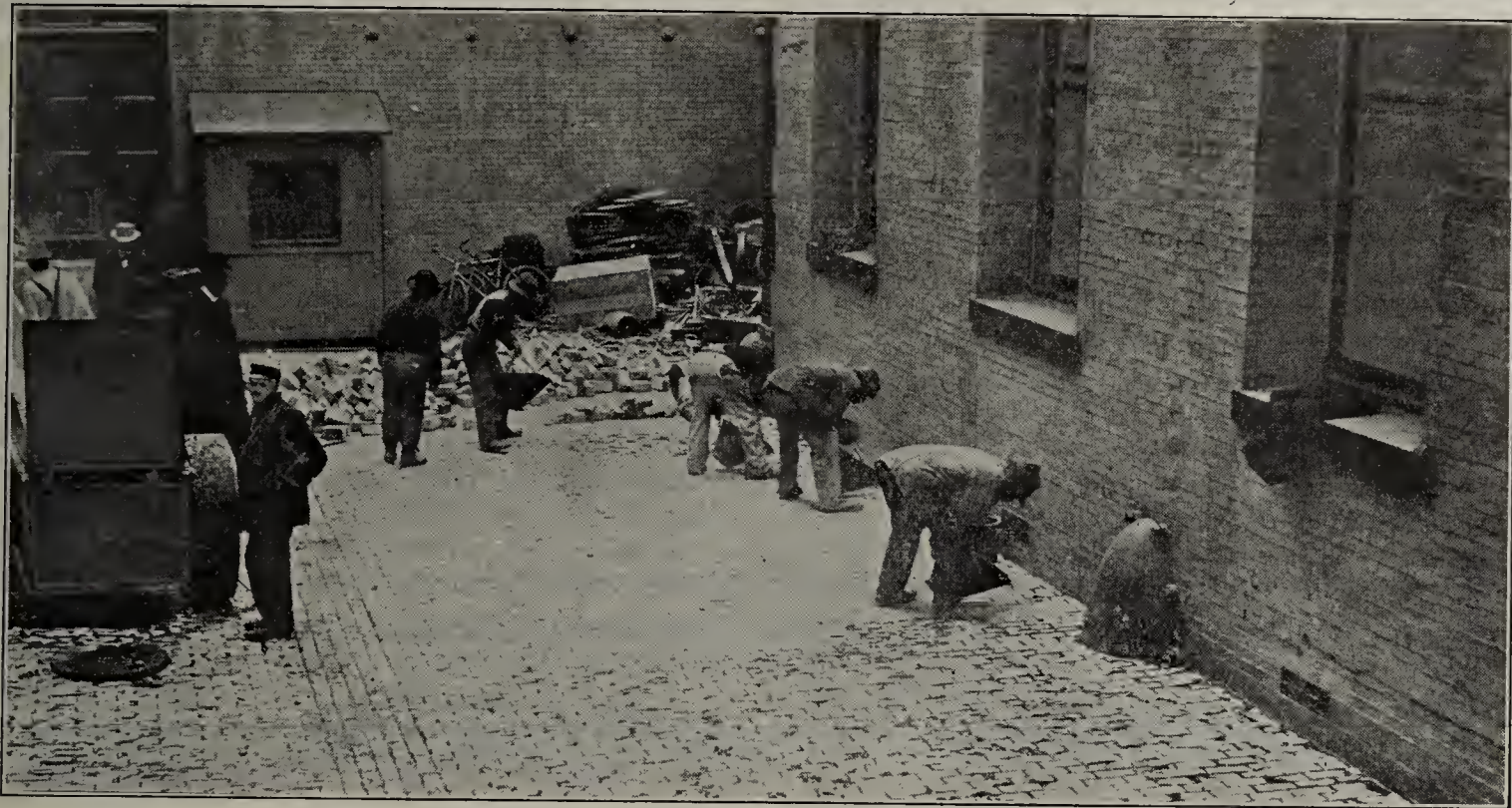
SUNSET.

It is one thing to show a bricklayer, by science and logic, that he is making twice as many motions and taking twice as much time as he should about laying brick, and quite another thing to get him to follow this logic. In this we have a beautiful example of that saying, "There is a difference between knowing a fact and realizing it."

F. JULIUS FOHS
Mining Geologist and Engineer
EXAMINATIONS of CLAY PROPERTIES
LEXINGTON, KY.



Barrett's PAVING PITCH



Courtyard of U. S. Government Printing Office. Barrett's Paving Pitch used to make pavement watertight.

IN A GOVERNMENT COURTYARD

THE LIFE of a pavement depends largely upon the degree in which its foundation is protected against disruption by water and frost. That, for instance, is why sand filler is so unsatisfactory. Something must be used which will fill the joints and seal up all openings.

For this purpose, Paving Pitch is ideal on account of its plasticity. The fact that it is applied in liquid form in itself guarantees a perfect seal at the beginning. It remains plastic, and when the joints widen as the blocks contract in cold weather, the pitch adjusts itself and maintains perfect adhesion to the blocks.

If the seal is broken, as when excavations are made in the pavement, the pitch will automatically heal up the breach.

Asphalt is inferior to pitch for this purpose, because it has little adhesive power, is brittle in cold weather and cleaves away from the blocks.

Cement filler is inferior to pitch, because, being rigid, it cracks.

The above photograph shows Barrett's Paving Pitch being applied to a pavement in the Courtyard of the Government Printing Office at Washington. This Court takes very heavy traffic, as all the paper and supplies of the office traverse it. It was especially necessary that this pavement be absolutely watertight, because it is over a vault in which is stored a million dollars worth of paper.

Asphalt mastic was used previously, but was unsatisfactory.

Foundations of ordinary pavements are not always so precious, but when they can be protected against deterioration cheaply and easily by the use of Pitch Filler, why not use it?

Booklets on request.

BARRETT MANUFACTURING COMPANY

New York	Chicago	Philadelphia	Boston	St. Louis	Cincinnati	Cleveland
Pittsburgh	Minneapolis	Kansas City	New Orleans	Seattle	London, England	

Written for THE-CLAY-WORKER.

BRICK NEWS OF THE TWIN CITIES AND THE NORTH-WEST.

THINGS ARE NOT as promising in building and construction lines this season as had been expected, although permit totals are holding up quite well in view of the circumstances. But the work so far, especially in these cities, has been largely limited to small jobs which do not run into very much in brick construction. Of the larger jobs, there is a little steel frame and hollow clay tile partition work, but comparatively little brick work, even with them, and the result is that the demand has been anything but good. Brick yards have begun operations through the Northwest but they have no occasion for operating beyond a moderate output, for there is no immediate call for any great amount of common brick.

The fall will doubtless see a little better condition of things, especially if the crops turn out to be as good as they now promise. There is quite a little deferred work in view which will be taken up if the crops prove to be good. While it is not possible to claim that the crops are assured, they seem to be in better condition now than common. The recent government estimate of condition showed them to be well over the average at the first of June.

Labor conditions in the Twin Cities are a little threatening, but this does not have much weight, for there is a sufficient number of non-union craftsmen in all lines to handle whatever work there is available, and if there should be a general strike, it would merely mean that all work would be done non-union instead of either union or non-union being given a job. St. Paul conditions are by no means as threatening as Minneapolis, and the former would probably escape any trouble, if any should start, but Minneapolis union workers promise to start something, according to current reports.

J. W. Butler & Bro. Co. is a new corporation in St. Paul, succeeding the general constructing firm of the same title. The firm has done a good deal of brick and other construction in St. Paul and elsewhere.

St. Paul permits for May amounted to \$936,063, against \$1,136,269 for the same month of a year ago.

A petition for involuntary bankruptcy has been filed against the Morton Brick and Tile Company of Minneapolis.

A. F. Swanson, a Minneapolis contractor, is now in Sweden, where he went to attend the Olympian games celebration there. He will be gone until September.

The supreme court of Minnesota has upheld the constitutionality of the so-called good roads law, whereby the state will pay a certain amount for the construction of roads conditional upon the county and township making similar payments. This assures the construction of a great many good roads through the state, and may also be counted upon to call for better city and village roads. This will doubtless make a better market for brick for paving, along with other materials. There has not been a great deal of brick paving done in Minnesota, particularly in the interior places. This is largely because of the excessive freight charges from Galesburg, Des Moines and other points where first-class paving brick are produced, which makes the cost very high. But with a development toward better roads, there will come an appreciation of the real value of brick for paving.

The Barr Brick and Tile Company, of Wanamingo, Minn., which is now completing a large clay plant there, has just arranged to issue \$50,000 preferred stock and \$25,000 more common stock, giving a total of \$225,000 common and \$250,000 preferred stock. The plant is to be put into complete operation as soon as possible.

The Duluth Clay Products Company, of Duluth, Minn., has recently been incorporated, taking over the business of the North American Brick and Tile Company, which has been building a plant at Walsh, near Tower, Minn., for some

months past. The company has a fine bed of clay there, and has built a large hotel as well as buildings for the clay works. A large addition is to be constructed for the production of sewer pipe, and special machinery has been ordered for the purpose.

B. R. Ward, president and general manager of the Acme Co-operative Brick and Tile Company, of Albert Lea, Minn., will remove his residence from Fairmont, Minn., to Minneapolis. Mr. Ward is also interested in a clay plant at Webster City, Iowa.

The management of the Fairmont Drain Tile and Brick Company, of Fairmont, Minn., has concluded that the clay at the Blue Earth, Minn., site is satisfactory and has started operations upon it. Repeated tests of the Blue Earth clay seemed to show that it was a very satisfactory material, and arrangements have now been made to run sidetracks into the clay fields, and also into the works at the other end of the line. The clay available at the site of the plant was found to contain limestone and the product broke in the burning, leaving a \$90,000 plant worthless unless a suitable clay could be secured within a distance which would permit it to be shipped without adding materially to the cost. The management feels that this is accomplished and the plant can operate at a moderate profit under the present conditions.

The Blake School for Boys in Minneapolis is about to erect a handsome new building just outside the city, of red pressed brick walls, fireproof construction. Pike & Cook have the general contract. Hewitt & Brown are the architects.

The city of Minneapolis will erect a nurses' home in connection with the city hospital, to be eight stories, brick and terra cotta construction, 44 x 120 feet in size.

Professor Harry Snyder, chief chemist for the Russell-Miller Milling Company of Minneapolis, will erect a \$12,000 brick veneered residence on Knox Avenue near Summit, in the Lowry Hill district of Minneapolis.

J. E. Nason, architect, of Minneapolis, has plans for an addition to the high school building and a new grade school, both at Benson, Minn. They will be of brick and will cost \$35,000.

The J. & W. A. Elliott Company, of Minneapolis, has received from the Omaha Railway a contract amounting to \$100,000 for a roundhouse, shops and other buildings in North Minneapolis. They will be of brick construction.

Julius Heilbron, manager of the Northwestern Blau Gas Company, of St. Paul, will erect an elaborate brick and stucco residence at Goodrich and Victoria streets, on plans by Thomas G. Holyoke, architect.

J. P. Fetch will erect two \$15,000 brick apartment buildings at Grand avenue between Grotto and St. Albans streets, St. Paul.

T. WIN.

An advance estimate of our international trade based on ten months' business already tabulated, indicates that our exports were over two billion dollars and imports one and one-half billion, of which over half entered free of duty. This ought to leave half a billion in our favor and the country ought to show up at least that much richer than it was the year previously. But perhaps that only represents what our tourists take abroad and leave over there.



PULSOMETERS

costs less to purchase, install and operate than any other type of brickyard pump. They handle gritty water and never need lubrication. Over 26,000 in use for pumping out trenches, caissons, cofferdams, clay banks, sand pits, etc. Write today for our "Pulsometer Handbook. It shows many novel installations and contains data on pumping problems.

PULSOMETER STEAM PUMP CO., 14 Battery Place, New York, N. Y.
Chicago Office: 223-231 North Jefferson Street

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DRYING

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is completed and has proven to be what every brick-maker is striving for:

A DRYER THAT WILL DRY BRICK IN TEN HOURS.

Your brick are dried exclusively with the exhaust from the engine that makes the brick. No extra fuel and no extra power required.

A dryer that does not have to be operated at night time.

Requires no expensive dry kiln, and no iron cars.

Cost of drying reduced to less than 4 cents per thousand.

TRIAL TESTS CAN BE MADE ON APPLICATION.



JOHN C. BOSS COMPANY
Write for catalog. ELKHART, IND.



BURNING

Do you want to burn hard coal, culm, lignite, slack or screenings? There is just one way to do it, and that is by using air under pressure, which is

The BOSS System of Burning Brick

*Burns all kinds of Brick and Clay Wares.

Applies to both Up-draft and Down-draft Kilns and

Will reduce your fuel cost fully 40% over the old way of burning.

Kilns last longer and give better service when equipped with the BOSS SYSTEM.
Try it.



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Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

FOR SALE

FOR SALE.

About 18,000 first class brick pallets.
Address J. C. RILEY,
6 3 dm Bloomington, Ill.

FOR SALE—CHEAP.

Two new, up-to-date Patterson throwing wheels. For full information, address,
39 N. Bennet Street,
2 6 cm Boston, Mass.

FOR SALE.

One complete down delivery for J. D. Fate Imperial machine, including extra gears, winding reel, and one each 10-inch, 12-inch, 13½-inch, 14-inch, 15-inch, 18-inch, 20-inch, 24-inch, 27-inch dies, core bridges, etc. All in good condition.

HANCOCK BRICK & TILE CO.,
7 1 d Findlay, Ohio.

FOR SALE—Atlas slide valve engine in good condition. Cylinder 13" by 18", rated 80 H. P.

SPRINGFIELD DRAIN TILE CO.,
7 3 d Springfield, Ill.

FOR SALE.

Four-mold Fernholtz dry press in first-class condition. For particulars address

W. G. BUSH & CO.,
5 5 d Nashville, Tenn.

FOR SALE.

Forty acres of good brick clay land at Riverdale, Illinois. Frontage on Belt railroad and street, 1½ miles from depot. 35 minutes service from Chicago. Price reasonable.

Address Box 7—Brick Clay % Clay-Worker.

FOR SALE—Potts brick machine, disintegrator, hoisting drum, shafting and pulleys, three Koppel steel dump cars, one 40 h. p. gas engine, one 20 h. p. gas or gasoline engine, a lot of 16 lb. rail, turn table, blower, kiln doors, etc. Any or all of this material remaining unsold Aug. 6th will be sold at auction at the factory of the Greenfield Brick Company on that day at 10. A. M. For further information address S. S. BOOTS, Greenfield, Ind.

7 1 cm

FOR SALE.

Sand-lime brick plant, capacity 25,000 brick per day, ten hours. Price very reasonable.

HOLLAND CITY STATE BANK,
6 tf dm Holland, Mich.

FOR SALE.

A sacrifice at quick sale. One hundred and fifty steel rack dryer cars, 36-inch gauge, 10 racks high, with track and turntable. About 2,000 feet 2-inch rail; 4,000 steel galvanized pallets, size 10 x 33 inches, rolled edge. One Phillips & McLaren dry grinding pan, No. 9. One Hayden dry grinding pan with conveyors and screens. One soft mud brick machine (Hercules make); 125 horsepower boiler and engine. Address

THE SCHNEIDER BRICK CO.,
6 2 cm 633 Linwood Ave.,
Columbus, Ohio.

Have you troubles with your BURNING?

If you do not get the best results and 98% of first-class paving brick, write to me and I will get you started right.

C. RICH, Bessemer, Pa.



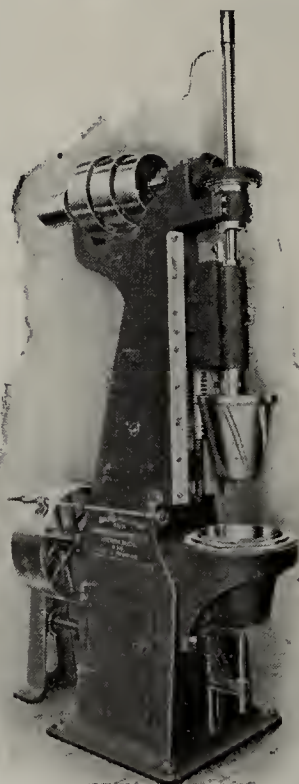
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Will make
Flower Pots,
Cooking Ware,
Stoneware, etc.

We guarantee more
and better ware than
can be made on any
other machine.



With this machine you can
turn failure
into success.

If you expect to stay
in the pottery business you need this
wonderful machine.

BAIRD MACHINE & MFG. CO. DETROIT MICH.

Classified Advertisements.

FOR SALE—About one mile of 20 pound relay rail.

SOUTHERN BRICK CO.,
7 1 c Athens, Ga.

WANTED—Burner for common brick. State experience, references and salary desired in application.

GEORGIA RED BRICK CO.,
7 1 d Box 393, Savannah, Ga.

FOR SALE.

One Martin's steam rack brick dryer, 14-pipe high; holds 30,000 brick with cars and tracks. All for \$1,100. Address

THE SCHMITT BRICK CO.,
6 2 2 pm Columbus, Ohio.

A GOOD INVESTMENT.

We are offering a small amount of stock in a modern brick plant in successful operation. This is your opportunity to secure stock in a paying enterprise. Full particulars on request. Address BOX 699, Oklahoma City, Okla.
4 4 d

BRICK AND TILE MAKERS.

The demand for brick, fireproofing and tiling is far greater in the Canadian West than the supply, and with the tremendous expansion of Manitoba and the west, the demand for all brick products is enormous. Rapid City, Manitoba, has an abundant supply of raw material and good railway facilities. A great opportunity for some one. For particulars write to

G. GORDON MURRAY,
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Box 146 Manitoba.
5 3 cm

FOR SALE BY FRANK P. CLEVELAND

Tile factory adjoining Indiana city of 25,000 population; also, 8¼ acres of ground suitable for building lots. Good reasons for selling. Price, \$9,500.

Brick and tile plant. Two 7-room houses and 10 acres of land. At a good point in Christian County, Illinois. Fine opening for practical clayworker. Price, \$14,000. Will arrange terms.

Tile plant and 40 acres of land in Allen County, Indiana. Sales average about \$40,000 per year. This is an up-to-date, modern plant. Price, \$30,000.

I bring buyers and sellers together. No matter where located, if you want to buy, sell or trade any kind of business or property, anywhere, write me. Established 1881.

FRANK P. CLEVELAND,
965 Adams Express Building,
Chicago, Ill.

WANTED—A good second-hand cutting table. State condition, make and price. Address BOX 5—F. A.,
5 1 d Care Clay-Worker.

FOR SALE.

One 40-43 heavy duty brick and tile machine, complete with brick nozzle and die.

One board delivery cutting table. Also barrel attachment and dies for making 3, 4 and 6-inch partition tile and drain tile. Dies have never been used.

One Bensing tile cutting table, new. One 84-inch disk fan, used only three months.

American Clay Machinery Company's make.

STANDARD BRICK & TILE CO.,
309 Henry Building.
5 3 c Portland, Ore.

FOR SALE.

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14¼x24 Buckeye, 11x16x12 Buffalo compound, 13½x15 Taylor, 13x16 Atlas, 13x12 Harrisburg-Ideal, 13x12 Phoenix, 12x14 Green, 12x12 Armington & Sims, 11x16 Atlas, 8x14 Noyes.

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Saw mills, lath mills, edgers, cut-off saws, resaws, blowers, exhaust fans, tanks, etc. Write for list. Also a full assortment of new machinery. Sole manufacturers of the celebrated "Leader" injectors and jet pumps. Send for circular.

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FOR SALE—On account of change in system of Brickmaking, we offer at bargain, one 4-mold Model D.3. Dry-Press, 20,000 capacity. One 6-mold Ross-Keller, 30,000 capacity. Both machines are complete, and good running order. Might entertain exchange for stock in properly organized company. Address, Standard Brick Co., Crawfordsville, Ind.

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WANTED—Competent man to take charge of one of the most complete plants in the Southwest, capacity 75,000, making paving and vitrified face brick. Good opening for the right man; no others need apply.

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WANTED.

Foreman who understands Raymond and Berg machinery, burning of up and down draft kilns and handling of men. Must be temperate. State experience and age. Location West. Address Box 7—L. B. C. % Clay-Worker.

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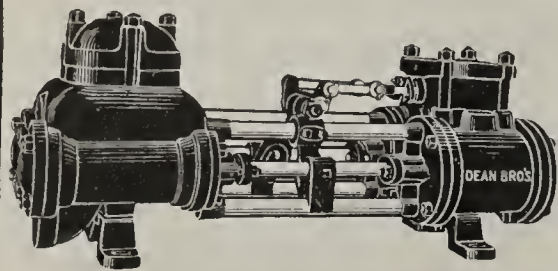
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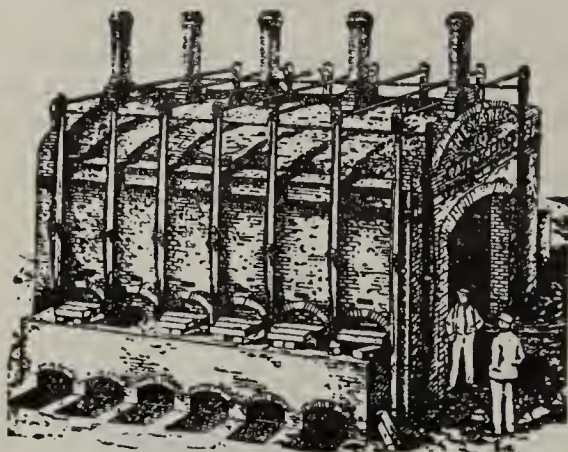
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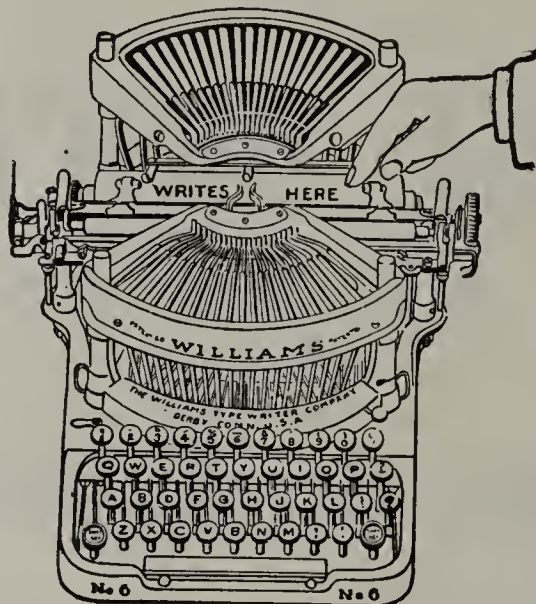
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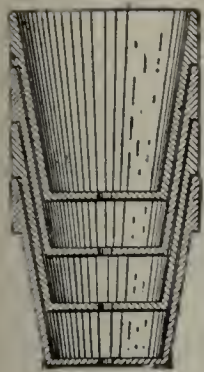
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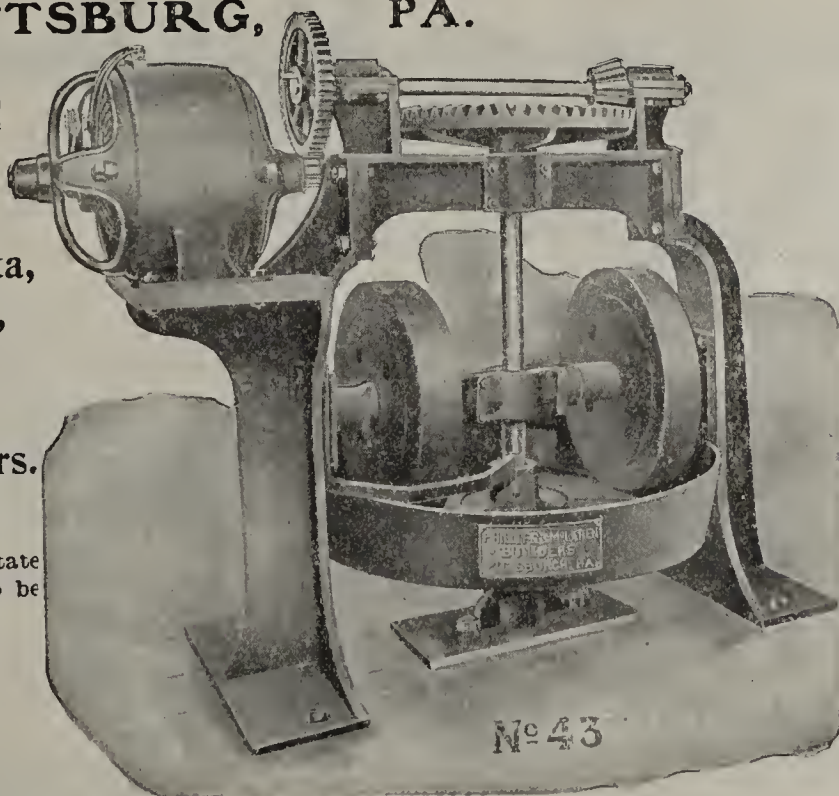
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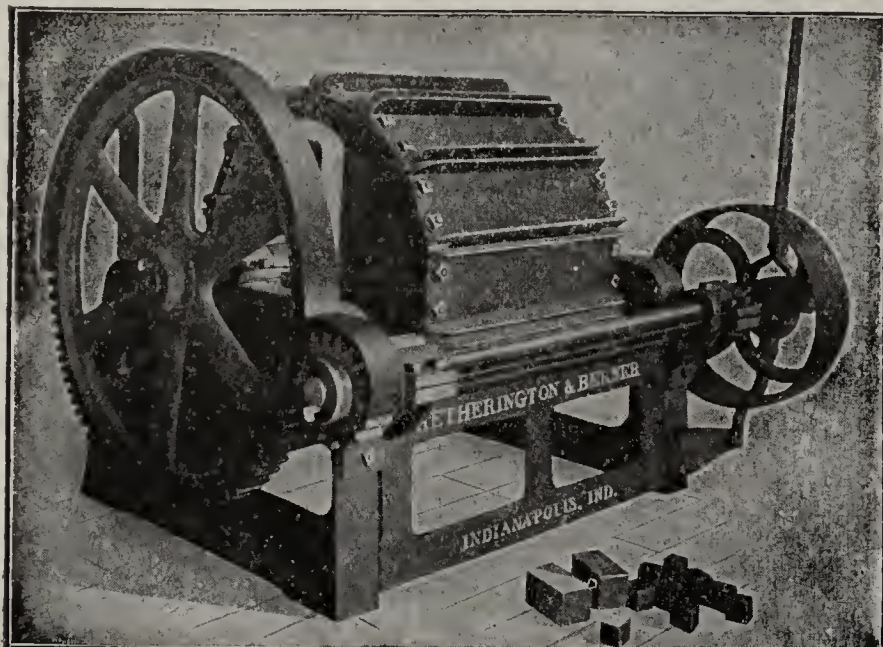
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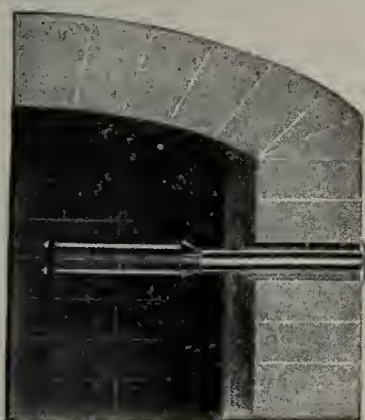
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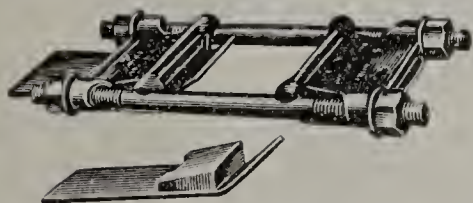
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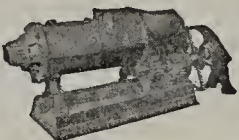
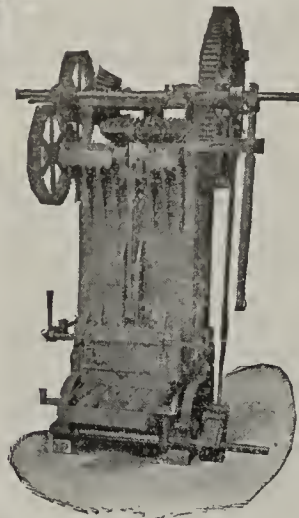
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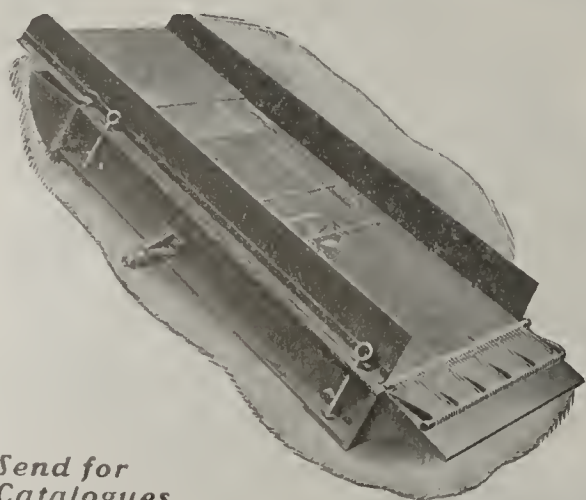


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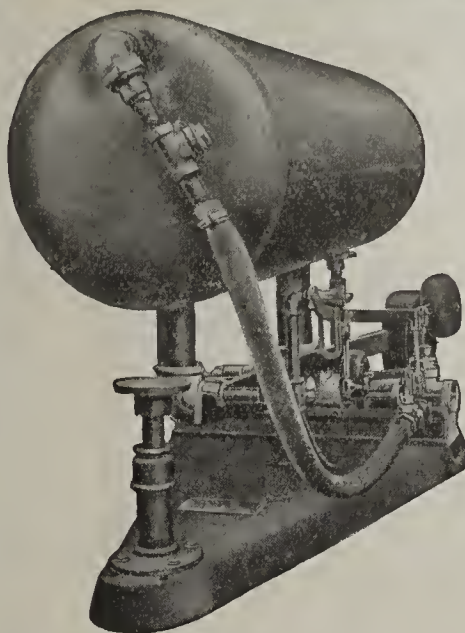
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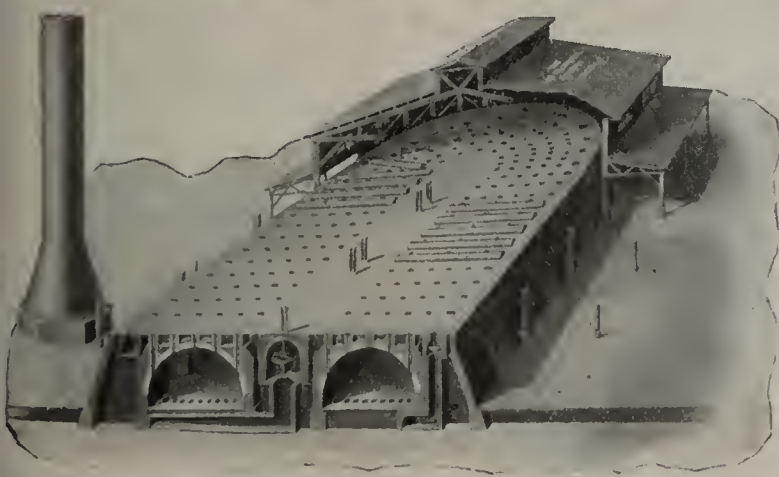
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INCLUDING

STEAM SHOVELS AND DREDGES.

Ask for our latest Catalog, and write us or wire us for anything you need on any kind of Brick or Tile Plants.

Scott-Madden Iron Works Co., 404 S. Fourth, Keokuk, Ia.



**REGENERATIVE
CONTINUOUS TUNNEL KILN**
for
CLAY PRODUCTS.

The Gas Machinery Company
Cleveland, Ohio

The Richardson=Lovejoy Engineering Company

Columbus, Ohio

CERAMIC ENGINEERS FACTORY ARCHITECTS.

Geological Examinations of Properties.
Clay Testing.
Investigations of Manufacturing Propositions.
Plants designed.
Construction superintended.
Operations directed.
Plans for Dryers, Furnaces, Kilns.
Especial attention given to problems in Fuel Economy.
Old plants remodeled and put on an Economic Basis.
New Lines of Products developed.

Pamphlet "CERAMIC ENGINEERING" Free.

WE CAN SAVE YOU MONEY

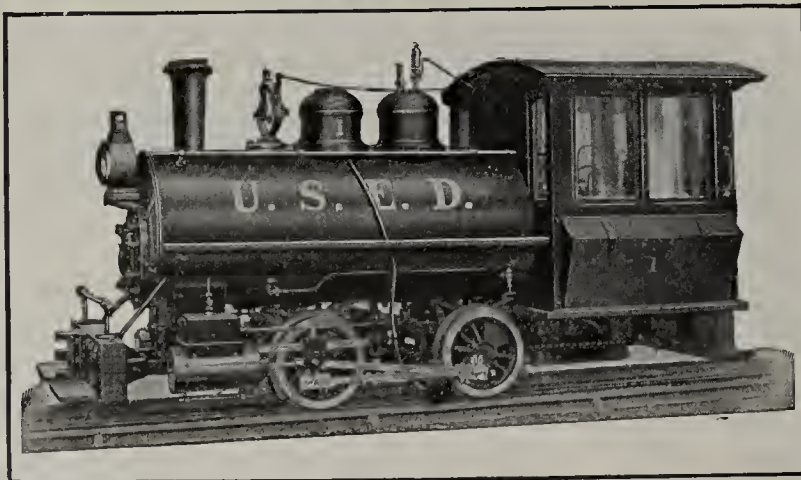
FIRST, by actual test, at our expense, **WE PROVE** that we can **SAVE MONEY** for you. **THEN** we license you to use our patented System of **BURNING BY FORCED DRAFT**, charging as royalty a few cents per thousand on your output—a mere **FRACTION** of your **SAVING**. **FINALLY** you apply to us for an exclusive license for your territory (just as the New England Brick Company did) for obvious reasons.

POSITIVE Mechanical **CONTROL OF DRAFT**—Economical to install.

"First come—first served."

Full information upon request.

The Steadman & Robinson Co.,
50 Church St., New York City,



DAVENPORT LOCOMOTIVES

For CLAY HAULAGE.

Small Size Reasonable Cost

Built especially for the use of clay-products manufacturers, for hauling clay or shale from pits or mines to plant.

Write for particulars.

Davenport Locomotive Works

Davenport, Iowa

BRANCH OFFICES

St. Louis, 654 Pierce Bldg.

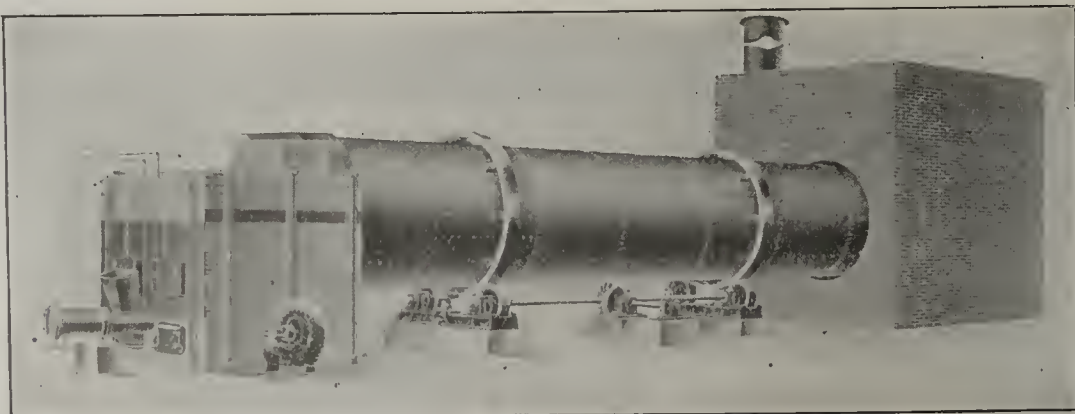
Chicago, 12 & 14 So. Canal St.

New York, 30 Church St.

Minneapolis, 107 Third Ave. No.

Seattle, 617 Western Ave.

F. H. Hopkins & Co., Montreal, Que., Canadian Representative.



CLAY DRYERS

Increase Capacity of Dry Pan.
Produce Uniform Brick.

Send for Catalog C. B.

AMERICAN PROCESS CO., 68 William Street, New York

1896

1912

14 Years of Constant Satisfactory Service In Many Clay Plants

Is the Record of the PERFECT CLAY SCREEN

Why continue with your old clay screen from which today the product is entirely too coarse, tomorrow too fine, next day scarcely anything, and always requiring constant attention.

FIGURE up the cost and let us quote you on a PERFECT CLAY SCREEN that will give you ABSOLUTE CONTROL OF YOUR CLAY. The same fineness every day in the year and you get every pound of clay that is fine enough for your product.

Just think what it costs to have a man cleaning and breaking up your screen, and then not get capacity or proper fineness. THE PERFECT CLAY SCREEN is automatic, self cleaning, and the plates last many times as long as do plates on an ordinary screen. Increased and improved output at less cost, is our GUARANTEE. Let us try, if we don't do it IT WON'T COST YOU ONE CENT.

DUNLAP MFG. CO.

Bloomington, = Illinois

*This Belt In Use 20 Years
And Is Now As Good As When First Put On*

Read this letter:

Gentlemen:—

We have a 7" 4-ply Gandy Belt running in our mill which has been in constant use about 20 years, and is today in as good condition as when first put on. It runs from a 5 ft. pulley shaft 3" diameter, running 141 revolutions per minute on a 2½ ft. pulley. It runs a John T. Noye roller mill (6 rolls) and a 2 ft. Burr Stone, for cracked corn, and an oat clipper, also 125 ft. of elevator for same. This belt can be seen at any time.

Respectfully yours,
J. P. FENNO.

The wonderful durability of

THE GANDY BELT in Brickyards

is proven by the many letters we receive just as convincingly worded as is this one.

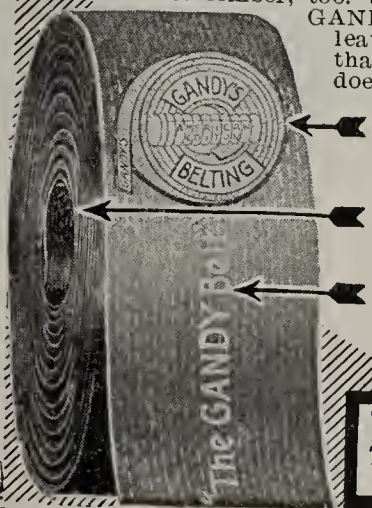
The durability of THE GANDY BELT is one of the advantages it possesses that tend to make it the most Economical belting for Driving, Elevating and Conveying—proven by thirty years of success.

Remember, too, the difference in first cost. The GANDY is only about ¼ the cost of leather belting and considerably less than that of rubber belting, while it does the hard work in the brick industry equally as well.

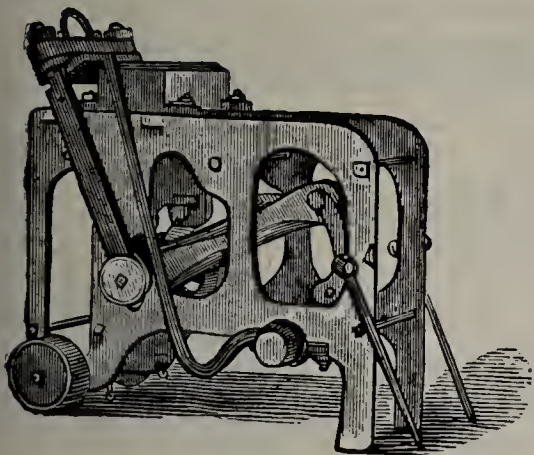
Write for booklet, samples and prices, now.

To protect yourself be sure to look for three identifying marks:

- 1st. The Trade Mark.
- 2nd. The Green Edge.
- 3rd. The Brand—The Gandy Belt.



The Gandy Belting Company
749 W. Pratt St., Baltimore, Md.
New York Office—88-90 Reade St.

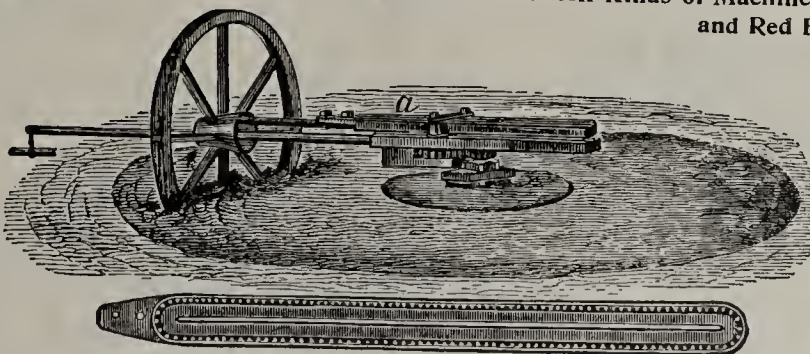


RED BRICK PRESS.

Philadelphia Brick Machine Works.

Fire and Red Brick Presses All Sizes. Machinists and Engineers.

Manufacturer of All Kinds of Machinery Used in the Manufacture of Fire and Red Brick.



These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

Send for Circular and Price List.

GEORGE CARNELL, 1819, 1821 and 1823 Germantown Ave. and Fifth St., PHILADELPHIA, PA.

IN DRYING CLAY WARES WE HAVE HAD THE LARGEST AND MOST VARIED EXPERIENCE OF ANYONE IN AMERICA.

OUR DRYERS GET RESULTS.

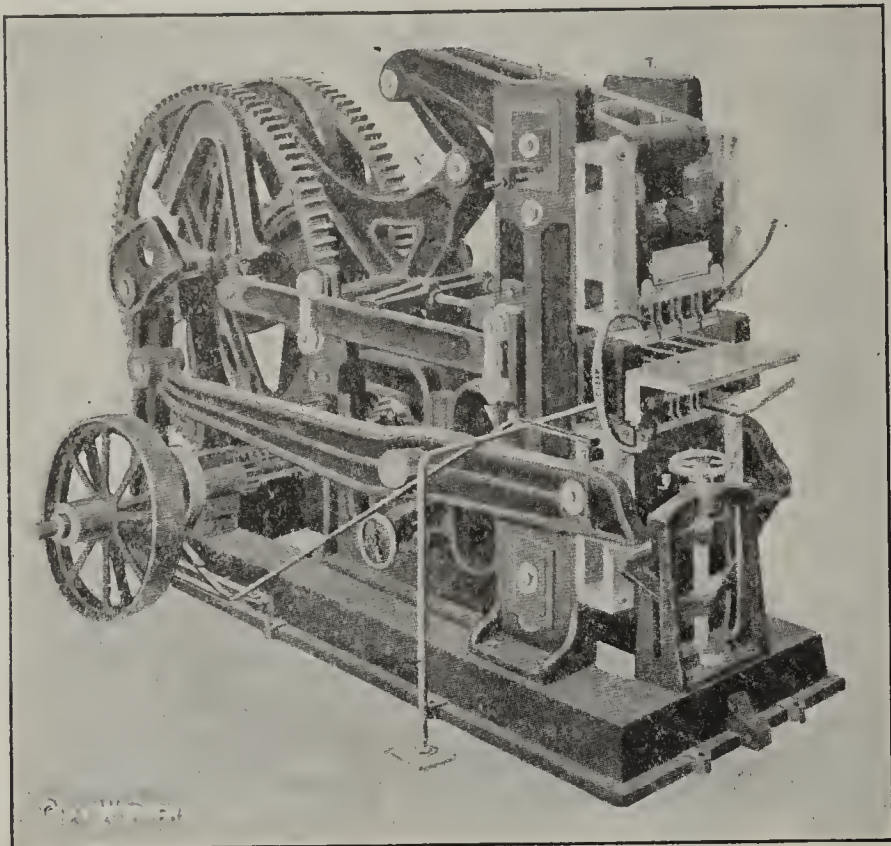
TRAUTWEIN DRYER AND ENGINEERING CO.

trautwein
SYSTEM
OF
WASTE HEAT
DRYING

WE MANUFACTURE COMPLETE, EVERYTHING NEEDED FOR DRYER INSTALLATIONS.

WE ARE ENGINEERS FOR CLAYWORKING PLANTS.

417 So. Dearborn St.
CHICAGO.



Special Mold Box In The Fernholtz Brick Press

The Mold is the heart of a brick machine and our press is fitted with a specially designed mold box which produces bricks with sharp, straight edges and corners. The Mold Box being assembled before placing it in the machine makes it possible to change molds in the shortest possible time.

Our press has many other special features which are fully explained in our catalog which we want to send to interested parties.

The Fernholtz Brick Machinery Co.

Boyle and Vandeventer Aves.

ST. LOUIS, MO.

ECONOMY

True economy is the sure road to wealth today, just as it has ever been. This is generally conceded, but it is not always certain what constitutes true economy. In the clay line it is oftentimes real economy to replace small capacity machinery with larger in order to meet the demands of a rapidly growing trade. Really it is false economy not to do so, for one must spend money to make money. He is wise who recognizes this truth and promptly replaces outgrown machinery with that equal to his needs. Then, after you have done the wise thing in enlarging and refitting your plant, don't let the outgrown machinery go to the scrap pile. It may prove a boon to some manufacturer starting a small capacity plant for which it will be ample. There are many such and they may be reached through an ad in the For Sale columns of The Clay-Worker. Be wise, not wasteful, and instead of letting your outgrown machinery rust out, advertise it in The Clay-Worker (see forms of ads under heading "For Sale, Wanted, Etc.," in this issue) and convert it into

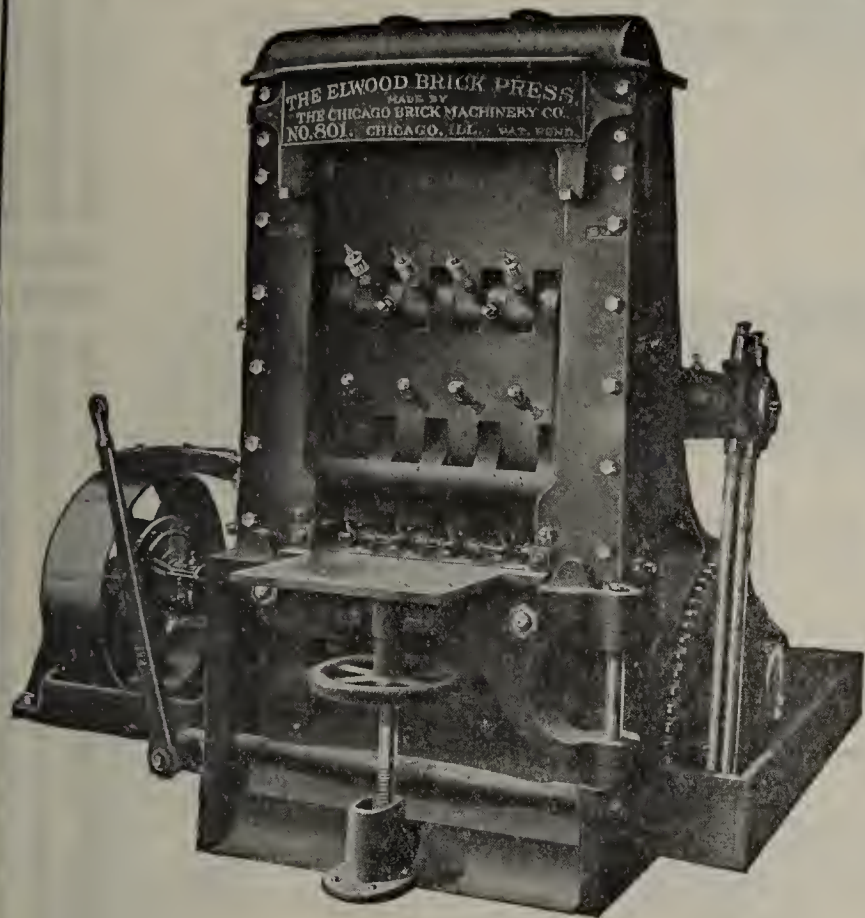
CASH

To insure insertion in current issue, copy should be furnished early in the month.

Address

THE CLAY-WORKER,

Indianapolis.



ELWOOD PRESS

**BUILT FOR HEAVY DUTY.
ALWAYS MAKES GOOD.**

WE ALSO HANDLE EVERYTHING
USED ON A BRICKYARD.

CHICAGO BRICK MACHINERY CO.

Sold Also by
MANUFACTURERS EQUIPMENT CO.
Dayton, Ohio.

20 W. Jackson Blvd., Chicago

The Buhrer Kiln and Dryer With Fan Draught



1560 Million Brick are yearly
dried and burnt in Buhrer
System Kilns and Dryers
worked by 370 Buhrer Fans.

already in operation throughout the Continent and in South India and Ireland, yields far the greatest output in first-class goods, such as all kinds of Bricks and Tiles, Lime and Cement, in the shortest possible time, with great economy of fuel, the waste heat being used either for drying or foreheating.

TESTIMONIAL.

J. BUHRER, Esq., Constance (Germany).

Youghal, Co. Cork (Ireland), 30th April, 1912.

Dear Sir—Your Instructor Burner is leaving here on tomorrow, having completed his work, and we have much pleasure in stating that under his instructions our burners have done remarkably well. On the last burning round of our new 16 Chamber Buhrer Kiln he made a further fuel test and we are much pleased to inform you that the results are very much below your guaranty of 160 kilos per 1,000 bricks, and the output is considerably in excess of your estimate. The actual figures are as follows, viz.: The bricks set in kiln contained 11 per cent of moisture, and the burning was at the rate of 32,800 bricks per 24 hour. Coal consumption was 92 kilos or 208 lbs. per 1,000. The temperature in kiln was 1830 degs. Fah. The heating value of coal used was 11,680 B. T. U.

The burned bricks taken from the kiln were first-class in every respect.

We are much pleased with the manner in which the Instructor Burner carried out his work, which was in every way creditable to himself and the firm he represents.

Yours faithfully,
For the YOUGHAL & MONARD BRICK & TILE CO., LTD.
(Signed) J. R. Smyth, Managing Director.

For five years Mr. Smyth has been making inspection trips in England and Germany to find out the best kiln before he decided to erect a Buhrer-Fan-Draught-Kiln.

Write for more information to

Jacob Buhrer's Technical Bureau

at

CONSTANCE, GERMANY

THE GAS-FIRED
FIRE-BRICK
HOFFMANN KILN

Burns 1,000 Fire-Bricks
With 5 Cwt. of Slack

and also largest Blocks.



50%

LABOUR
SAVING
GUARANTEED

HAS IT EVER OCCURRED TO YOU
THAT ALL WORKS POSSESSING GENUINE
HOFFMANN KILNS PAY HANDSOME DIVIDENDS?

The same applies to Hoffmann Continuous Tile, Pottery, Lime
and Cement Kilns.

HOFFMANN

CONSTRUCTION CO.,

FINSBURY PAVEMENT HOUSE,
LONDON, E. C., ENGLAND



Style 306 No. 1, Single Deck

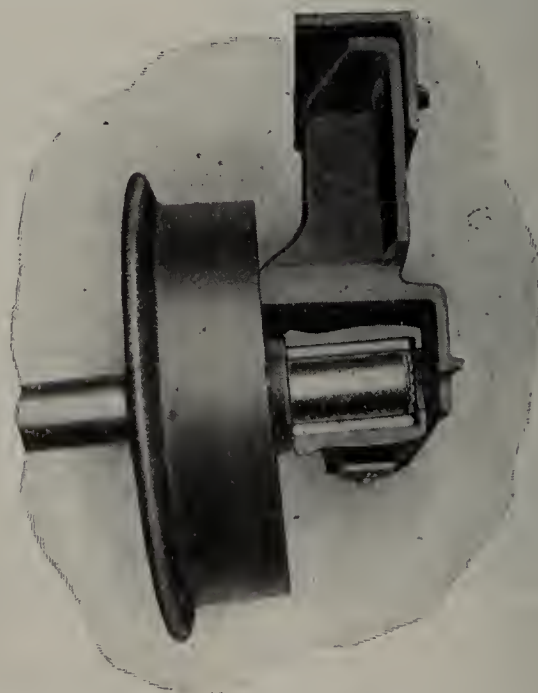


Style 306 No. 2, Double Deck.

WRITE US FOR CATALOG AND PRICES.

The Chase Foundry & Mfg. Co.
Columbus, Ohio

CHASE DRYER CARS
With Patented
FLEXIBLE and REVERSIBLE
BOXING AND ROLLER BEARINGS.



Sectional view of Flexible Boxing
showing deflection in the axle, the
same as occurs when the car is pass-
ing over uneven track or is unevenly
loaded.

WALTER E. HILTON'S IMPROVED MOLD SANDER

(PATENT PENDING.)



No Chains, Belts or Gears.

No Shifting Lever.

No Extra Moulds.

Mould always ready to be taken out at the proper time.

Impossible to break a Mould.

Light running, almost balanced in all positions.

For circulars and prices explaining it more thoroughly, write

Hilton Sanding Machine Co.

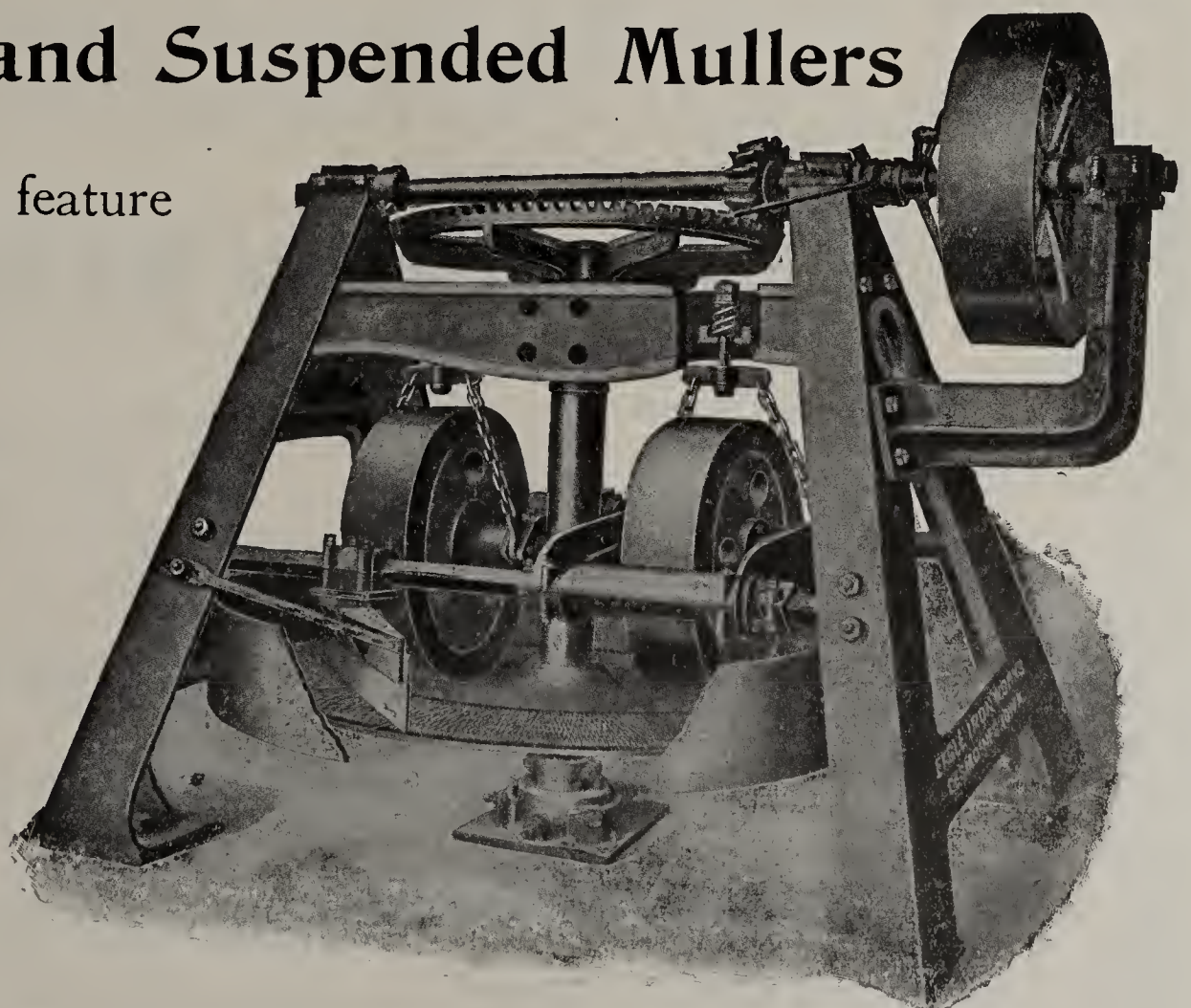
DUNKIRK, N. Y.

Independent and Suspended Mullers

the distinguishing feature
of our

DRY PANS.

Other valuable
features which our
catalogue fully
describes.



EAGLE IRON WORKS, Des Moines, Ia.

THE CALLAWAY SYSTEM FOR DRYING AND BURNING BRICKS

Saves 35 per cent in time, 50 per cent in fuel and
increases Quantity and Quality of Product.

MECHANICAL DRAFT

NO STACKS

THE CALLAWAY CABLE CONVEYORS AND PORTABLE CROSS CONVEYORS

Dispense With Truckers on Rack and Pallet
and Open Yards.

Save from Four to Eight Men per Machine.

Write for particulars.

ED. H. CALLAWAY ENGINEERING CO.

50 Church Street, New York City

Engineers, Clay Specialists and Brickologists.
Kilns, Dryers and Complete Clayworking Plants.

The Claycrafter

Supplement

Drying of Clay Ware

A FEW years since, when artificial drying of brick and clay wares began to come into general use, the scientific principles underlying this important and vital operation were somewhat vague and incompletely understood, a fact that large numbers of old existing dryers today with their poor efficiency, large fuel requirements and excessive repair costs will attest.

Founded on this widespread experience throughout the field, and coupled with the advanced thought and study of eminent chemists and engineers, the leading dryers of today, both in substantial and scientific construction and efficiency in operation, represent as great an advance in both economy and efficiency as perhaps any other department of clay works equipment.

Shorn of all high sounding terms, the correct rudiments and final principles involved in the drying of all clay wares, might best be summed up as follows:

HEAT and CIRCULATION under proper COMBINATION, APPLICATION and CONTROL. Heat by itself being worse than worthless. Circulation alone being wholly inadequate. A proper combination of the two, however, with means for scientific application to the ware to be dried, in connection with a suitable system of regulation and control to meet successfully the needs of varying conditions, and you have the successful drying equipment of the present day.

For convenience we may subdivide the entire drying process into three stages, which in actual working would naturally merge into one continuous and progressive operation; then, these principles prop-

erly applied should effect the desired results in the following manner:

In the first stage of the drying, the ware passing into a warm, moist atmosphere, is allowed sufficient time to warm through before progressing into the higher heats ahead. The air in this section of the tunnel while quite humid, should never be allowed to reach saturation or "dew point," or the result will be "sweat" or condensation on the ware, with likelihood of "white-wash" on the finished goods. Practically no moisture is extracted from the ware during this stage.

Passing forward into the second or drying section, with its increasing heats, the clay ware readily gives up its moisture in the form of vapor, which is immediately carried away in the steady flow of circulation to the outlet.

Arriving at the third or finishing section, the ware now being nearly dry, encounters very hot, dry air which heats the ware through and through to a point sufficient to drive every atom of moisture therefrom.

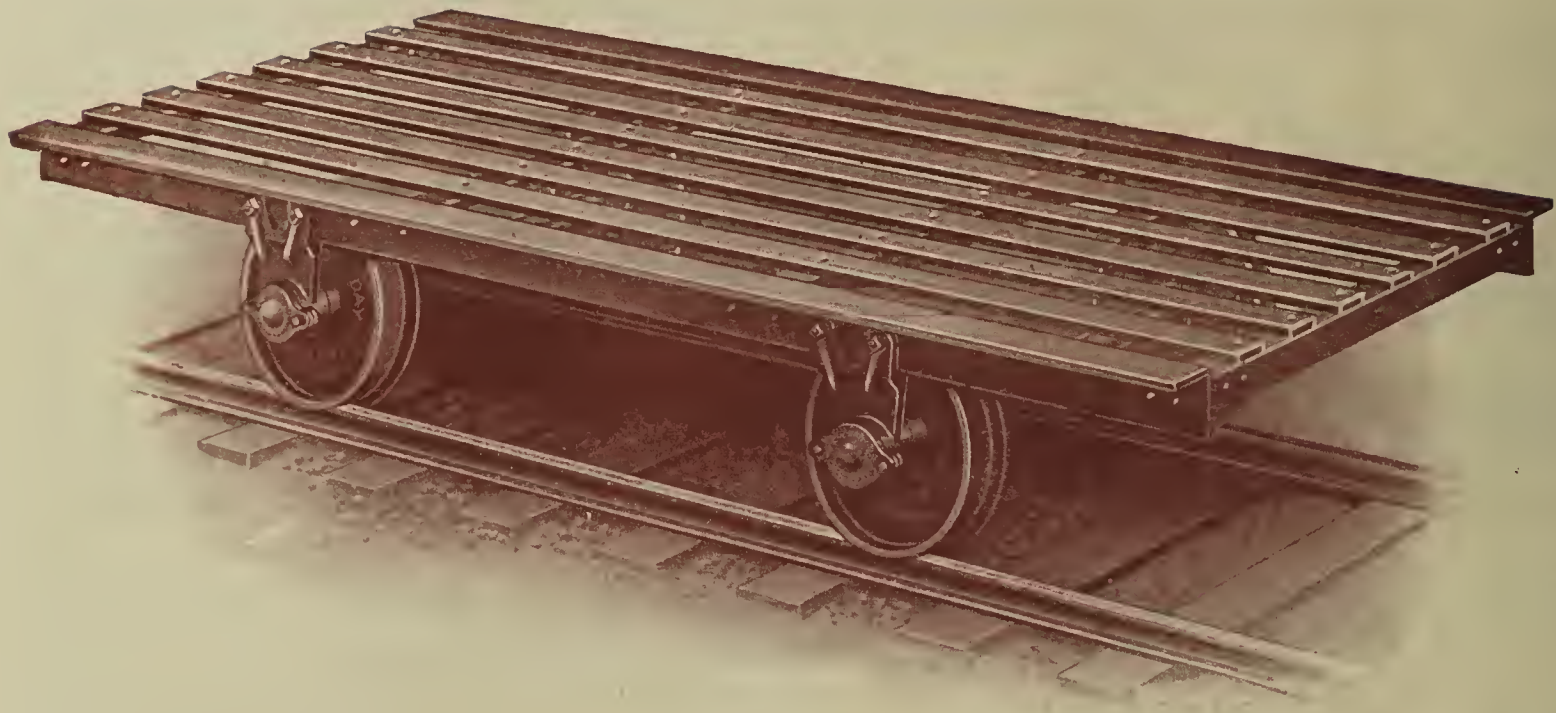
Brick and clay ware dried in this manner will emerge from the dryer "bone dry," free from check, flaw or strain.

The above principles and process are the gradual evolution and outgrowth of many years of experience with faulty systems, and instead of being private information is a matter of general and exact knowledge.

This leaves the clayworker, as a prospective buyer, in the position of basing his selection on the concrete merits of the equipment under consideration—its substantial construction, its efficiency in operation and its economy of fuel.

Matters that have a direct bearing and a distinct "rap right on the pocketbook."

Full information will be gladly forwarded on application to The C. W. Raymond Co., Dayton, Ohio, U. S. A.

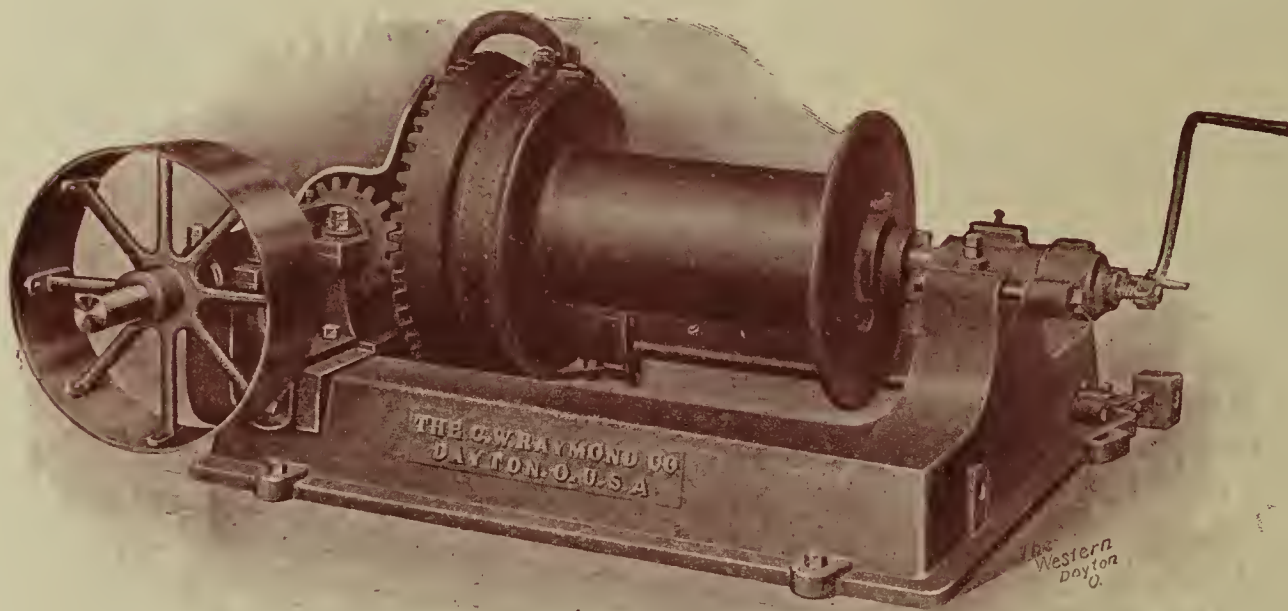


Cars Built FOR Service

Our line includes every style popular with the trade, and in every weight for every degree of service.

*Write for Catalog
and Prices.*

Raymond Style "B" Dryer Car,
The Best of Materials and Honest Workmanship.



HOISTS

AND

WINDING DRUMS

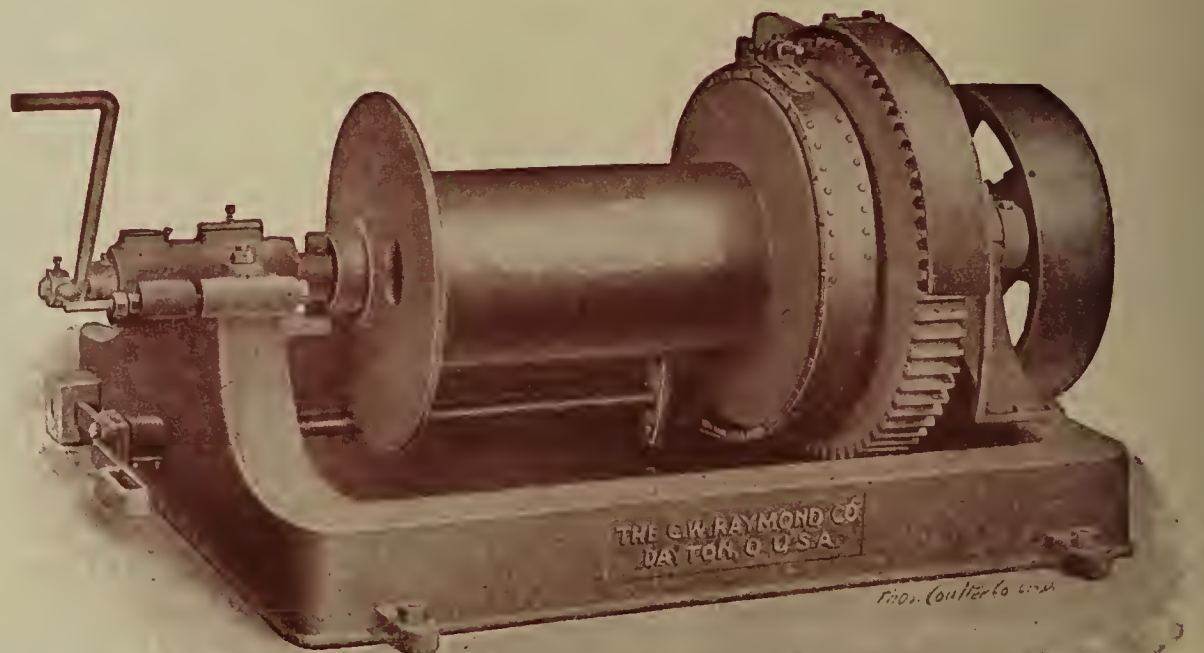
FOR EVERY POSITION
AND
EVERY SERVICE.

WRITE,
GIVING DETAILS OF
YOUR NEEDS TO

**The
C. W. Raymond
Company,**

The Strongest Power in the World
of Clay Working Machinery,

DAYTON, OHIO, U. S. A.



Mention THE CLAY-WORKER.

HERE IS "IT"

They are all talking about "it."

Large numbers are investigating "it."

Many wide-awake people are installing "it."

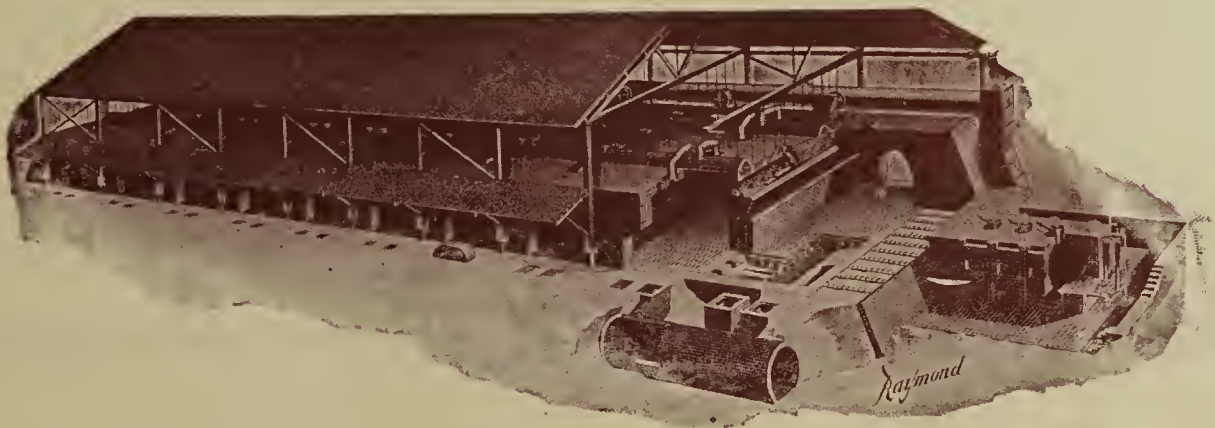
THAT 60 PER CENT SAVING OF FUEL BILLS

Should look just as **Good in Your Pocket** as in the **Other Fellow's**.

As a bald matter of fact *it would*, were you
the proud possessor of a

RAYMOND, PRODUCER GAS FIRED, CONTINUOUS KILN

Cleanliness, System,
Ease of Operation and Control,
Ideal, Compact Arrangement,
Small Repairs,
Uniform Burns,
Decreased Waste and
Better Ware and more of it
than by any other system in
use. Write today.



THE NEW MODEL BERG DRY PRESS

LOOK AT IT

NOT SCATTERED ALL OVER THE GROUND

ENTIRELY SELF-CONTAINED

Compactness and Simplicity Means Strength and Endurance

Few working parts, simple, interchangeable and reversible moulds,
with easy adjustments and repairs, makes for steady and satisfac-
tory operation and finest ware.

**Not the Cheapest in Dollars but
THE CHEAPEST IN DOLLAR VALUE**

For full particulars write to

The C. W. Raymond Co.

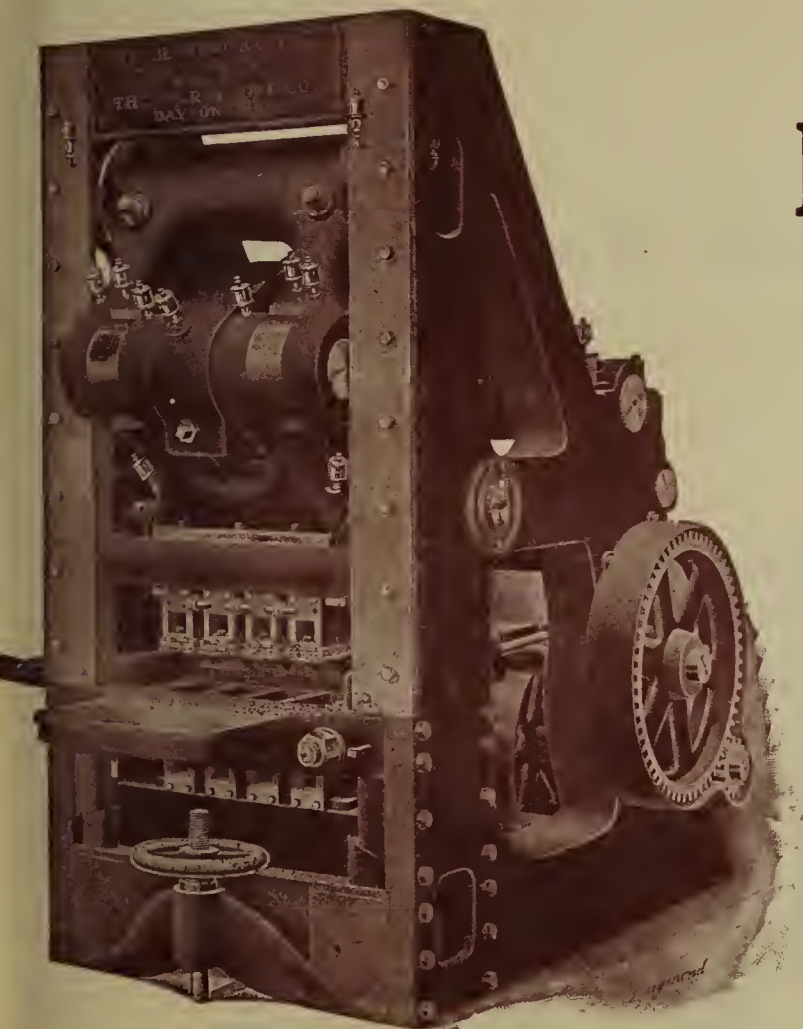
**The Strongest Power in the World
of Clay Working Machinery**

DAYTON,

OHIO,

U. S. A.

Mention THE CLAY-WORKER.



These are the days of

PROGRESSIVE

VS.

CONSERVATIVE

Where Do You Stand?

We maintain, however, that the two—under healthy conditions—go
HAND IN HAND;
And our record for over Thirty Years would seem to bear us out.

Ever the *first in the field* with inventions and improvements of momentous interest and concern to *clayworkers*, yet, only after a careful analysis of the needs of the situation and a thorough demonstration of the equipment in hand.

A single instance of this Conservative Progression is the

Raymond Metallic Radiation Dryer

An innovation in the way of Cast Radiation Plates and unique features for efficiency and economy. Hear what many satisfied users say.

Write today to

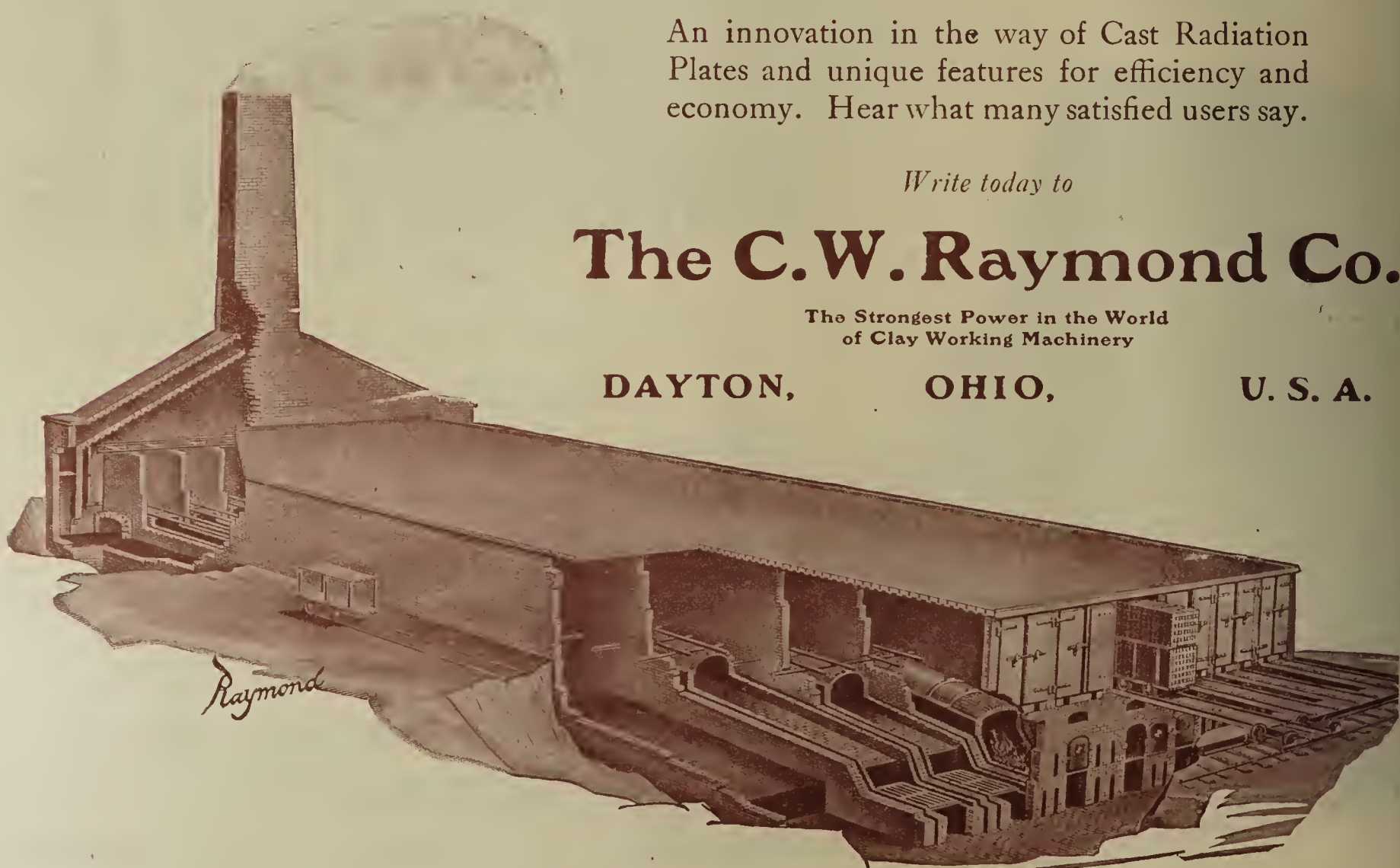
The C.W. Raymond Co.

The Strongest Power in the World
of Clay Working Machinery

DAYTON,

OHIO,

U. S. A.



Mention THE CLAY-WORKER.

Will Purchase Paving Brick Plants

or

Erect New Plants

While the demand for vitrified blocks is now unlimited in certain sections of the country, this condition will not continue unless the best possible form of paving block is made and laid in the best possible manner.

The success of

Wire-Cut-Lug Block

has been established and this improved paving block must be immediately placed on the market throughout the country.

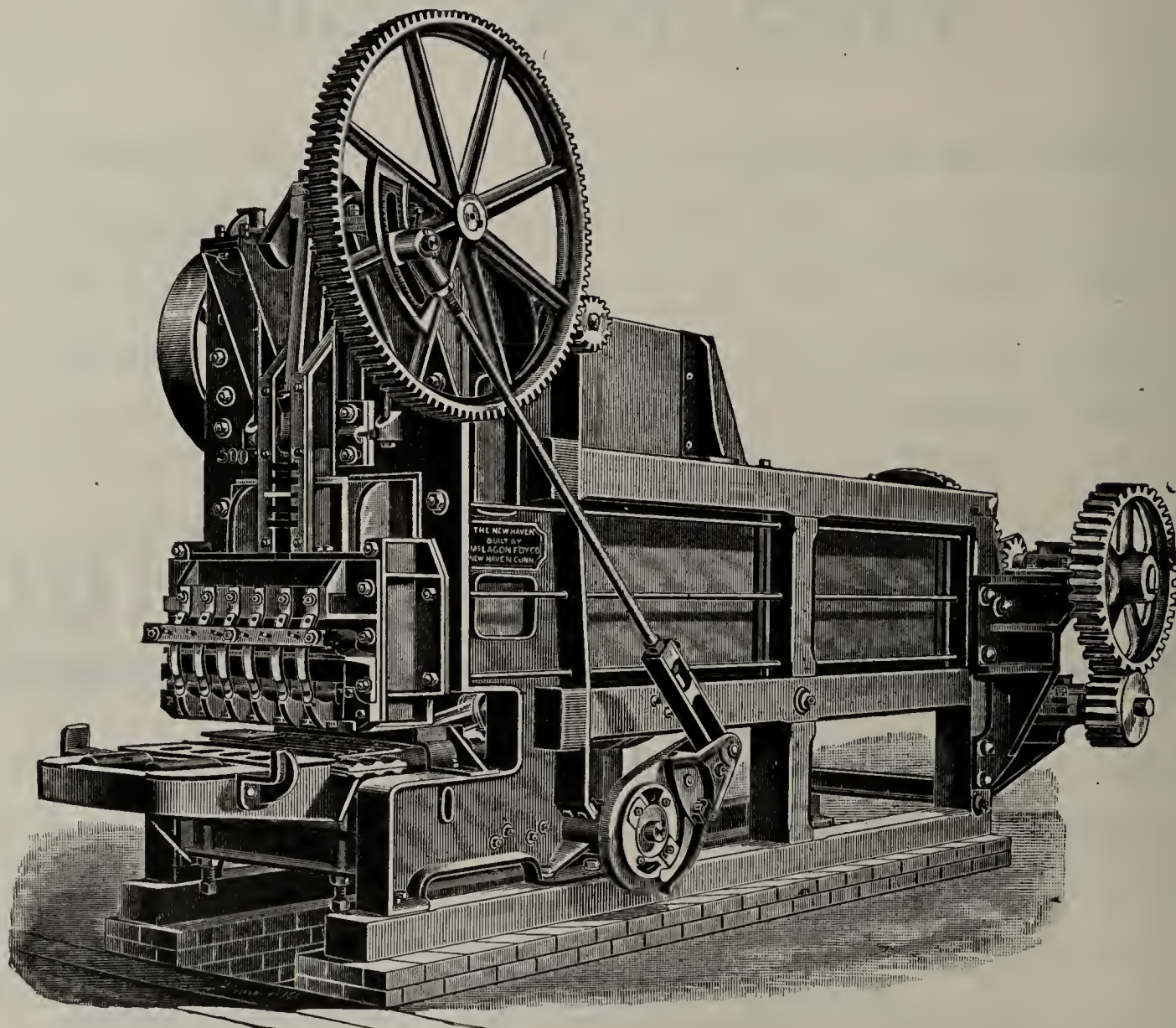
We therefore propose to acquire, by purchase or erection, a string of Modern Plants throughout the country.

If you have suitable shale or clay for the manufacture of a strictly No. 1 vitrified block, communicate with us immediately and furnish full particulars.

F. B. DUNN, Conneaut, Ohio

There is a Standard in Everything

In soft mud brick machines the New Haven is the Standard. Equalled by few and surpassed by none. The New Haven machine is built to last.



"NEW HAVEN" HORIZONTAL BRICK MACHINE

This machine is built for service and has never failed to make money for the purchaser. As an evidence of this more than three-fourths of all the brick made in New England, the home of the New Haven machine, are made on New Haven Machines. Write for catalogue.

The EASTERN MACHINERY CO.

NEW HAVEN, CONN.

YOU CAN SAVE MONEY

Time and Trouble

By making your choice of magazines for coming year and ordering them all at once through THE CLAY-WORKER.

Knowledge is Power

The best way for clayworkers to get trade knowledge is through the columns of the best clay journal, THE CLAY-WORKER. The up-to-date, successful manufacturer usually keeps posted on current events through the current magazines. The home should be provided, and usually is, with journals devoted to domestic interests and to the welfare and pleasure of the women and children. All of these, whether literary or technical, we offer at prices that will net a saving of 25 to 50 per cent on your magazine purchases for the ensuing year.

(These prices are good only in the United States. Special prices will be quoted to points beyond the United States covering additional postage required.)

The Clay-Worker Clubbing Offers:

	OUR PRICE
CLAY-WORKER\$2.00 Mantel, Tile & Grate Magazine.... 1.00 American Magazine 1.50	\$3.00
Value.....\$4.50	
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Value.....\$8.00	

OUR PRICE

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Value.....\$9.00	
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Value.....\$5.00	
CLAY-WORKER\$2.00 Brickbuilder 5.00 Cosmopolitan 1.50	6.50
Value.....\$8.50	
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Value.....\$4.50	
CLAY-WORKER\$2.00 Woman's Home Companion 1.50 Delineator 1.50	3.50
Value.....\$5.00	

If none of the foregoing combinations is just what you want, write us for special prices on any magazines or papers desired and we will quote you equally low prices.

Send all orders to THE CLAY-WORKER.

T. A. Randall & Co., Publishers Clay-Worker, Indianapolis:

You will please send THE CLAY-WORKER and the other magazines named below to me for the ensuing year beginning with the next current issue of each for which

I enclose \$.....

Name.....

Postoffice.....

Street and No.....State.....

Names of magazines desired:.....

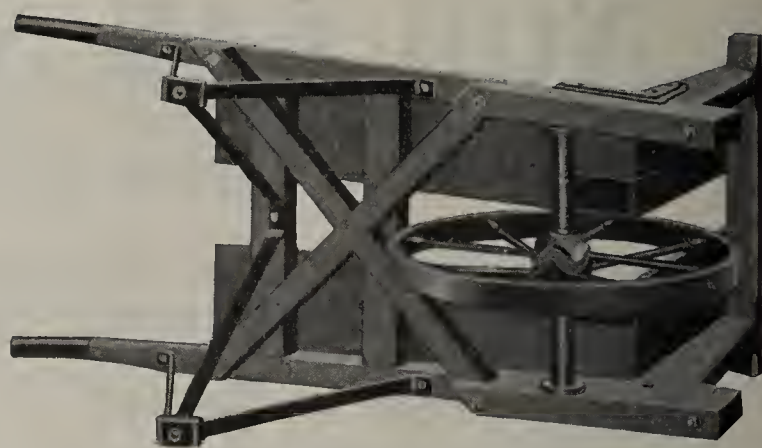
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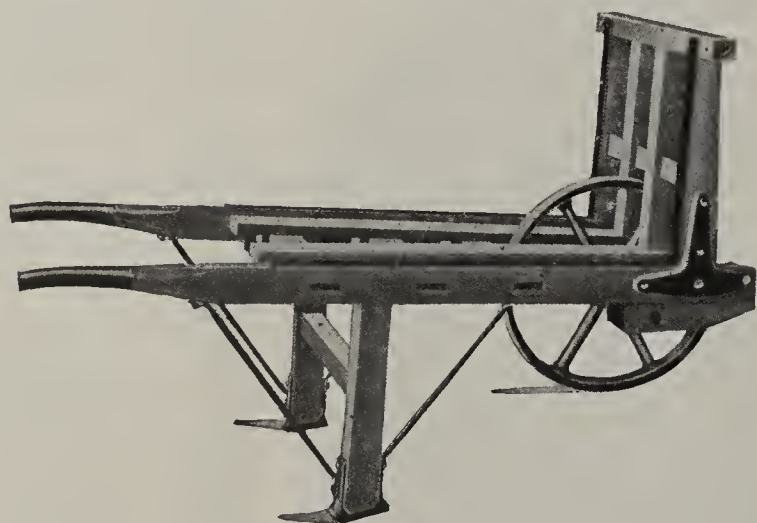
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Regular Brick Barrow
Price \$6.50



Regular Barrow
Showing Solid Construction and Braces



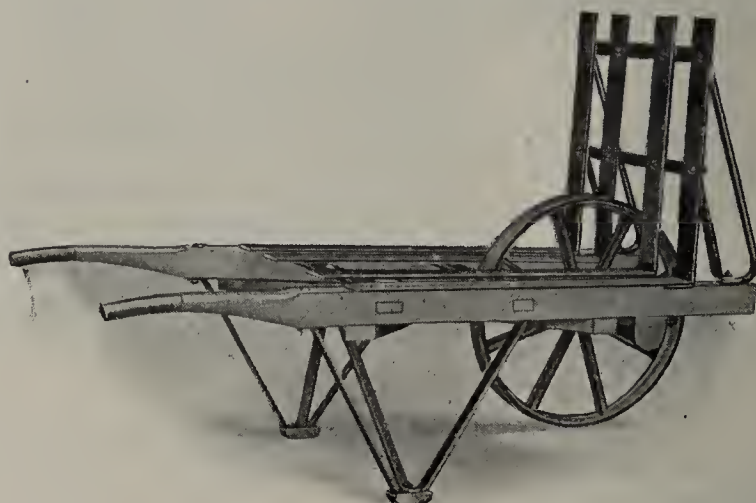
Extra Heavy Burnt Brick Barrow
Price \$7.50



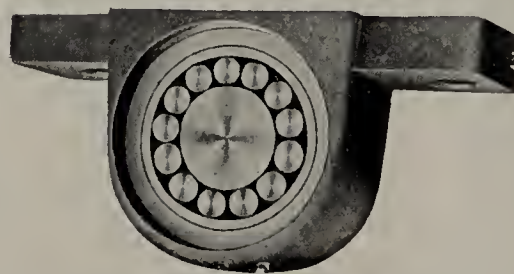
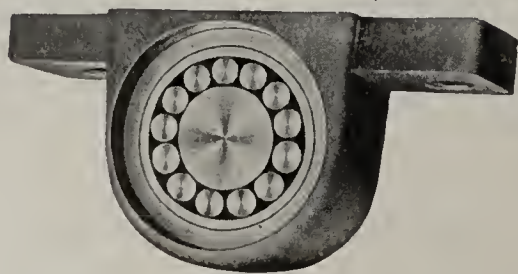
Spring Brick Barrow
Price \$7.50 and \$8.50
Regular and Roller Bearing



Roller Bearing Brick Barrow
Price \$7.50



Steel Slat Barrow
Price \$9.00



The best Barrow Roller Bearing on the market today.
Used exclusively by

THE WELLINGTON MACHINE CO., Wellington, Ohio

Sand Mould Brick Machinery and Equipment

IS OUR SPECIALTY

We make no machinery for other processes. Having made a special study of the one process, adapted ourselves to it, as well as all of our manufacturing facilities, having but one object in view, *i. e.*, to make the very best machines of this class on the market.

That we have been successful in making a machine that does give

RESULTS

without the usual expense and delays attached to other machines of this class because of poor construction and design is proven beyond a doubt by the large number of machines in use at

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- 3** Rochester, N. Y.
- 2** Allentown, Pa.
- 14** Detroit, Mich.
- 2** Menomonie, Wis.
- 4** Wrenshall, Minn.
- 4** Louisville, Ky.
- 10** Los Angeles, Cal.

with over 200 single machine plants scattered.

We manufacture everything, so are responsible for results.

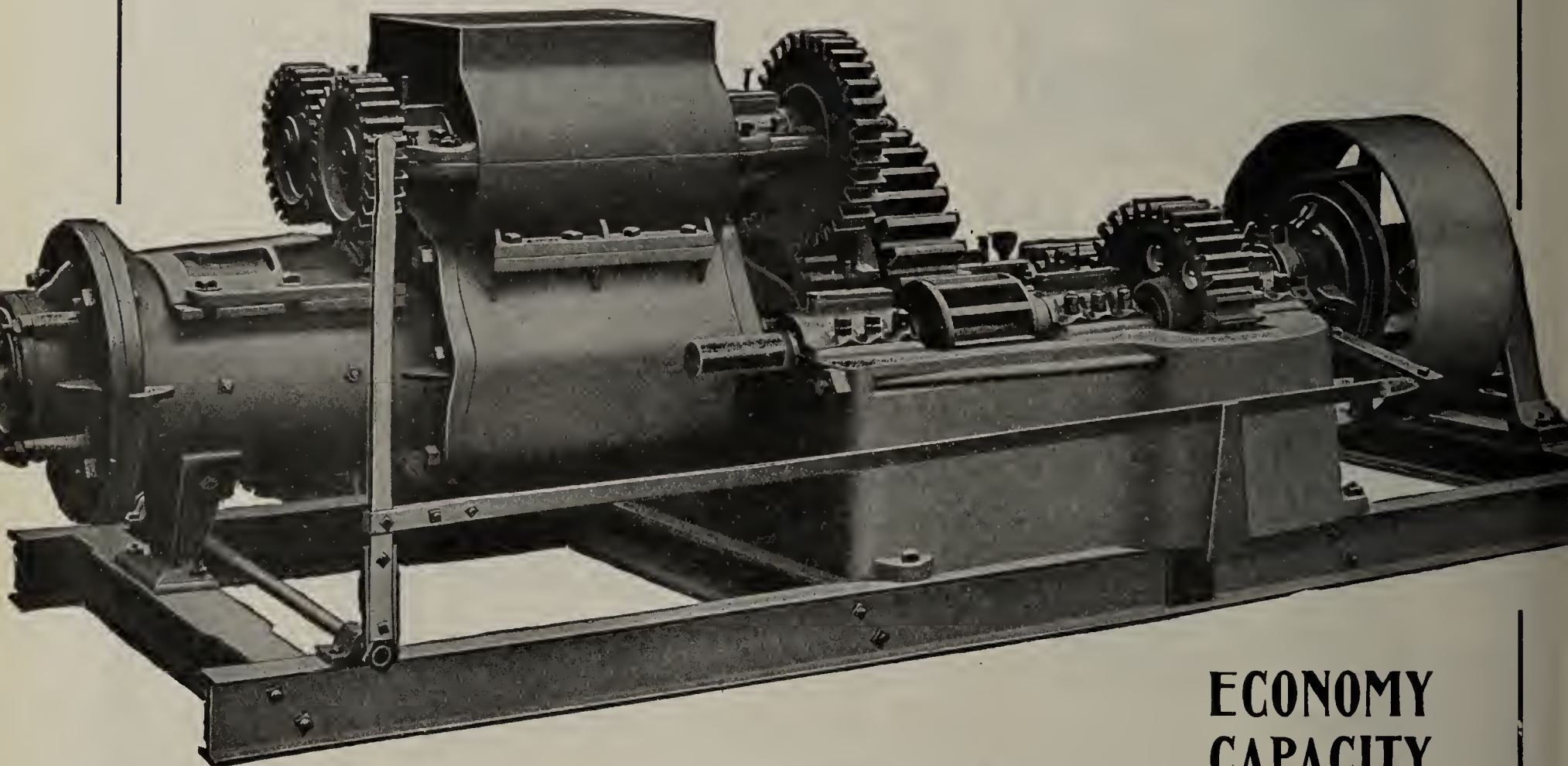
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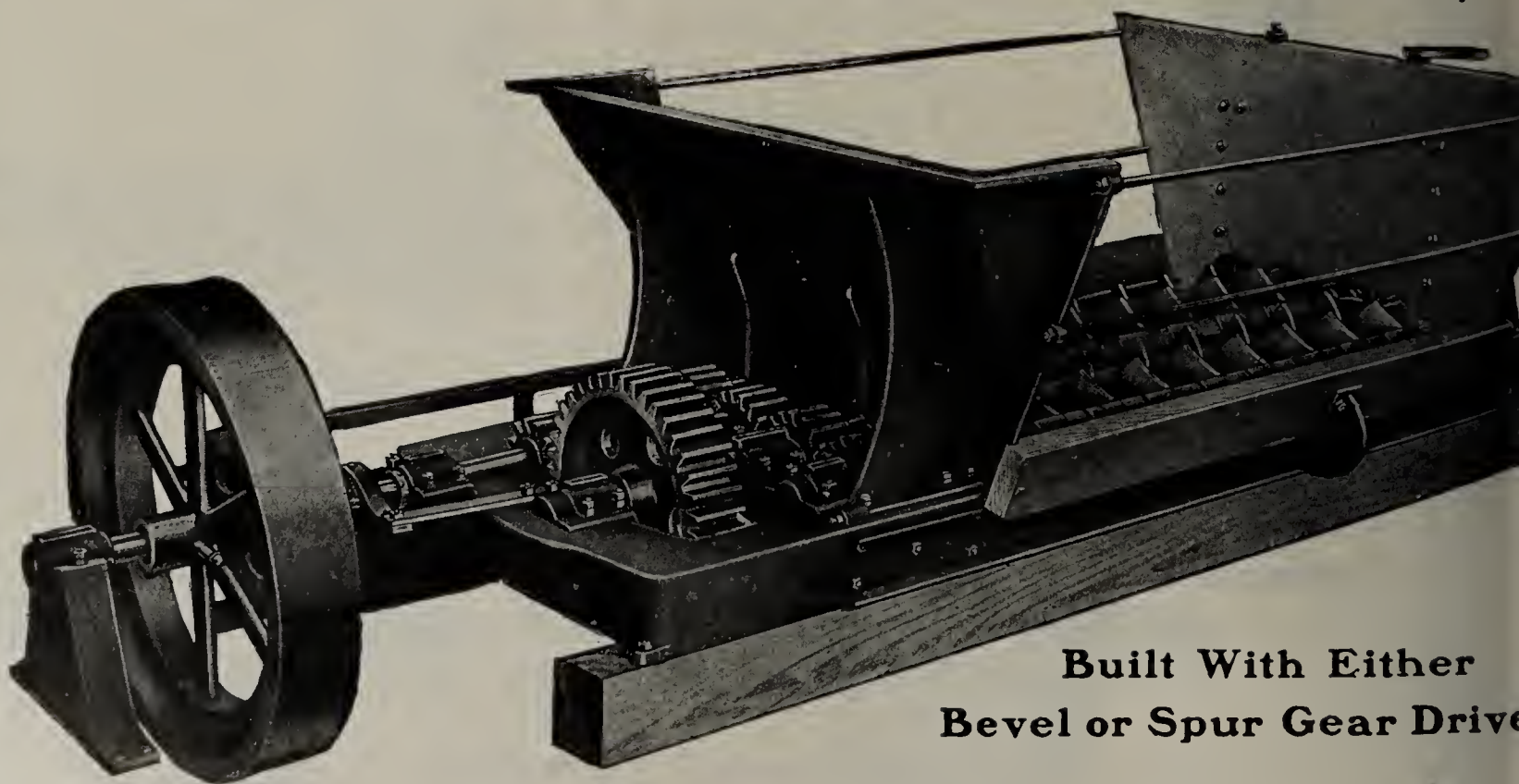
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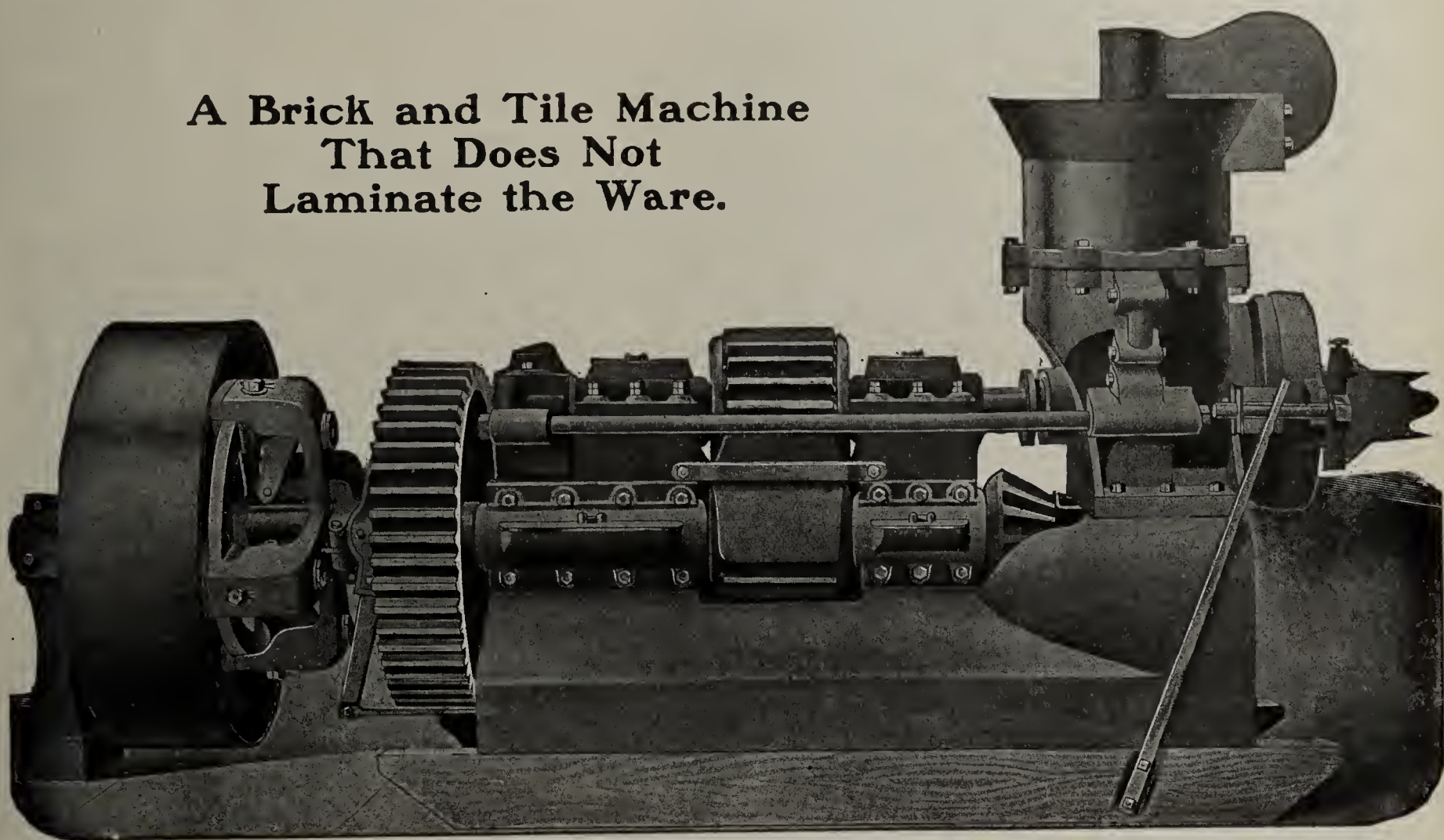
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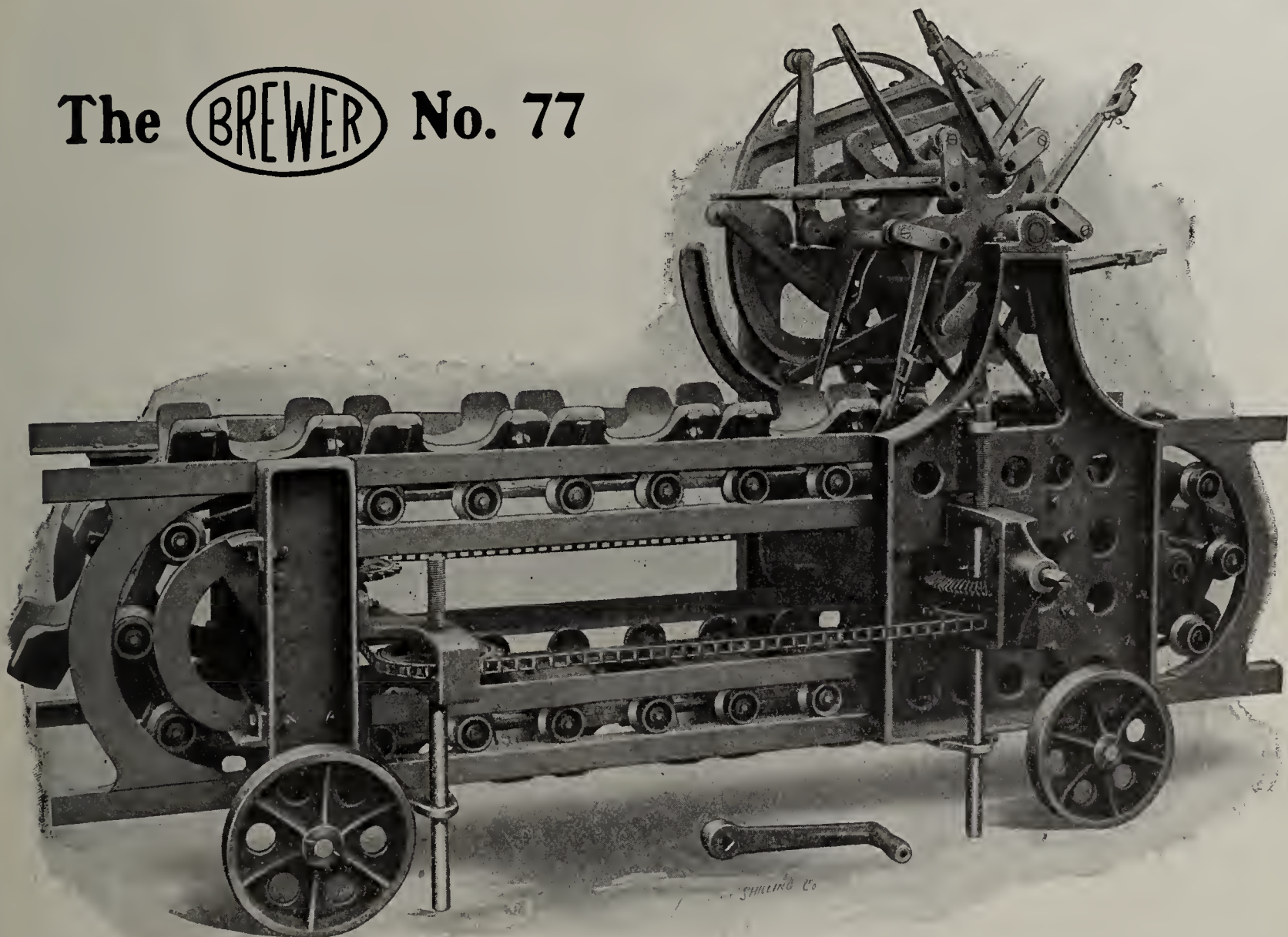
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No guide arms connected with the moving chain of carriers which interfere with the rapid removal of the ware.

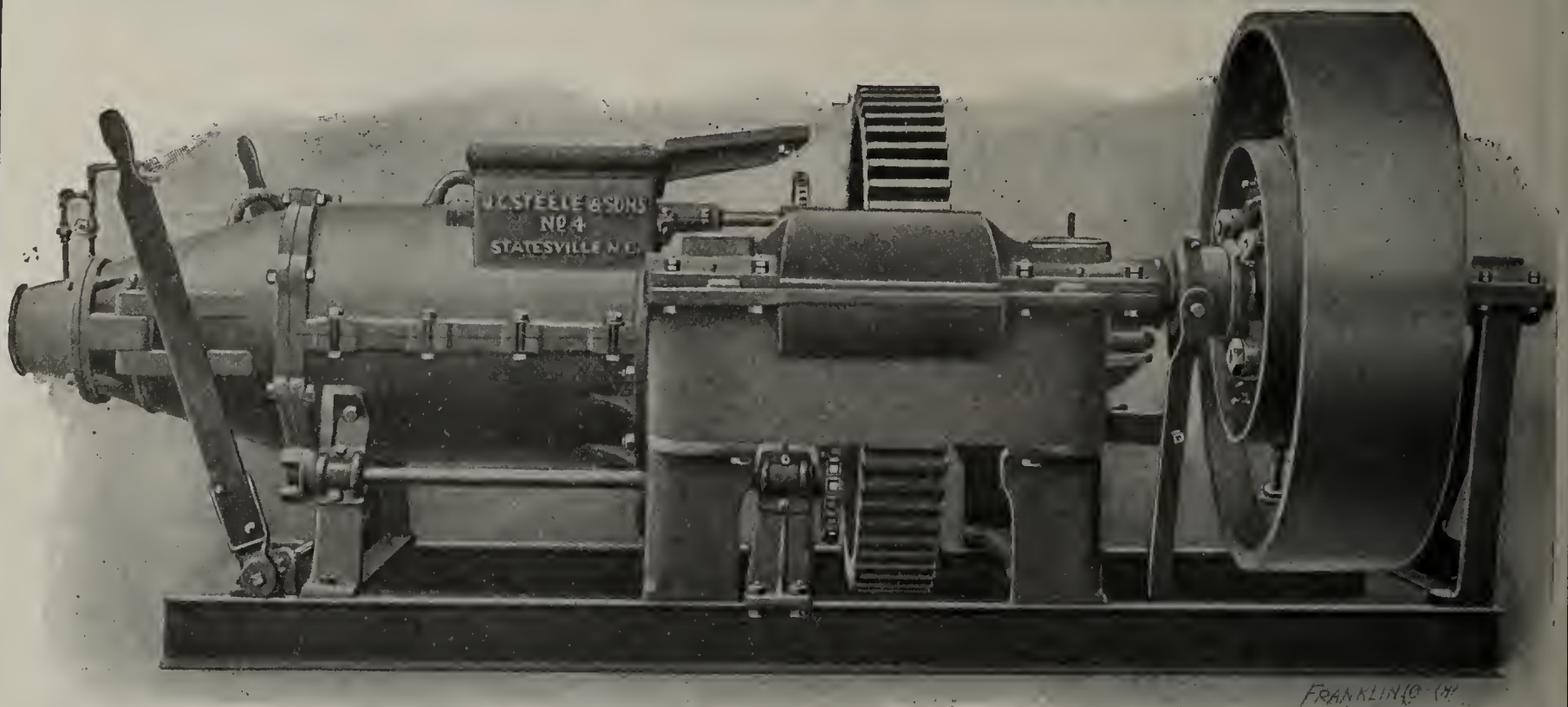
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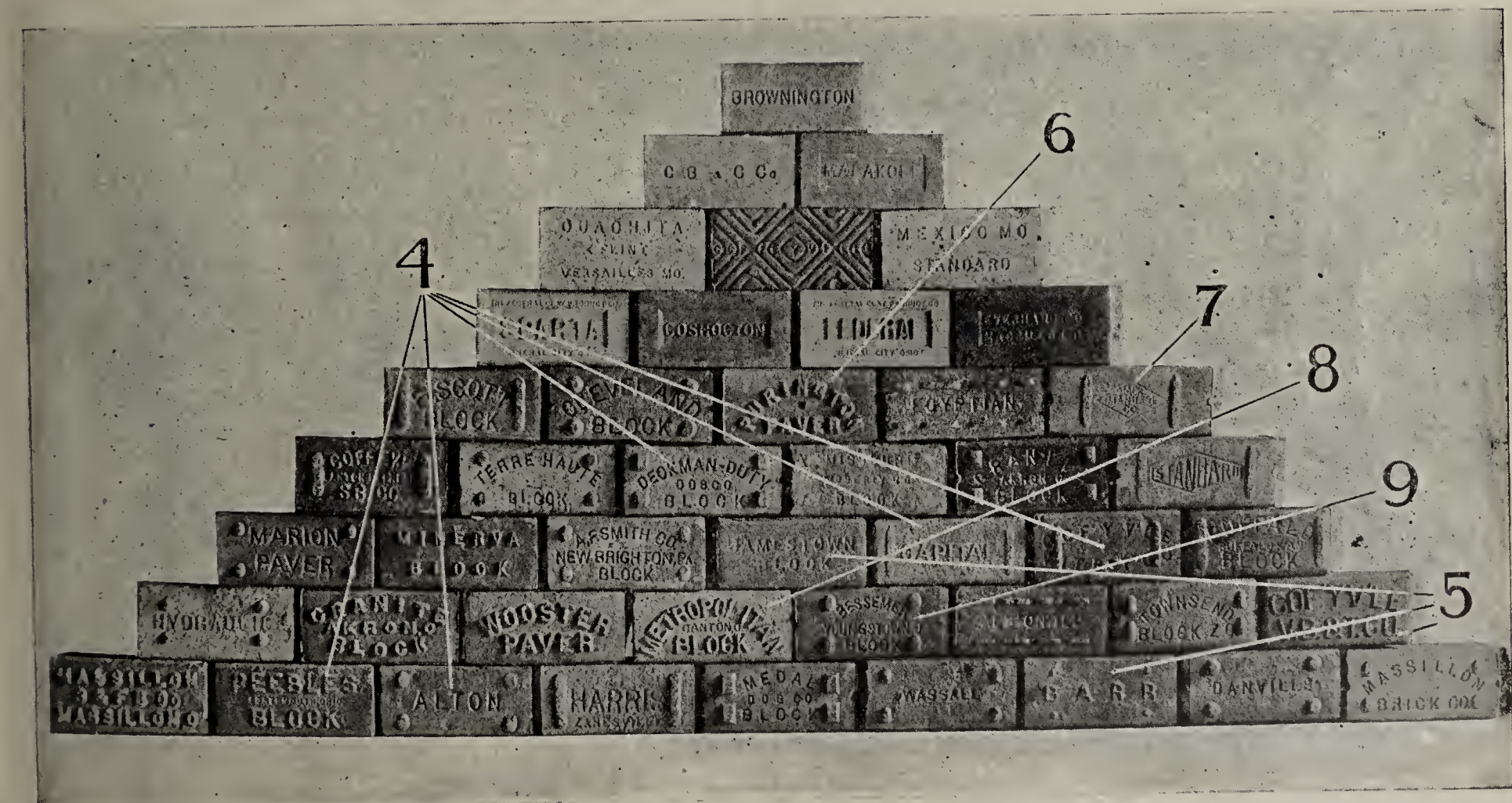
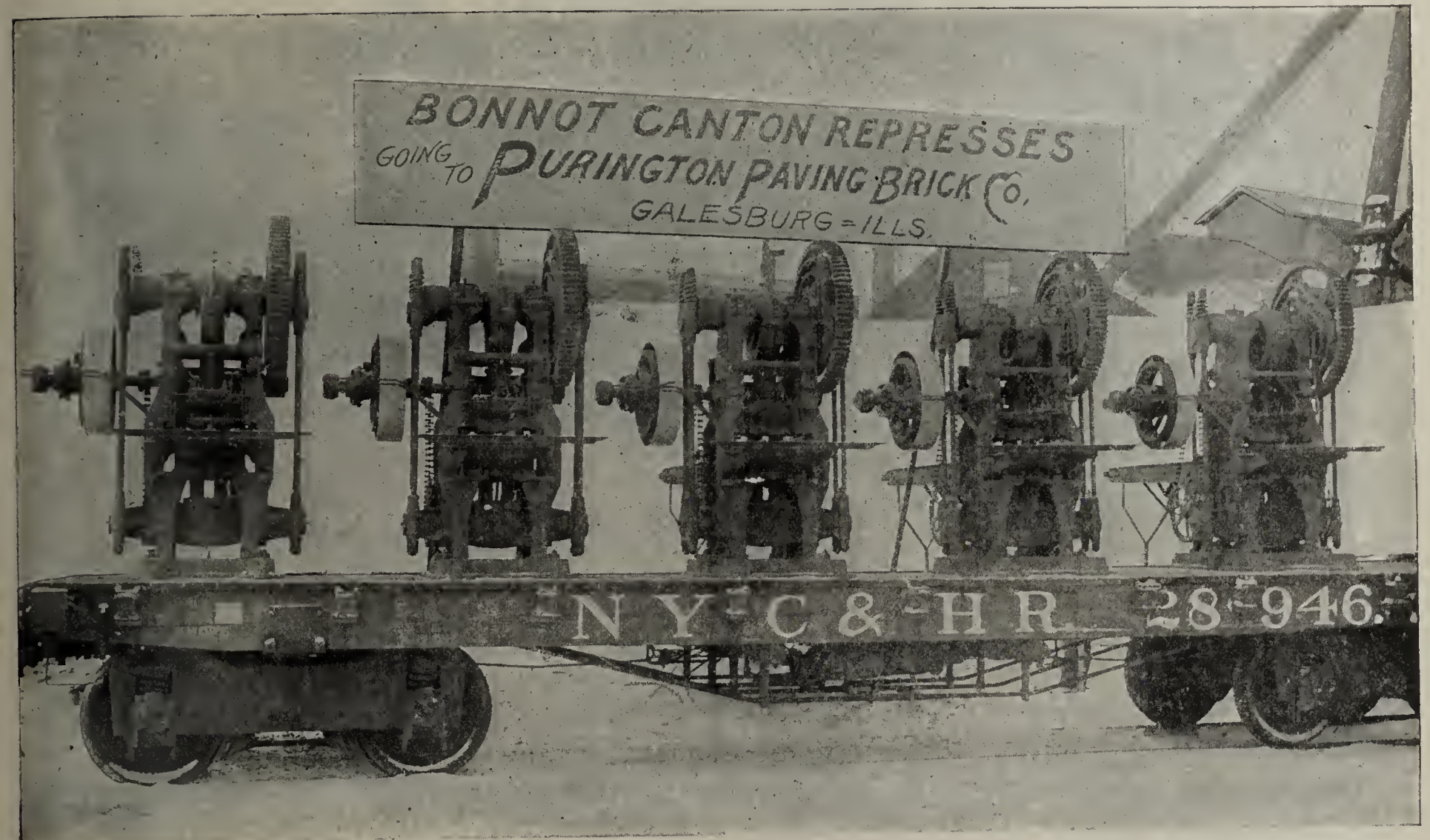
Our machines for small capacities receive just the same attention as our larger machines. We know the requirements of the small brick-maker by long experience, and have given special attention to simplifying and improving these machines.

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We will be glad to help you if you are having any kind of troubles

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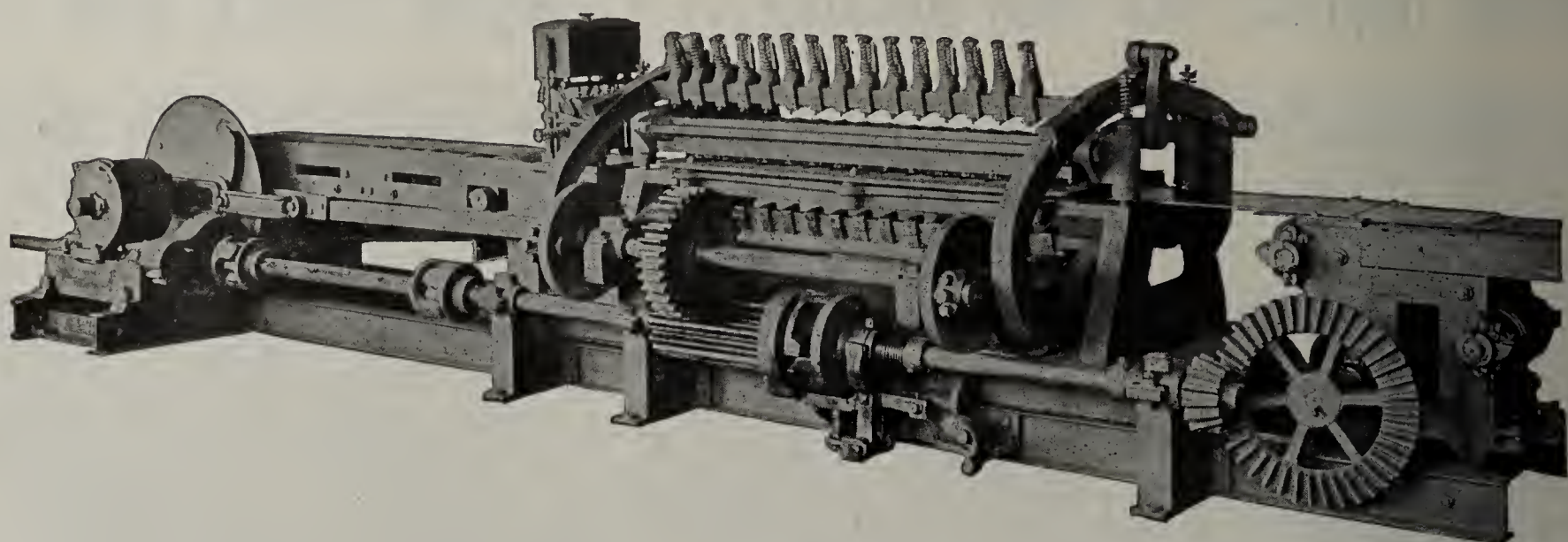


A study of this cut will show the class of brickmakers who use BONNOT REPRESSES and the number of machines some of them are using.

909 N. Y. Life Bldg., Kansas City, Mo.
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Mention THE CLAY-WORKER.



Model T 60 Reciprocating Automatic Cutter

This cutter, which is of the reciprocating type, is built in two Models "T 50" and "T 60" for capacities up to 12,500 brick per hour or more. The design is extremely simple and substantial. It embodies many of the well tried features of our Rotating Automatic Cutters.

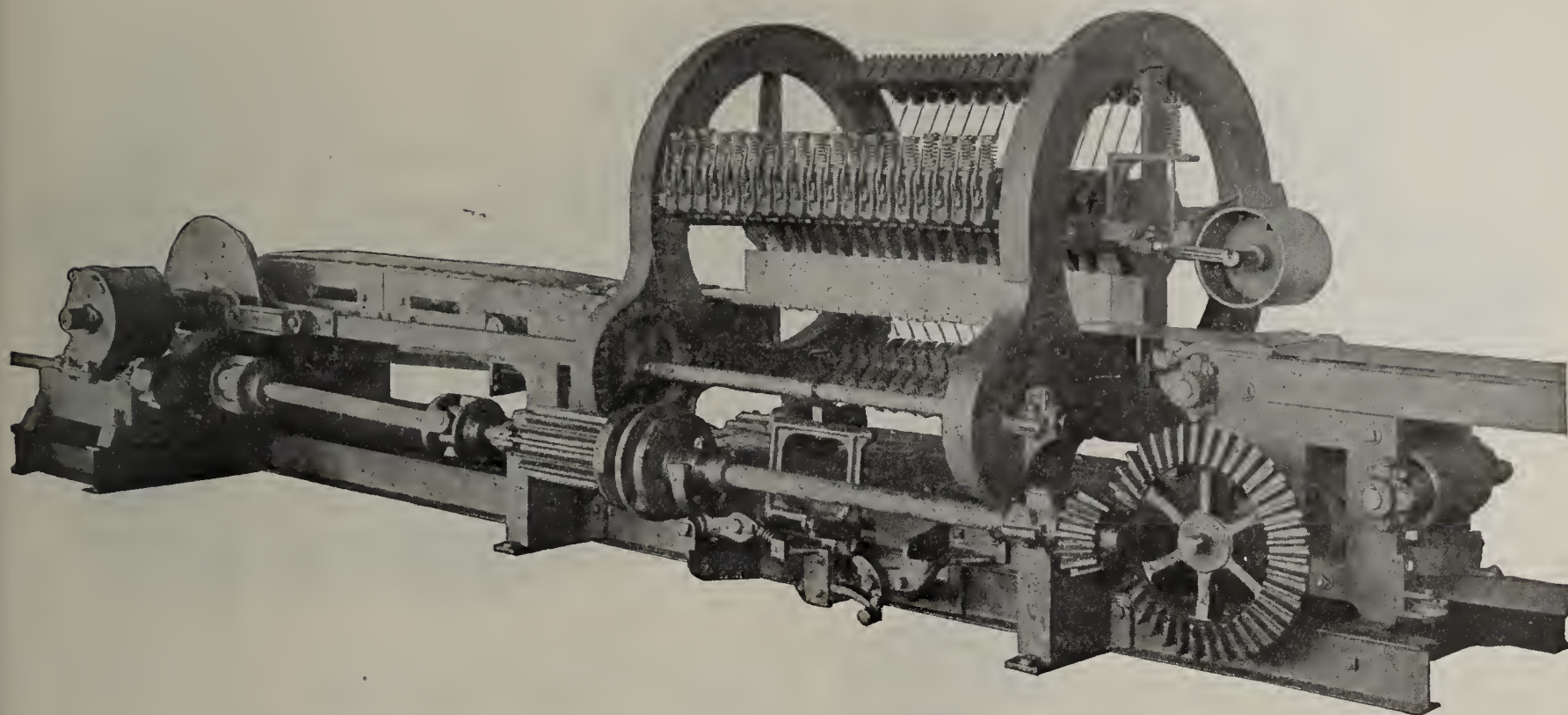
The cutting frame carries only one set of cutting wires and has a swinging movement, avoiding the wear and play common to sliding parts. It is actuated by cranks, driven by a single gear and pinion, giving a smooth, quiet starting and stopping of the cutting stroke. The frame remains stationary between cuts, affording ample time to renew broken wires.

The platens are very easily removed and replaced when the thickness of cut is to be changed. Four bolts hold the platen in place. When these are removed it can be lifted straight up, between the end castings. Only a few minutes required to make the change.

An upper platen (Dunn Patent) can be furnished to insure smooth upper edges on the brick. This is automatically raised to clear the clay column after the cut is completed and is returned to position in time for the next cut, avoiding any tendency for the column to become wedged. Solves the problem of making smooth edge brick on a reciprocating cutter.

Either Model is made to suit a variety of work. The "T 60" is built special to accommodate the largest sizes of fireproofing, etc. These cutters can also be especially arranged for cutting the Dunn Wire-Cut-Lug Paving Blocks.

E. M. FREESE & COMPANY, Galion, Ohio



Model C 20 Rotating Automatic Cutter

We build rotating automatic cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for hollow ware, fireproofing, radial chimney blocks, etc., up to $13\frac{1}{2}$ in. by $7\frac{1}{2}$ in.

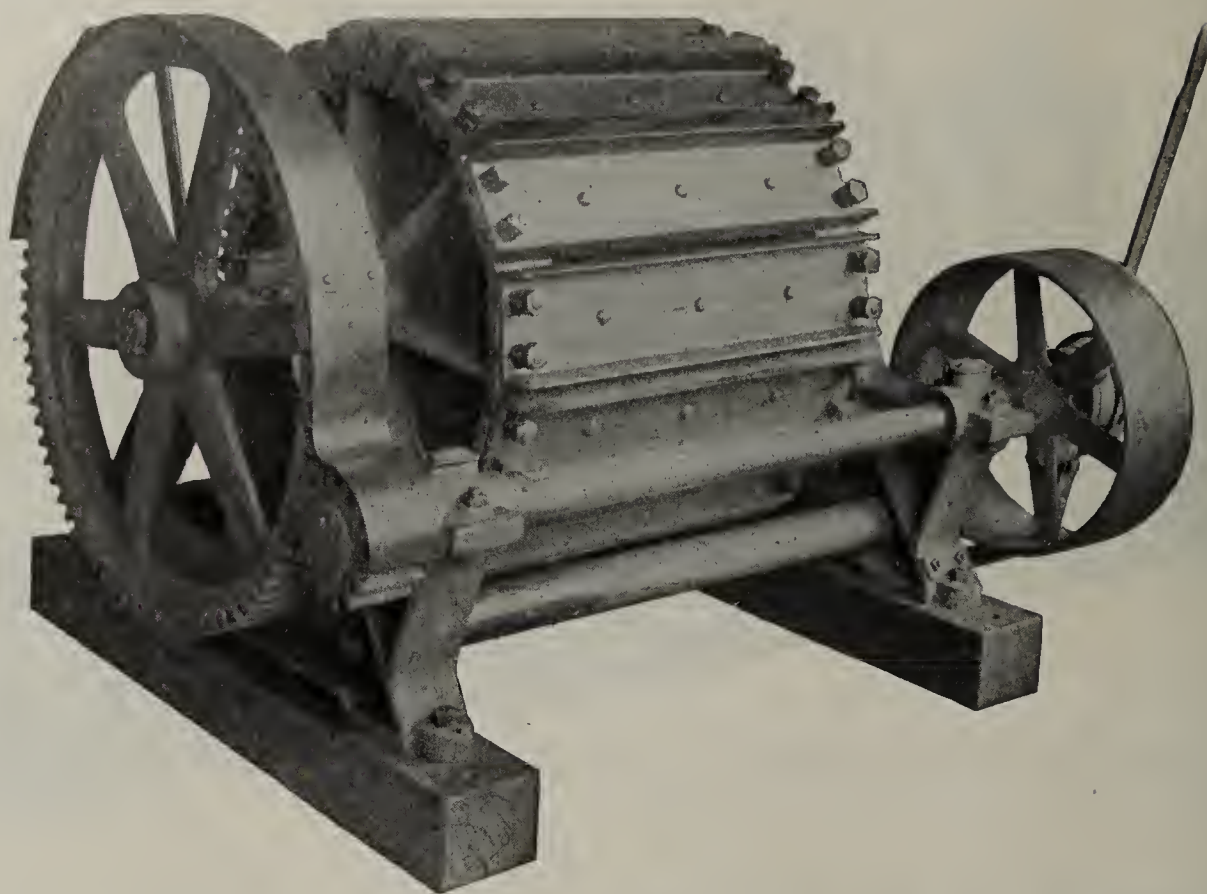
The above illustration shows the Model C 20 Cutter, which is an improved model of our well-known Size 16. It is intended for capacities up to 7,500 standard size brick per hour—18 brick are cut at each cut. At this speed the cutting reel makes only a little over two revolutions per minute, remaining stationary between cutting strokes. It is not necessary to stop the brick machine to renew broken wires, as this gives ample time.

The cutting apparatus, including drive for separating belt, is entirely self-contained, being mounted upon one set of I-beam sills, assuring permanent alignment of all parts. The measuring and separating tables are built with iron or steel sides.

Cutting reel and carriage are carried on rollers requiring little or no oiling. Carriage is positively moved with the clay by an accurate cam. Clutch mechanism is the simplest possible. Wearing surfaces have renewable steel plates.

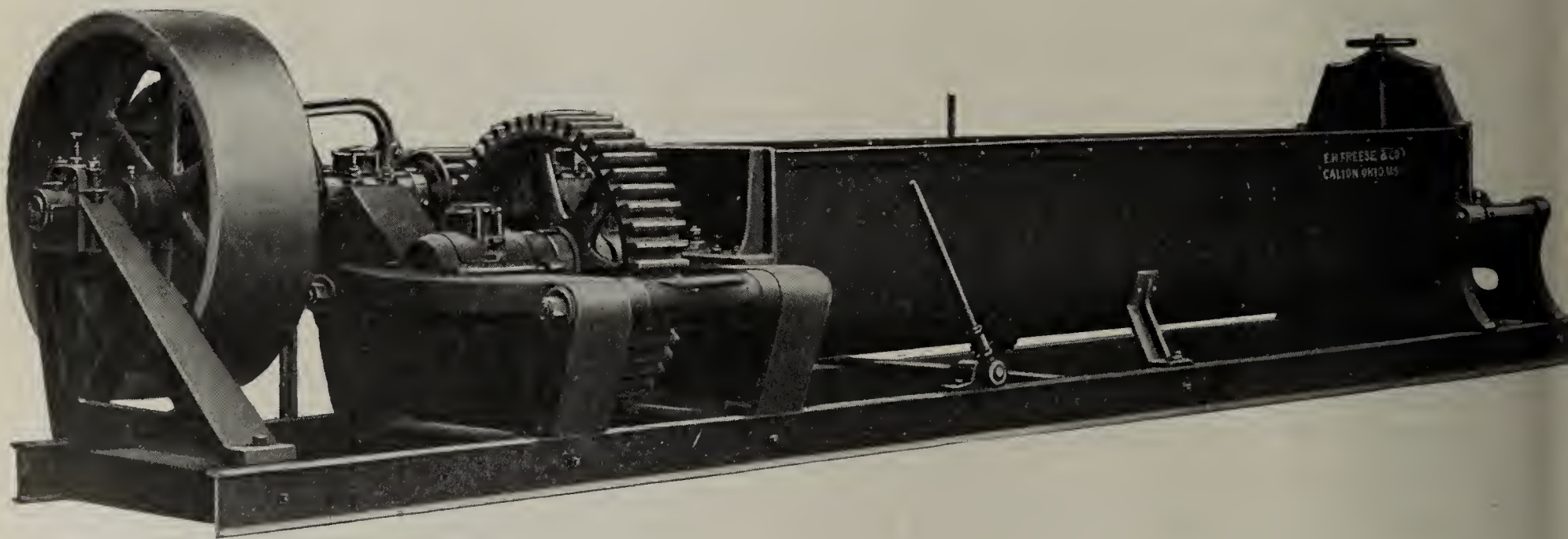
Particular attention is called to the platen construction. The platen is cast in one piece of tubular cross section and is very rigid. Surfaces covered with renewable steel plates, insuring fine slots. The angle of the cutting wires has been changed to give perfect edges on the brick. Built to give long service without skilled attention. Complete description will be furnished on request.

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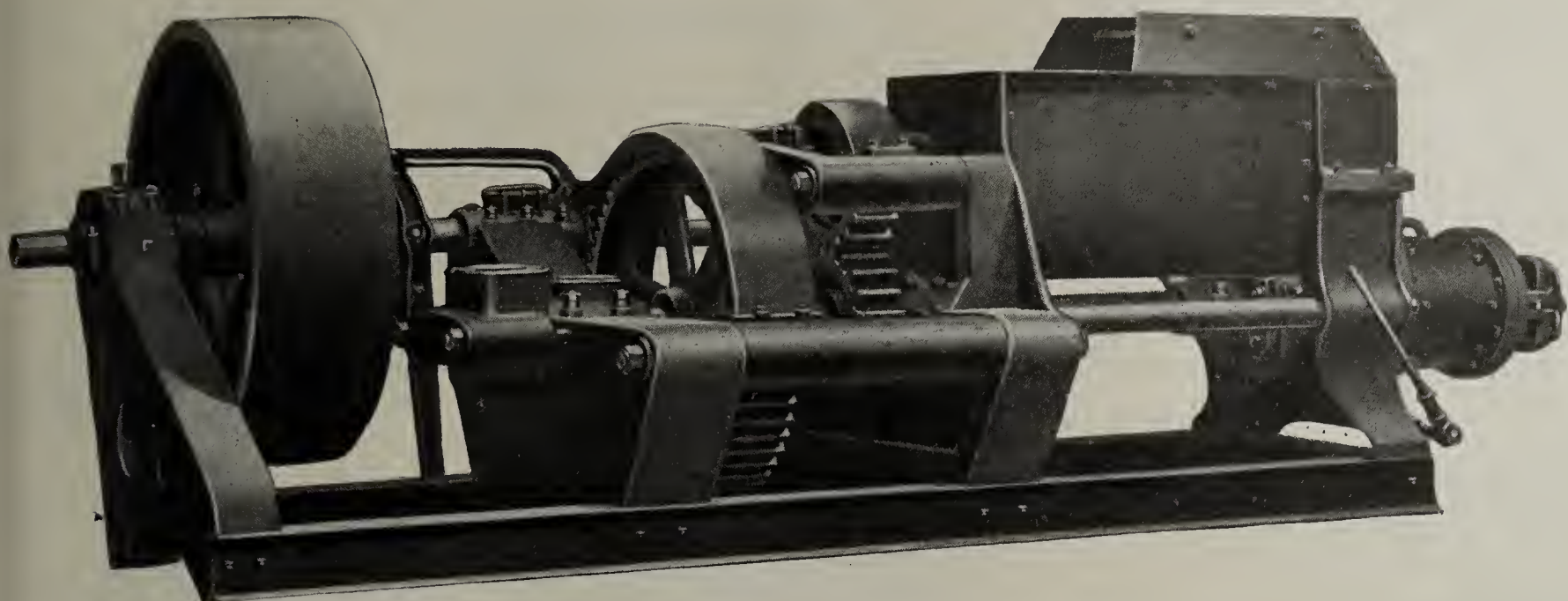
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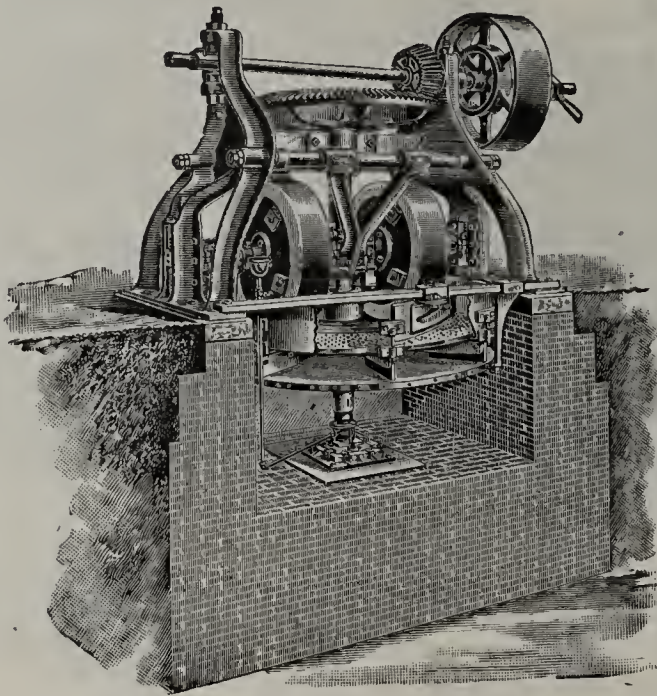
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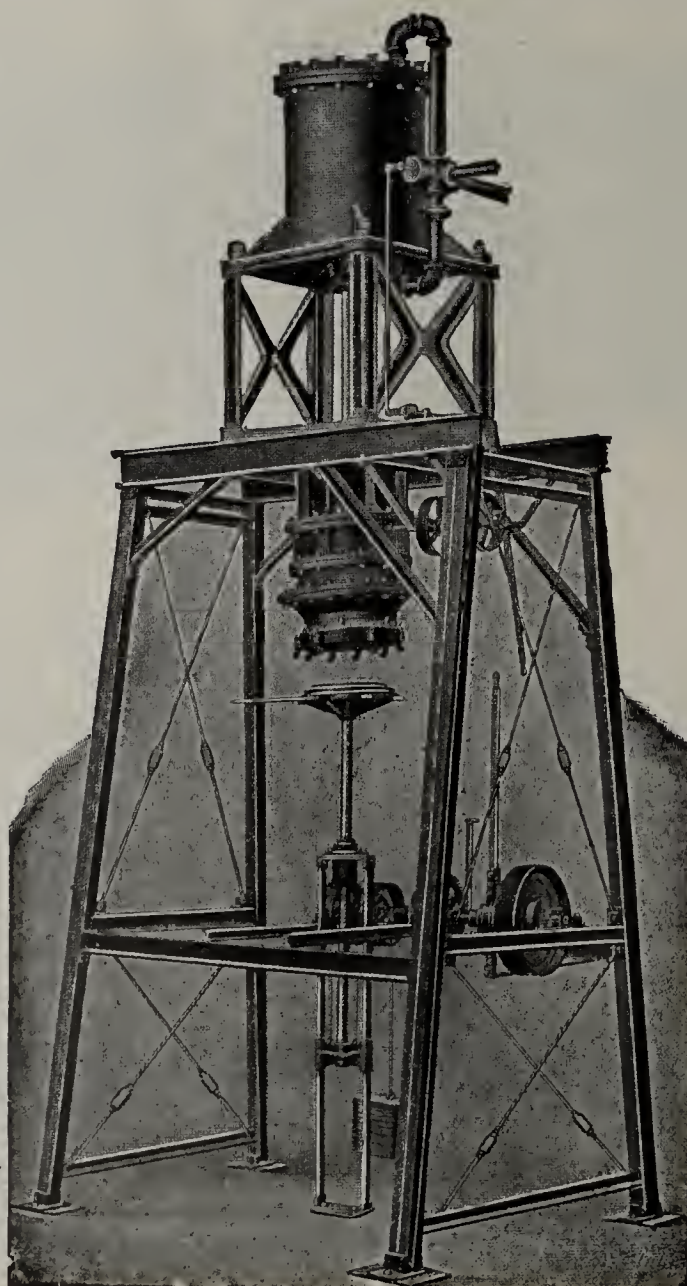
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Made**

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NEVER WERE



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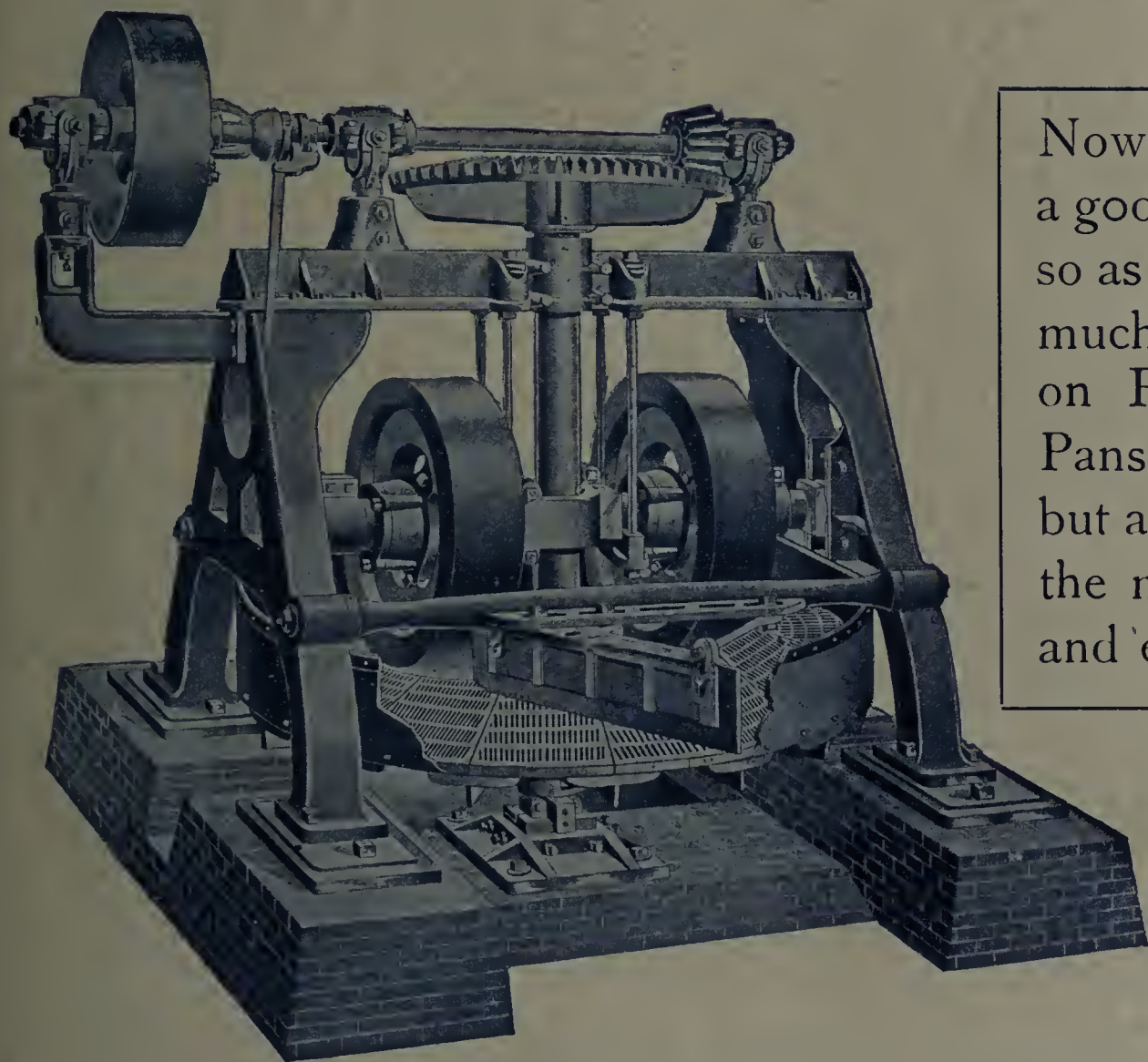
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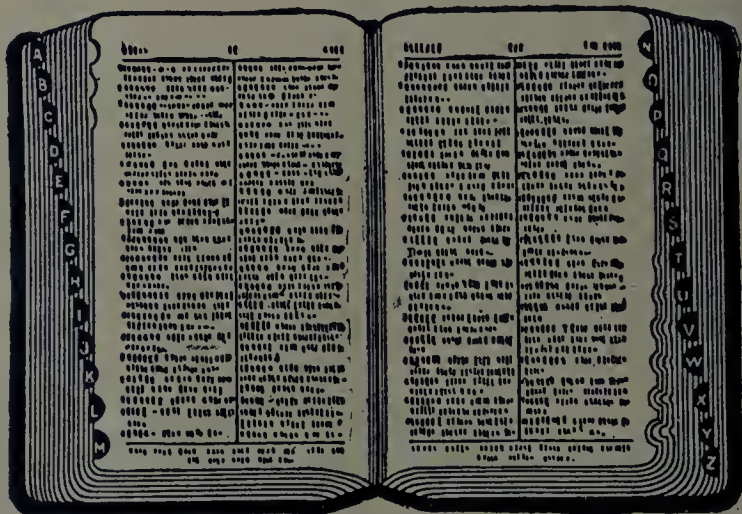
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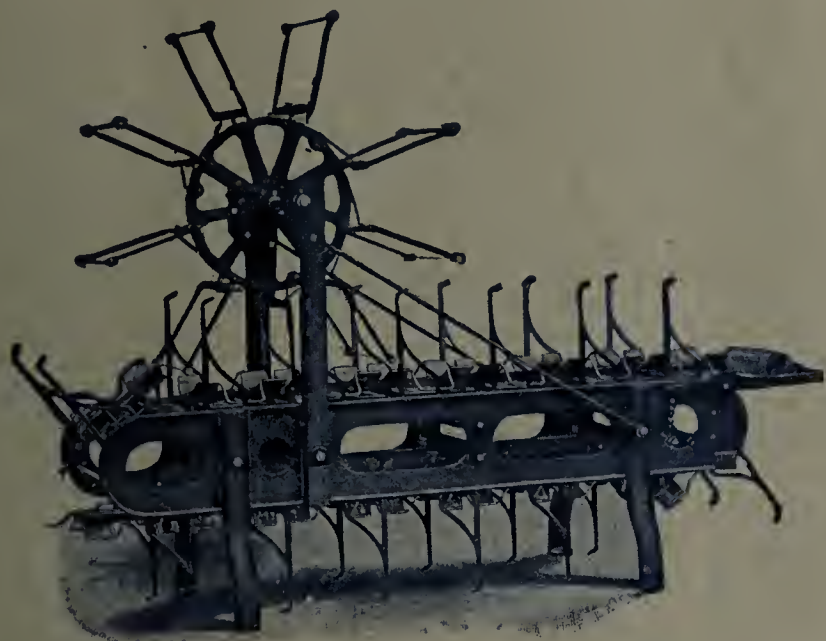
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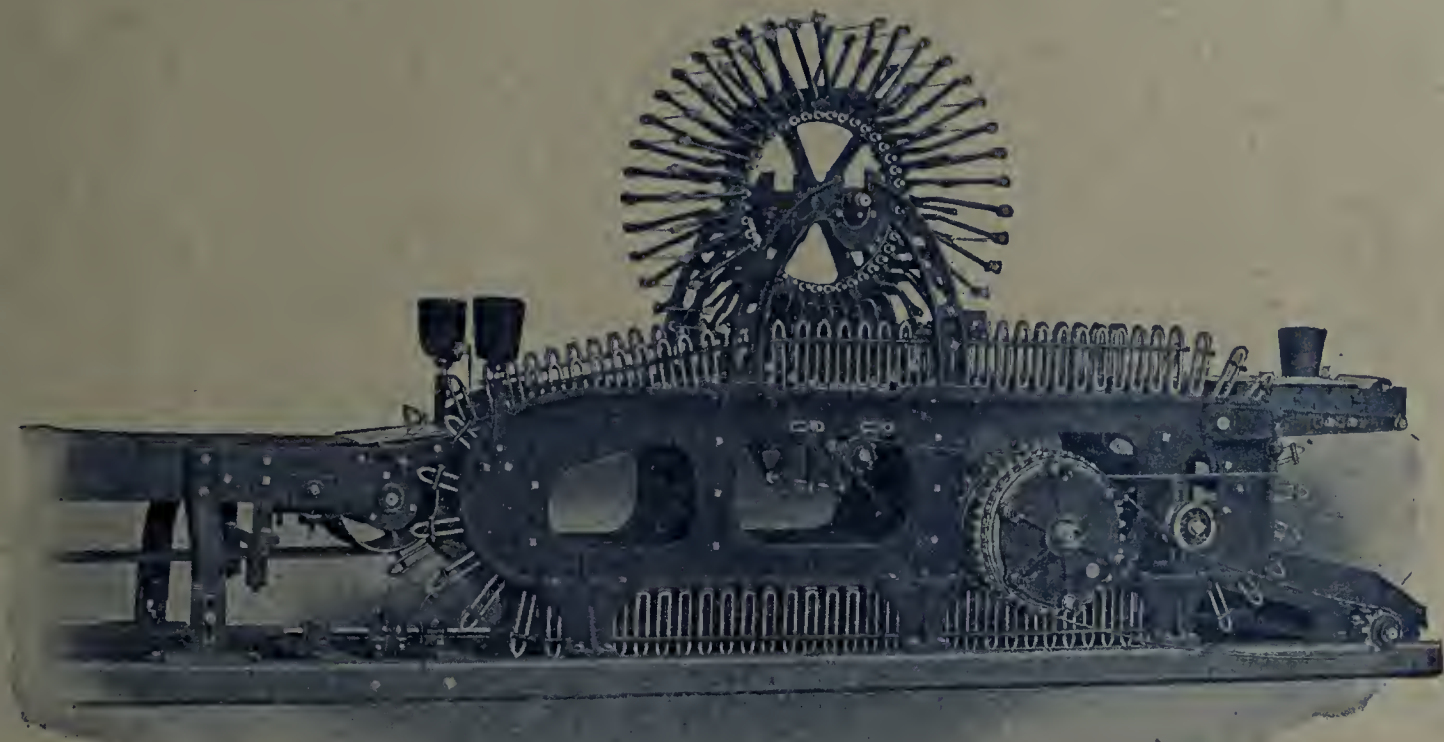


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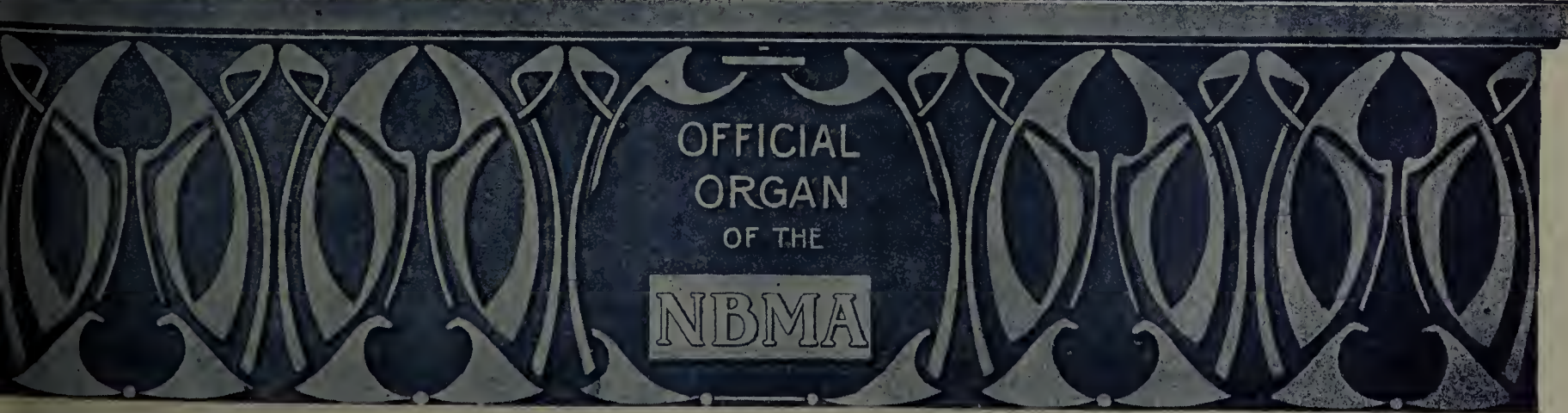
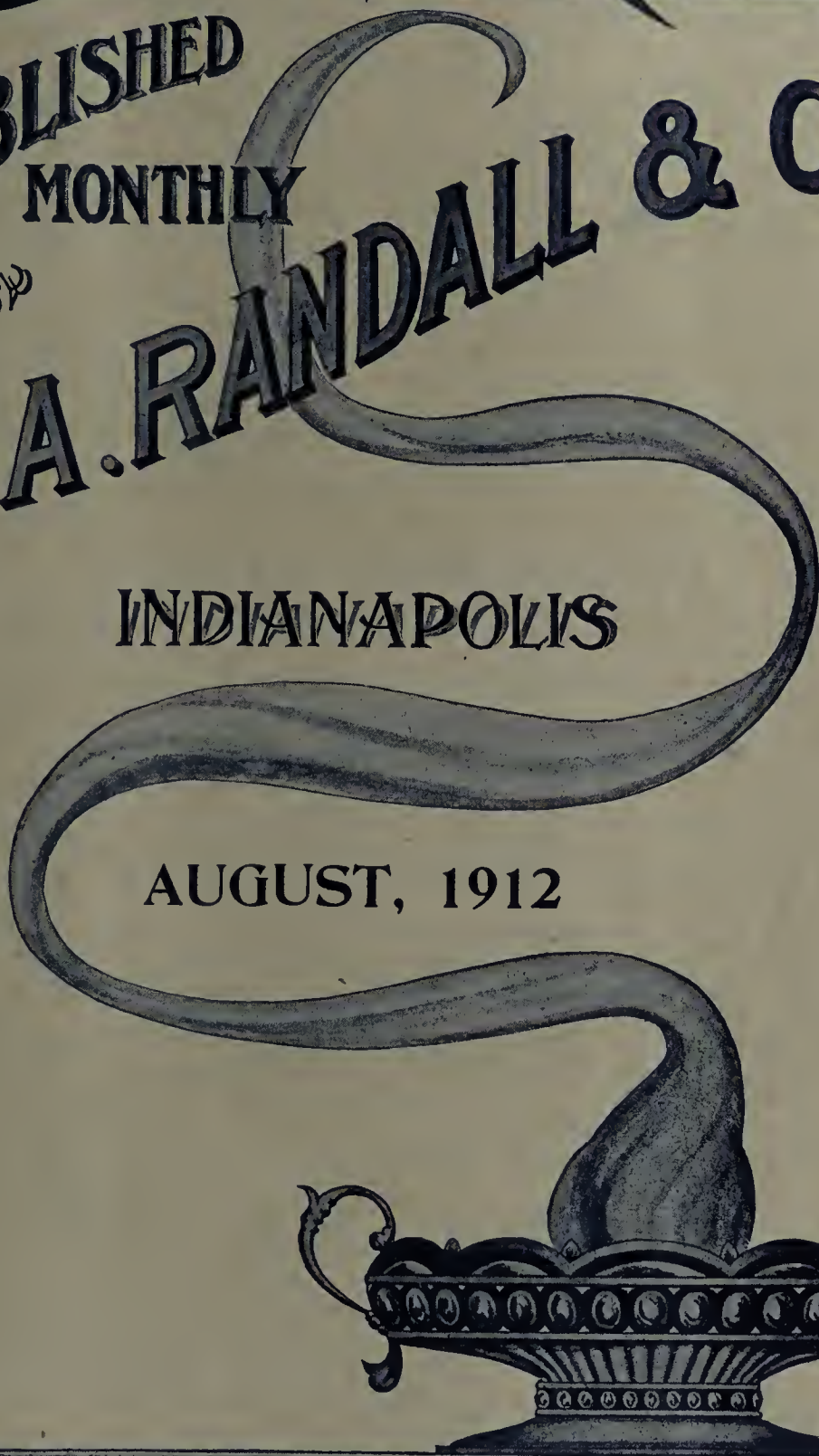
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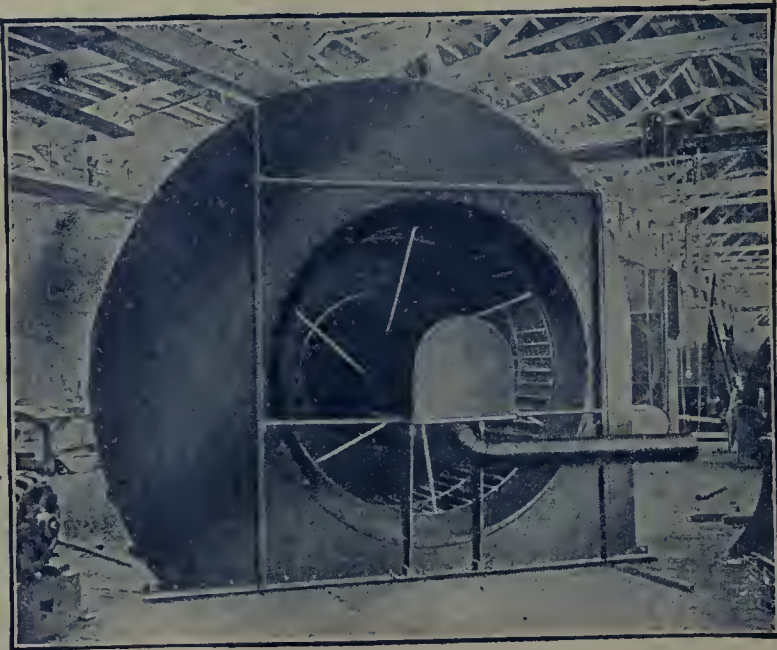
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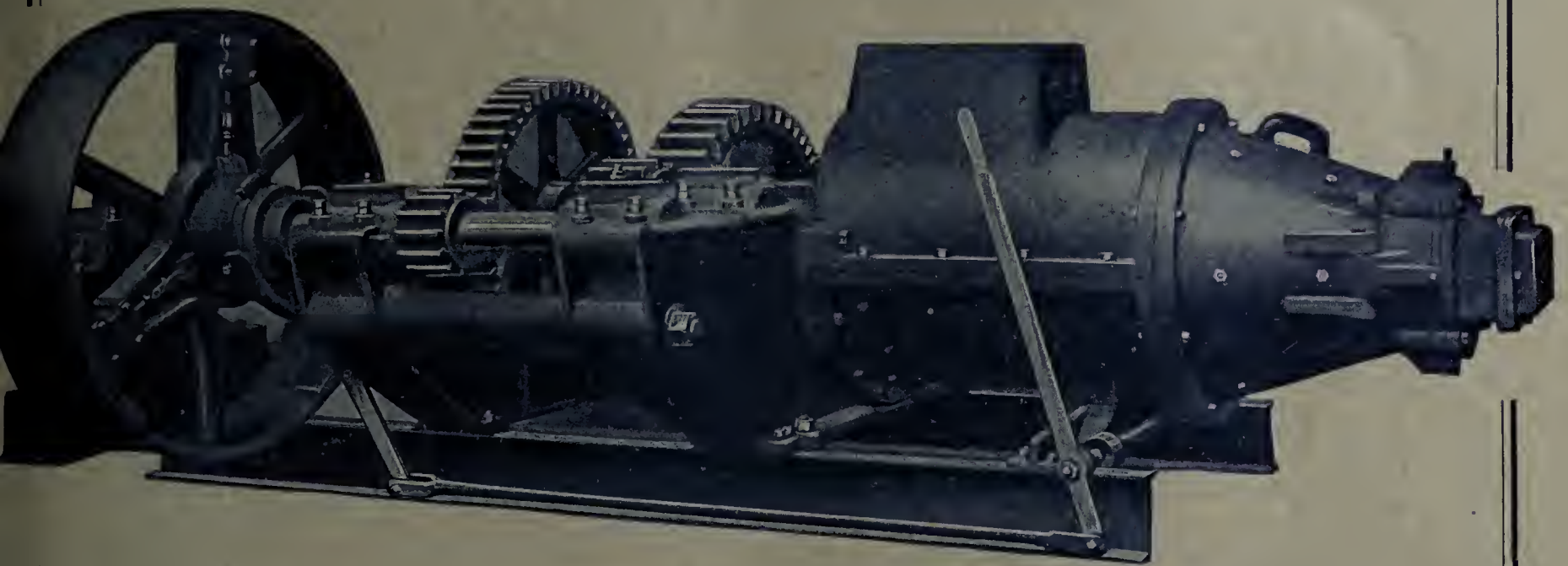
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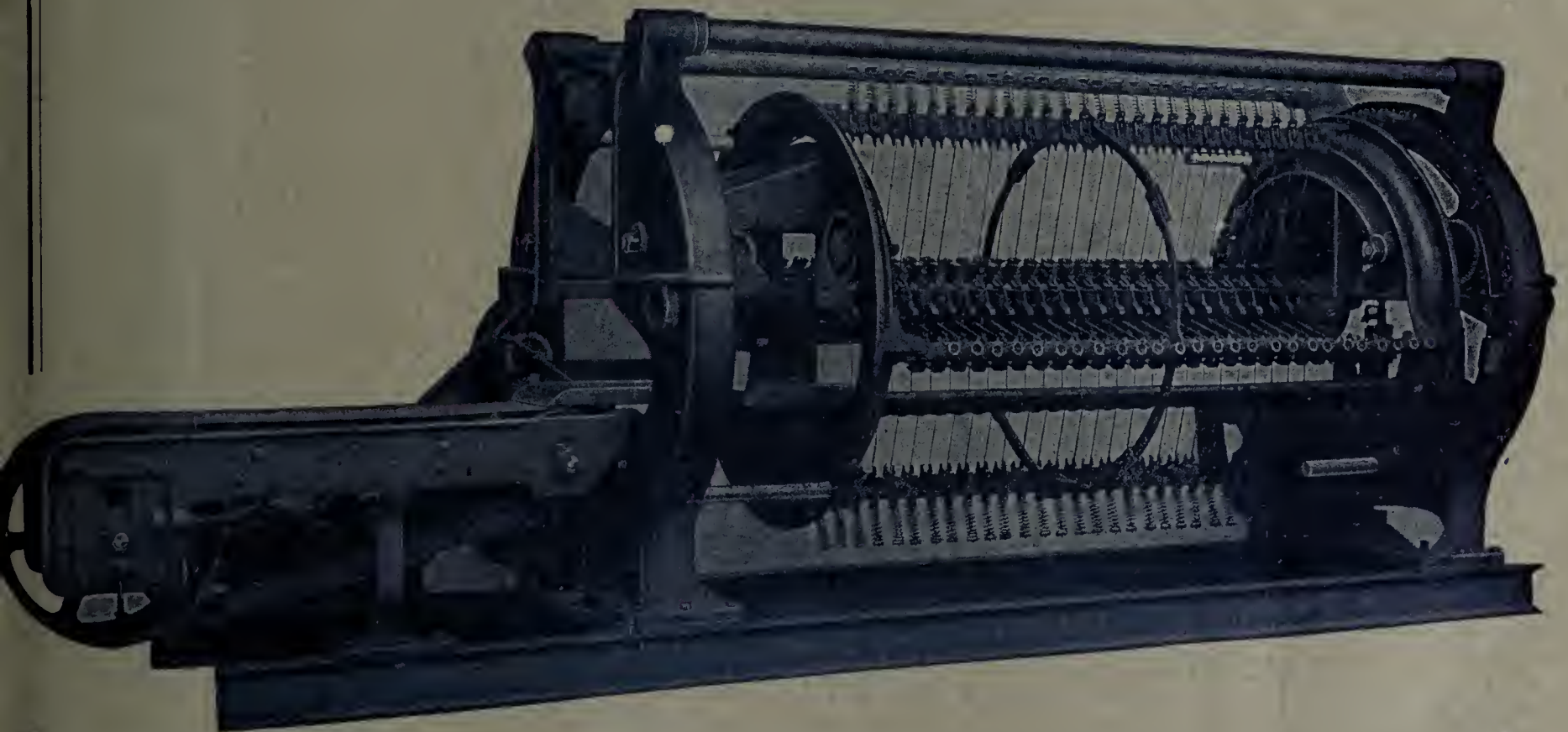
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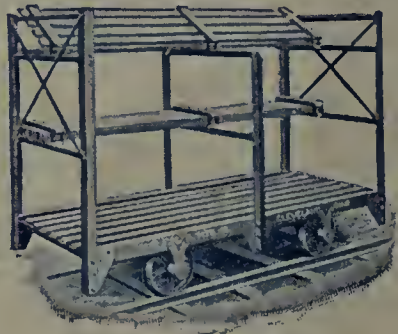
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The Gladding-McBean Co., San Francisco, Cal.
The Pacific Clay Products Co., Los Angeles, Cal.
W. S. Dickey Clay Mfg. Co., Kansas City, Mo.
Blackmer & Post Co., St. Louis, Mo.
Post Pipe Co., Texarkana, Tex.
San Antonio Sewer Pipe Co., San Antonio, Tex.
Henry Stevens Sons & Co., Macon, Ga.
Pomona Terra Cotta Co., Pomona, N. C.
Shawmut Clay Co., Shawmut, Pa.
Ohio Clay Co., Cleveland, Ohio.
Robinson Graves Sewer Pipe Co., Uhrichsville, Ohio.
Dominion Sewer Pipe Co., Swansea, Ont., Can.
The Hamilton & Toronto Sewer Pipe Co., Toronto, Can.
British Columbia Clay Products Co., Vancouver, B. C.



Send for Catalog No. 29.

PERFORATED STEEL SCREENS.

No Doubt You Use Screens—Let's Get Acquainted.

¶ You may never have obtained them from us. It would pay you to do so.

¶ There's more to a Perforated Steel Screen than a sheet of metal with some holes in it. The shape, the spacing, the size and accuracy of the perforations and the quality of the metal of which the Screen is made, all have a bearing on the working and wearing of the Screen—all must be *exactly right*.

¶ There are Screens that cost less than ours, but then guess-work always does seem cheaper than know-how.

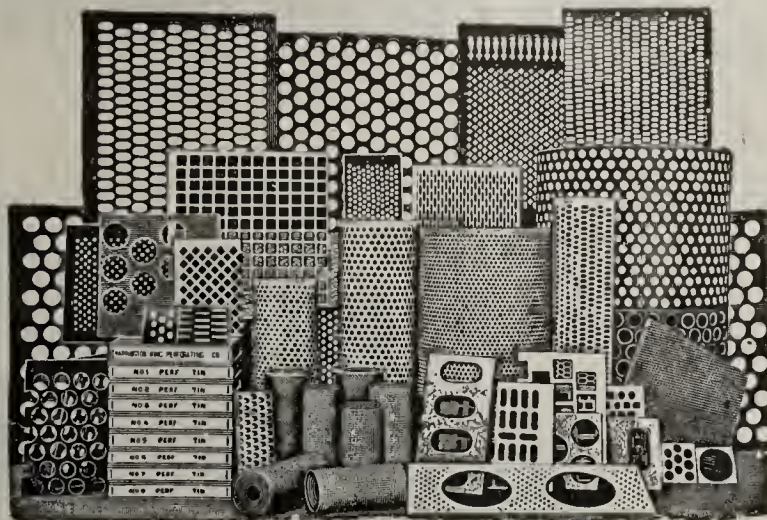
¶ We make Screens for Clay, Sand, Gravel, Cement, Stone, etc., and for Drying Floors, Car Bottoms, Conveyers, Dry Pans and cleaning and grading apparatus.

¶ You are not likely to want a size that we can not furnish. During our experience of over thirty years in the business (and that counts for something) we have acquired patterns by the thousand.

¶ Give us the size of sheets, the gauge (or thickness), the size and shape of holes, the number of sheets wanted and what for.

¶ With quotation we will send samples or Blue Prints.

¶ The work is made entirely to order.



The Harrington & King Perforating Co.,

NEW YORK OFFICE,
No. 114 Liberty St.

No. 624 North Union St.,
CHICAGO, ILL., U. S. A.



RODGERS



EXPERIENCE! ECONOMY! RESULTS!

Three important factors for you to consider when building a plant or a Waste Heat Dryer.

That we give attention to these points is proven by the fact that we are now the **LEADERS** in America in the designing of complete plants and the installing of Waste Heat Dryers.

You **must** have noticed the mention of our name "as Engineers" when reading about the up-to-date modern plants that are being built throughout the country.

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists,
Brick Works Engineers.

Largest Manufacturers of Brick Drying Equipment in the United States.

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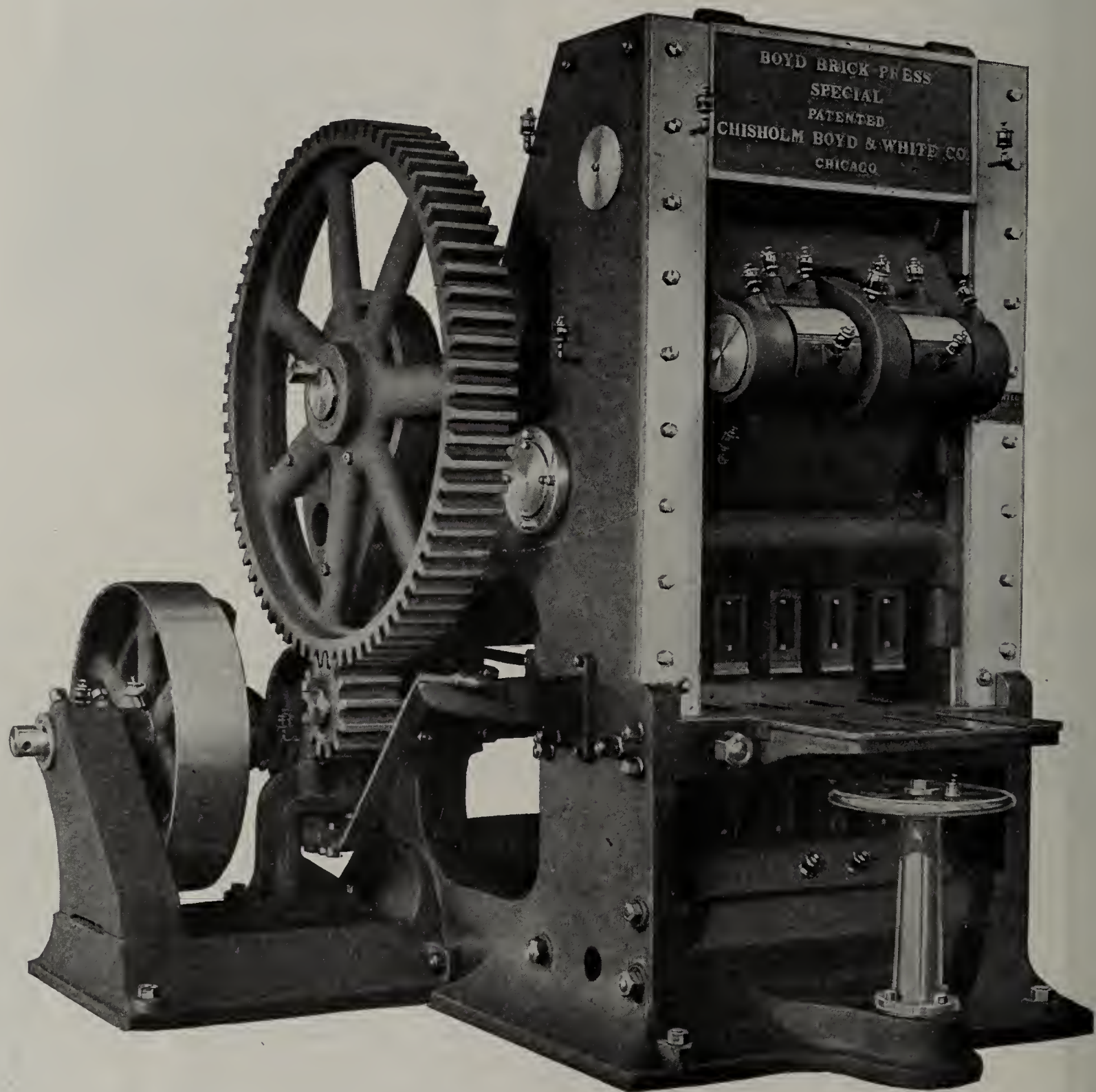


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The Boyd Brick Press

"Built Up to a Standard—Not Down to a Price."



SPECIAL FEATURES OF THE BOYD BRICK PRESS

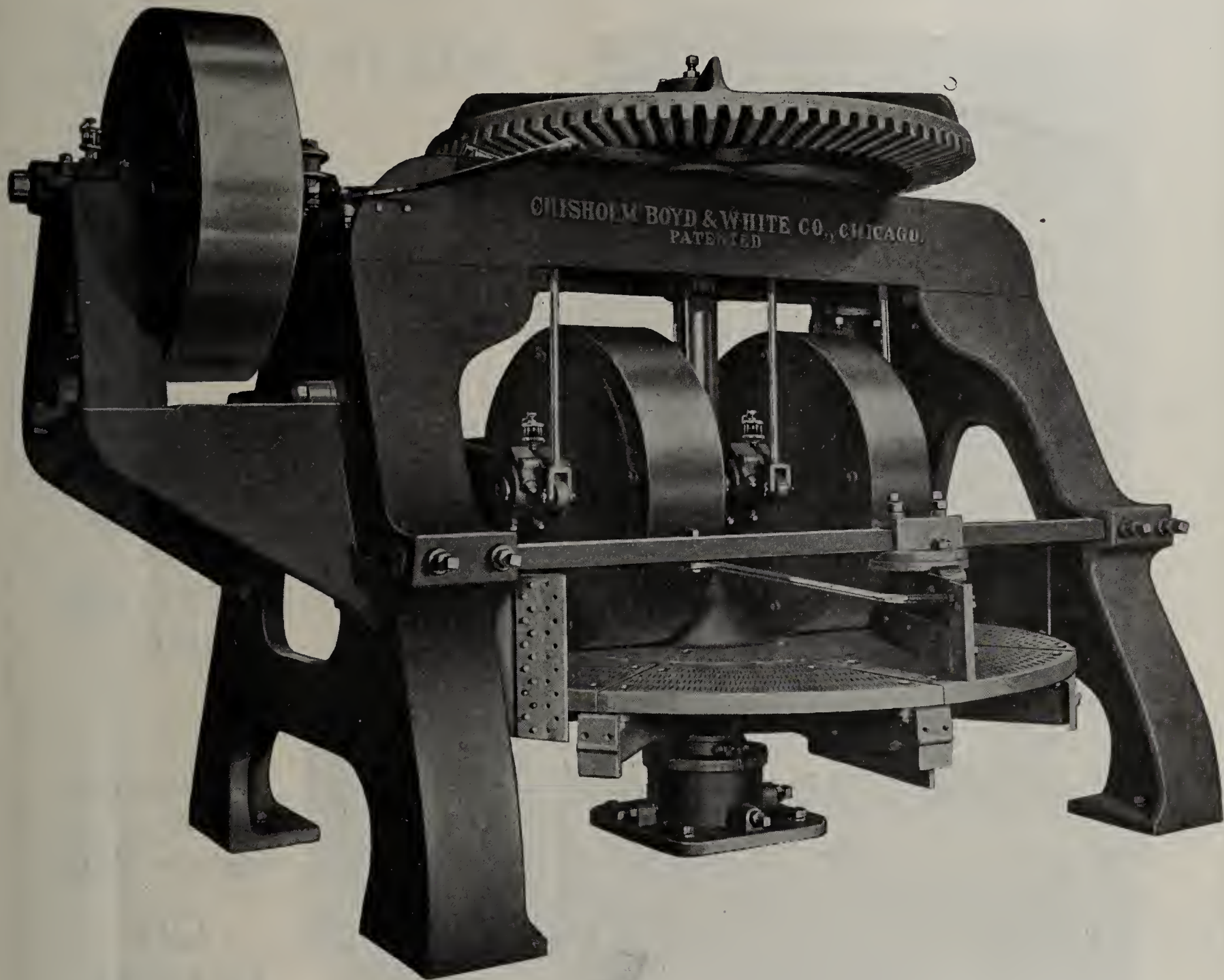
BALANCED-PRESSURE—brick lifted in molds under pressure.
PRESSING TIME FACTOR—long duration, 50% of the cycle.
GEARS, SHAFTS, BEARINGS and other parts exceptionally large.
FREE from complicated parts—**ACCESSIBILITY** unequaled.
TOP and BOTTOM of brick equal hardness—**NO** granulated surfaces.

Write for latest Catalogue No. 25, which contains plans and suggestions concerning the design and equipment of brick plants.

Chisholm, Boyd & White Company
 Office and Works, 57th and Wallace Sts. CHICAGO, ILL.

DRY PANS

BOYD QUALITY



OUR NEW NINE-FOOT HEAVY DUTY DRY PAN.

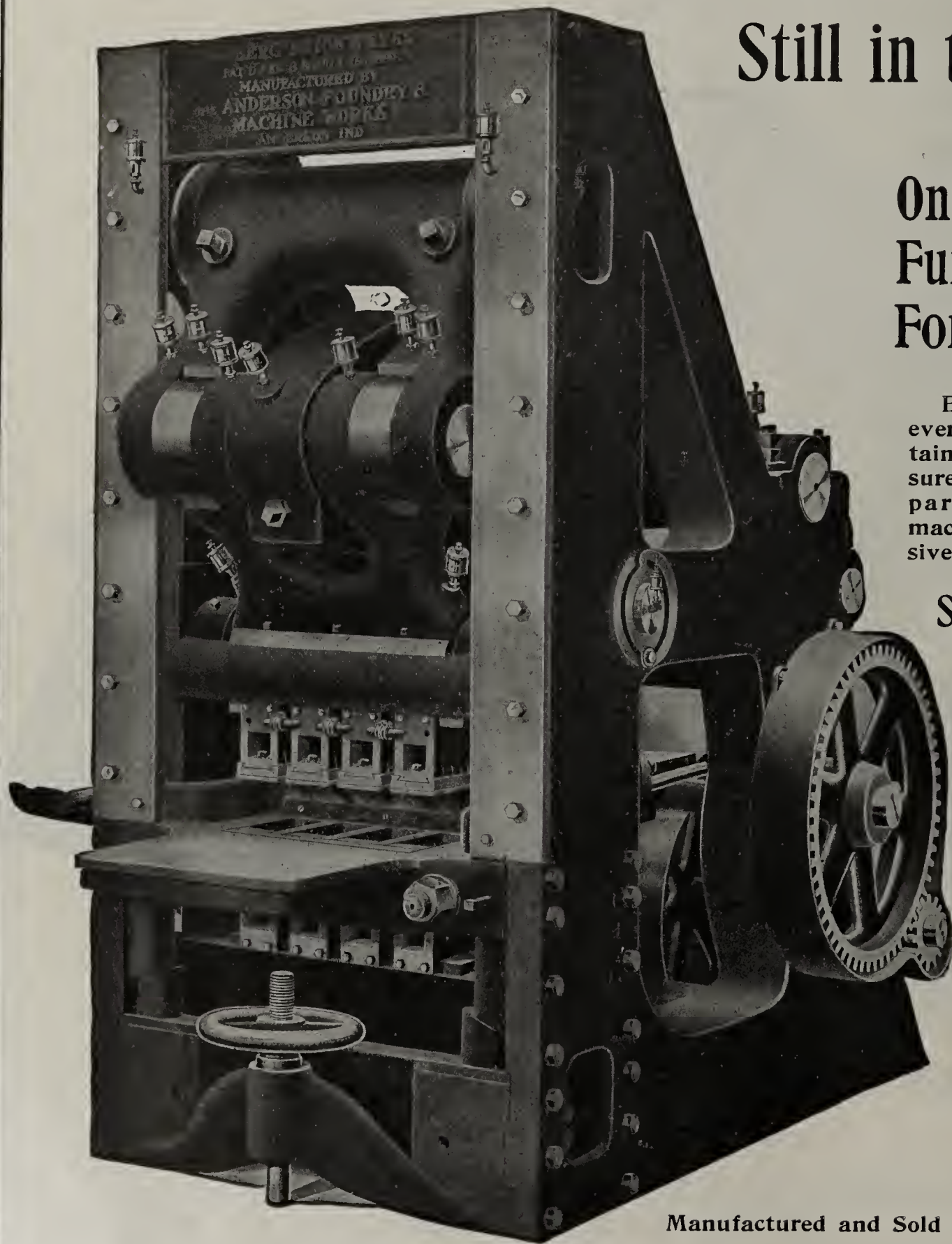
For design, strength, durability and efficiency
this Dry Pan has no equal.

Chisholm, Boyd & White Company,
Office and Works, 57th and Wallace Sts. **CHICAGO, ILL.**

Mention THE CLAY-WORKER.

NEW MODEL BERG BRICK PRESS

WE MANUFACTURE AND INSTALL COMPLETE PLANTS UNDER GUARANTEE FOR THE MANUFACTURE OF SAND-LIME BRICK.



Still in the Lead

and

One Step Further Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact and

SHIPPED IN ONE PIECE.

All Machines
Are
Equipped With

CUT GEARING.

Manufactured and Sold by

THE ANDERSON FOUNDRY & MACHINE WORKS

Manufacturers of Soft Mud Brick and Drain Tile Machinery

Sold by the C. W. RAYMOND CO.,
Dayton, Ohio.

ANDERSON, IND.

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To Find Any Particular Firm or Advertisement See "Index to Ads" as Cited on Front Cover Page.

Ammeters.

The Brown Instrument Co.

Analysts and Chemists.

Ceramic Supply & Con. Co.
N. J. State University.
Ohio State University.
Richardson-Lovejoy Engr Co.

Automatic Clay Bin Emptier.

Raymond Co., The C. W.

Automatic Cutting Tables.

(See Cutting Tables.)

Barrows and Trucks.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
H. Brewer & Co.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Illinois Supply and Con. Co.
Manufacturers Equipment Co.
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Potts & Co., C. & A.
Raymond Co., The C. W.
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Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Barytes, Carbonate of

Gabriel & Schall.
Roessler-Hasslacher Chem. Co.

Bearings, Roller.

(See Supplies.)

Belting.

Gandy Belting Co.
Sawyer Belting Co.

Belt Conveyors.

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Gandy Belting Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.

Blowers

American Blower Co.
American Clay Machinery Co.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

Boilers.

American Clay Machinery Co.
Arbuckle & Co.
Frost Mfg. Co.
Morehead Mfg. Co.

Brick (Building).

Bloomfield Clay Co.
Bolivar Face Brick Co.
Fiske & Co., Inc.
Kushequa Brick Co.
Marion Brick Works.
Purinton Paving Brick Co.

Brick (Fire).

Chicago Retort & Fire Brick Co.
Evans & Howard Fire Brick Co.

Brick (Paving).

Alton Brick Co.
Barr Clay Co., The
Bessemer Limestone Co.
Clinton Paving Brick Co.
Danville Brick Co., The
Hocking Valley Fire Clay Co.
Marion Brick Works.
Metropolitan Paving Brick Co.
Natl. Pav. Brick Mfgs. Assn.
Purinton Paving Brick Co.
Terre Haute Vit. Brick Co.
Thurber Brick Co.
Shawmut Vit. Pav. Brick Wks.
Wabash Clay Co.

Brick Conveyors.

American Clay Machinery Co.
Mathews Gravity Carrier Co.

Brick and Tile Machinery.

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Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Chisholm, Boyd & White Co.
Dunn Wire Cut Lug Brick Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Fernholtz Brick Machy. Co.
Freese & Co., E. M.
Hensley, J. W.
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Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Ohio Ceramic Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Brick Machines (Soft Mud).

American Clay Machinery Co.
Anderson Fdy. & Mch. Works.
Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Wellington Machine Co.

Brick Machines (Stiff Mud).

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Brick Machines (Dry Press).

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Anderson Fdy. & Mach. Works.
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Fernholtz Brick Machinery Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Mueller Bros.
Raymond Co., The C. W.
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Brick Recutter.

Raymond Co., The C. W.

Brick Setting Machinery.

American Clay Machinery Co.

Brickyard Engineering.

Callaway Eng. Co., Ed. H.

Buffing Machinery.

American Clay Machinery Co.

Burning and Drying Systems.

Boss, John C.
Buhner, Jacob
Dennis, F. W.
Gas Machinery Co.
Hoffmann Construction Co.
Illinois Supply & Con. Co.
Koch, J. J.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Eng. Co.
Rodgers Engineering Co., L. E.
Snowden & Co., Geo. E.
Standard Dry Kiln Co.
Tate, Jones & Co.
Trautwein Drying & Engr. Co.
Vogt, Anton.
Yates, Alfred.

Cars.

(See Dryer and Dumping Cars.)

Castings.

Arbuckle & Co.
Caldwell & Sons Co., H. W.
Chambers Bros. Co.
Edgar Allen Am. Mang. Steel Co.
Taplin, Rice-Clerkin Co.

Ceramic Engineers.

Fohs, F. Julius
Hoehne, Richard B.
Koch, J. J.
Richardson-Lovejoy Engr. Co.

Clay Crushers and Pulverizers.

American Pulverizer Co.
American Road Machine Co.
Arbuckle & Co.
Brewer Co., H.
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Chicago Brick Machinery Co.
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Freese & Co., E. M.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
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Phillips & McLaren Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Clay Dryers.

American Process Co.

Clay Feeders and Mixers.

American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
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Chambers Bros. Co.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Raymond Co., The C. W.
Taplin, Rice-Clerkin Co.
Scott-Madden Iron Works Co.
Stevenson Co., The.

Clay Gatherers.

(See Scrapers.)

Clay Steamers.

American Clay Machinery Co.
Raymond Co., The C. W.

Clay Technologists.

Koch, J. J.
Richardson-Lovejoy Engr. Co.

Clutches.

(See Supplies.)

Coloring Materials.

Chattanooga Paint Co.
Clinton Metallic Paint Co.
National Paint & Manganese Co.
Ricketson Mineral Paint Co.
Roessler-Hasslacher Chem. Co.
Williams & Co., C. K.

Cones.

Orton, Edward, Jr.

Conveying Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.

Caldwell & Sons Co., H. W.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Mathews Gravity Carrier Co.
Mueller Bros.
Newton, A. C.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.

Continuous Kilns.

Gas Machinery Co.

Contracting Engineers.

Dennis, F. W.
King, E. A.
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Vogt, Anton.

Couplings.

(See Supplies.)

Cutting Tables (Brick and Tile).

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Dunn Wire Cut Lug Brick Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.

Cutting Wires.

Arbuckle & Co.
Brewer & Co., H.
Ceramic Supply & Con. Co.
Freese & Co., E. M.
Manufacturers Equipment Co.
Raymond Co., The C. W.

Dampers.

(See Supplies.)

Dies.

(See Supplies.)

Disintegrators.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Drain Tile.

Evans & Howard Fire Brick Co.

Drain Tile Machinery.

(See Brick & Tile Machinery.)

Drums, Hoisting and Winding.

(See Supplies.)

Dryers.

American Blower Co.
American Clay Machinery Co.
American Process Co.
Chambers Bros. Co.

(Continued on next page.)

Buyers Ready Reference List—Continued.

Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Ohio Ceramic Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Rodgers Engr. Co., The L. E.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Trautwein Dryer & Engr. Co.

Dryer Cars.

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Freese & Co., E. M.
Fate Co., The J. D.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.
Scott-Madden Iron Works Co.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Taplin, Rice-Clerkin Co.
Trautwein Dryer & Engr. Co.
Wellington Machine Co.

Dry and Wet Pans.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Crossley Machine Co.
Eagle Iron Works.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Illinois Supply & Con. Co.
Phillips & McLaren Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Stevenson Co., The
Taplin, Rice-Clerkin Co.

Dump and Clay Cars.

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Eastern Brick Machinery Co.
Freese & Co., E. M.
Hensley, J. W.
Ohio Ceramic Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.
Wellington Machine Co.

Electric Shovels.

Thew Automatic Shovel Co.

Electrical Furnaces.

Brown Instrument Co., The
Richardson-Lovejoy Engr. Co.

Electric Instruments.

Brown Instrument Co., The

Electrical Locomotives.

Atlas Car & Mfg. Co.

Electrical Supplies.

American Clay Machinery Co.
Raymond Co., The C. W.

Elevating Equipment.

(See Conveyors.)

Engines.

American Clay Machinery Co.
Chambers Bros. Co.
Frost Mfg. Co.

Engineers

Callaway Eng. Co., Ed H.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

Fans.

American Blower Co.
American Clay Machinery Co.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

Feed Water Heaters.

American Blower Co.
American Clay Machinery Co.
Frost Mfg. Co.
Morehead Mfg. Co.
Standard Dry Kiln Co.

Filler (Paving).

Barrett Mfg. Co.

Filter Presses.

American Clay Machinery Co.
Raymond Co., The C. W.
Stevenson Co., The
Taplin, Rice-Clerkin Co.

Fire Brick and Fire Clay.

Bloomfield Clay Co.
Chicago Ret. & Fire Clay Co.
Evens & Howard Fire Brick Co.

Fire Clay.

Evens & Howard Fire Brick Co.

Fire Proofing.

Evens & Howard Fire Brick Co.

Floor Tile.

Chicago Ret. & Fire Brick Co.
Evens & Howard Fire Brick Co.

Flower Pot Machinery.

Rockwood Mfg. Co., The
Taplin, Rice-Clerkin Co.

Friction Clutch Pulleys.

(See Supplies.)

Furnaces.

Brown Instrument Co., The
Illinois Supply & Con. Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Tate, Jones & Co.

Gas Fire Continuous Kilns.

Raymond Co., The C. W.

Gears.

(See Supplies.)

Granulators.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Gravity Carriers.

Mathews Gravity Carrier Co.
Taplin, Rice-Clerkin Co.

Gravity Haulage.

American Clay Machinery Co.

Hand-Power Presses.

American Clay Machinery Co.
Carnell, Geo.
Illinois Supply & Con. Co.
Mueller Bros.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Stevenson & Co.

Hand Winch.

(See Supplies.)

Hangers.

(See Supplies.)

Holsts.

(See Supplies.)

Hollow Block Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Freese & Co., E. M.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.

Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.

Hollow Partition Tile.

Evens & Howard Fire Brick Co.

Jacks.

(See Supplies.)

Kilns.

American Clay Machinery Co.
Boss, J. C.
Buhner, Jacob.
Chisholm, Boyd & White Co.
Dennis, F. W.
Gas Machinery Co.
Hoffmann Construction Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Snowden & Co., G. E.
Shumaker, J. H.
Vogt, Anton.
Yates, Alfred.

Kiln Bands.

Tecktonius Mfg. Co., E. C.

Kiln Doors, Castings and Frames.

(See Supplies.)

Kiln Floor Tile.

Chicago Ret. & Fire Brick Co.
Evens & Howard Fire Brick Co.

Kiln Irons.

Tecktonius Mfg. Co., E. C.

Kiln Furnaces.

Illinois Supply & Con. Co.

Kiln Lugs.

Tecktonius Mfg. Co., E. C.

Knives.

(See Supplies.)

Locomotives.

Davenport Locomotive Works.

Manganese.

(See Coloring Materials.)

Manganese Steel.

Edgar Allen Am. Mang. Steel Co.

Mechanical Draft.

American Blower Co.
Boss, J. C.
Rodgers Engr. Co., The L. E.

Mineral Paint.

(See Coloring Materials.)

Molds (Brick).

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Mentz, George B.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wellington Machine Co.

Mold Sanders.

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Hilton Sanding Machine Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wallace Mfg. Co.
Wellington Machine Co.

Mortar Colors.

(See Coloring Materials.)

Oil Burners.

Illinois Supply & Con. Co.
Schurs Oil Burner Co.
Tate, Jones & Co.

Packing Hay.

Interstate Hay Co.

Paints.

(See Coloring Materials.)

Pallets.

Ohio Ceramic Engineering Co.
Ohio Galvanizing & Mfg. Co.

Pans (Dry and Wet.)

(See Dry and Wet Pans.)

Patents.

Scientific American.
Watson & Boyden.

Paving Brick or Block.

(See Brick.)

Perforated Sheet Metal.

Caldwell & Sons Co., H. W.
Harrington & King Perf. Co.

Pitch (Paving).

Barrett Mfg. Co.

Flows.

(See Scrapers.)

Portable Track.

Atlas Car & Mfg. Co.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.

Pottery Machinery.

American Clay Machinery Co.
Crossley Machine Co.
Raymond Co., The C. W.
Rockwood Mfg. Co.
Stevenson Co., The
Taplin, Rice-Clerkin Co.

Power Plant Equipment.

Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

Presses.

(See Brick Machines, also Sewer Pipe Machinery, also Roofing Tile Machinery.)

Pug Mills.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Mueller Bros.
Raymond Co., The C. W.
Steele & Sons, J. C.
Scott-Madden Iron Works Co.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Pulleys.

(See Supplies.)

Pulverizers.

Illinois Supply & Con. Co.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.

Pumps.

Dean Bros. Steam Pump Wks.
Pulsometer Steam Pump Co.

Pyrometers.

Brown Instrument Co.
Ceramic Supply & Constr. Co.
Rodgers Engr. Co., The L. E.

Rails and Railway Equipment.

Atlas Car and Mfg. Co.
Arbuckle & Co.
Davenport Locomotive Works.
Ohio Ceramic Engineering Co.
Scott Madden Iron Works Co.

Rattlers (Paving Brick).

Ceramic Supply & Constr. Co.
Freese & Co., E. M.
Hetherington & Berner.
Phillips & McLaren Co.

Recording Gauges.

Brown Instrument Co.
Ceramic Supply & Constr. Co.

Represses.

American Clay Machinery Co.
Bonnot Co., The
Chambers Bros. Co.
Fate Co., The J. D.

(Continued on Page 12.)

REPEAT ORDERS PROVE OUR CLAIM

That the use of the Mathews Gravity Brick Conveyer will save more time and labor than any other investment made for standard brick manufacturing equipment of equal cost. The following letter is simply a sample of many repeat orders received by us every month:

Athens, Ala., July 10, 1912

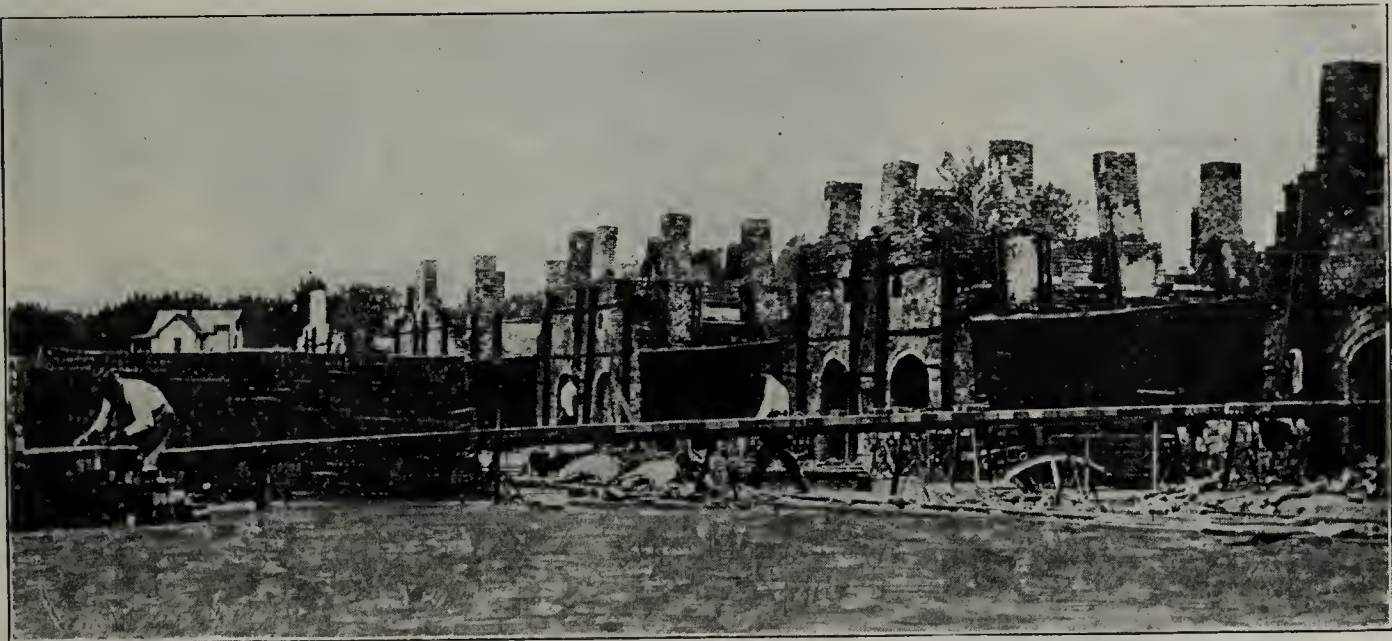
Mathews Gravity Carrier Co.
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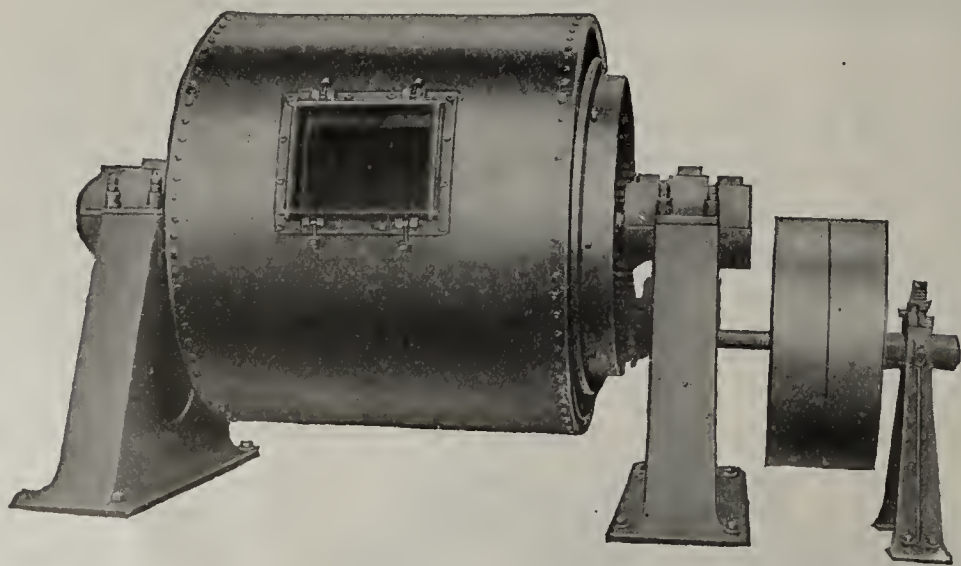
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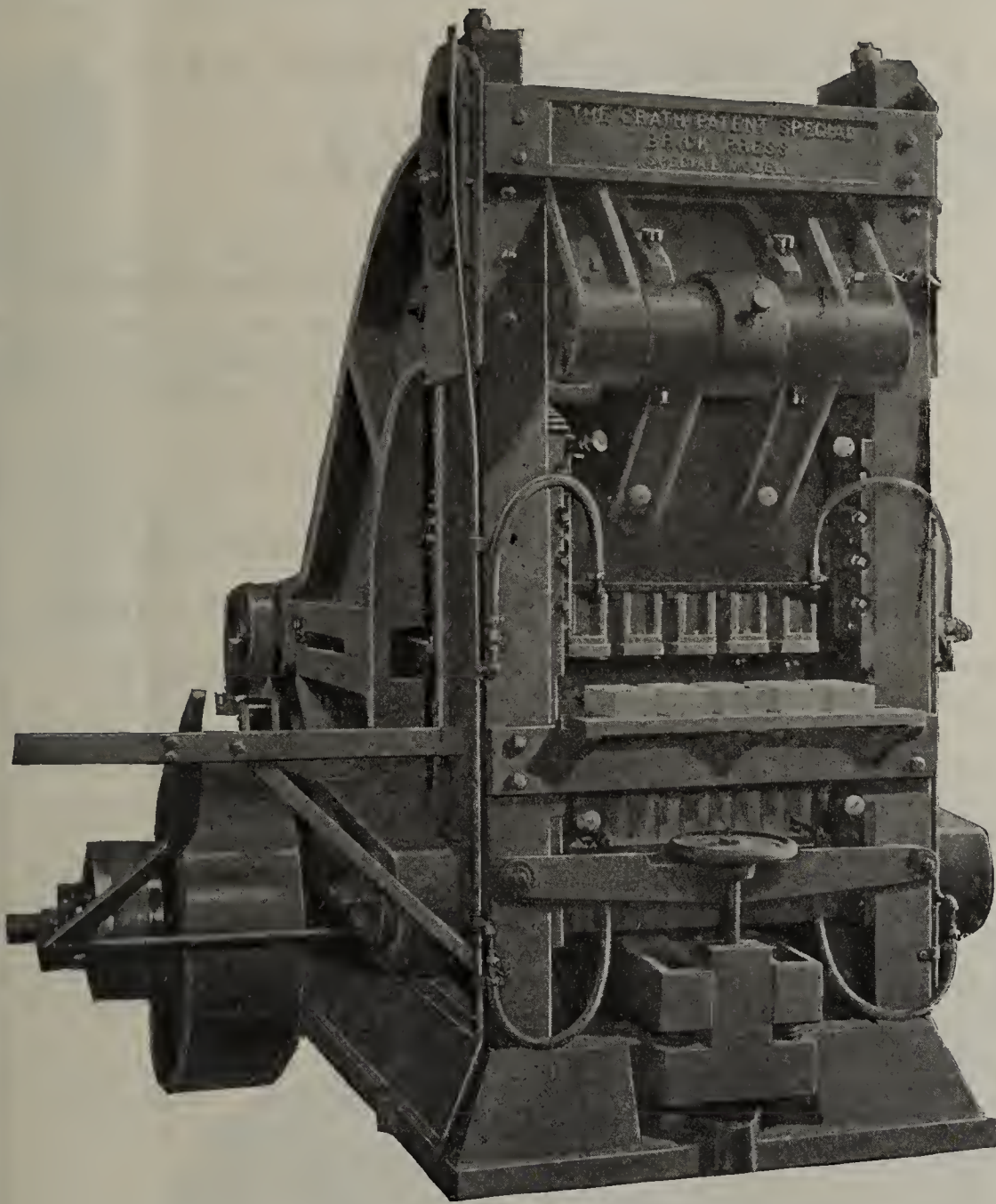
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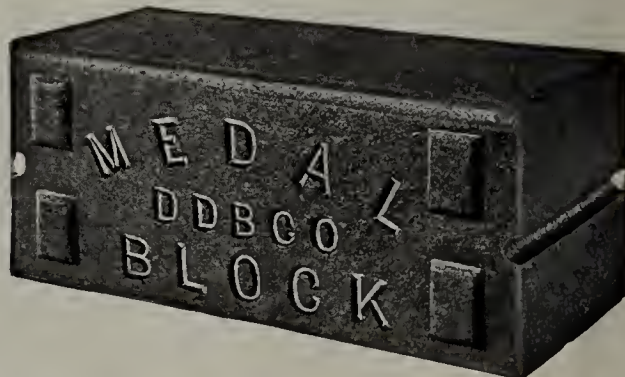
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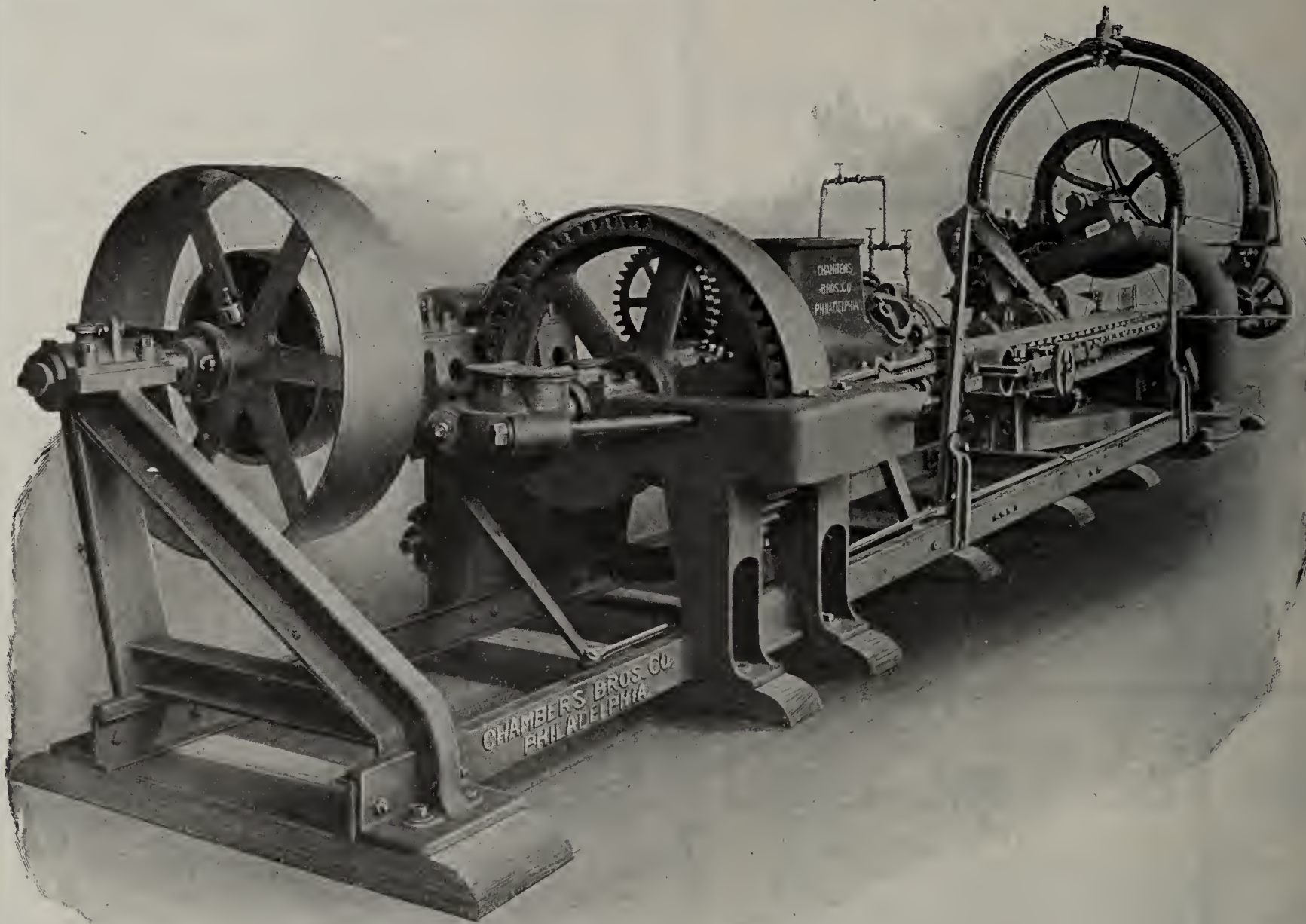
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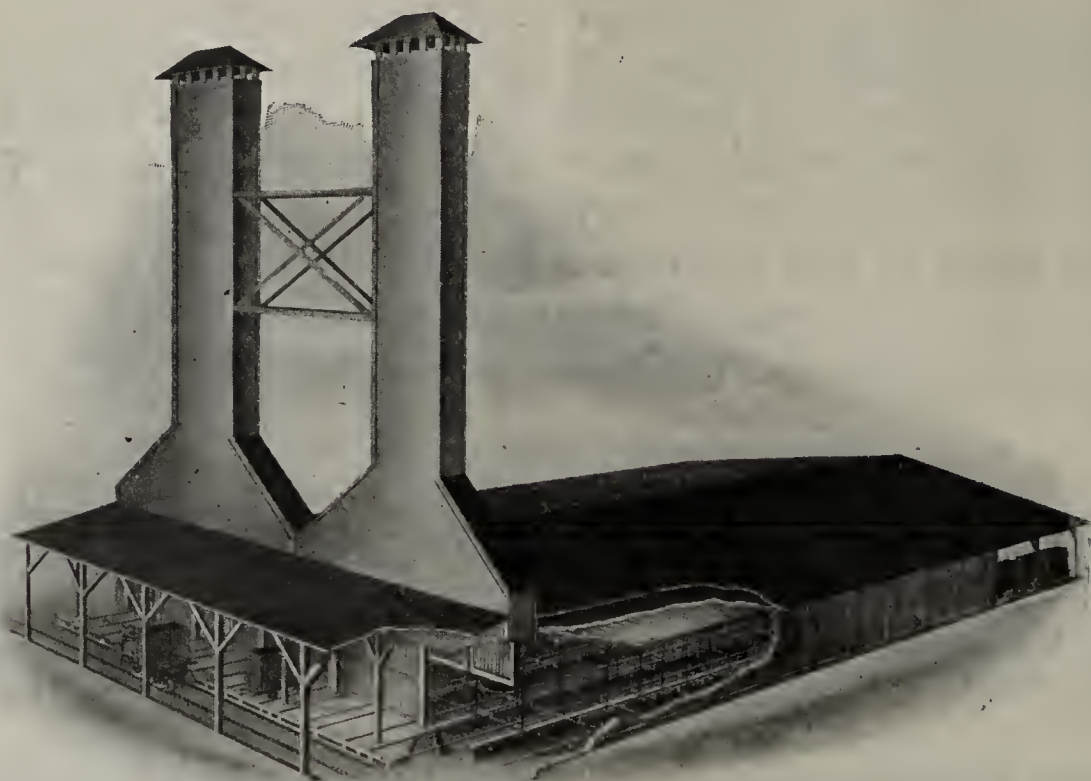
I am flat-footed and plain. There is nothing complicated or mysterious about me.

I put it squarely up to the drier to make good, by making settlement *contingent* upon its ability to do what I say it must do.

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THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LVIII.

INDIANAPOLIS, IND., AUGUST, 1912.

No. 2.

THE GARDEN CITIES OF ENGLAND.

Modern Brick Homes Create a More Human and Artistic Environment and Exemplify Comfort.

By EDWARD W. GREGORY.

ONE of the most important phases of the development of English domestic architecture in recent years has been the planning of garden cities and suburbs. The word "city" used in this connection is not a happy one. It

ture of life which is not all money-getting. The idea of these new villages—for that is a much more descriptive word—was to create a more human and artistic environment than had been provided in haphazard fashion by the hurrying builders who enlarged the great towns over and over again during the greater part of the nineteenth century.

How the New Houses Are Inspired.

Not unnaturally English architects have turned for inspiration in laying out these garden cities to the peaceful, old-world villages of the shires. They have studied them



—Courtesy of The House Beautiful.

A Terrace of Houses at Gidea Park, Garden Suburb of London. Ronald P. Jones, Architect.

suggests the hurry, rush and scramble of modern business. It suggests crowds, great blocks of offices and warehouses, traffic, noise and ceaseless work. Now a garden city exemplifies exactly the opposite of all this. It is, indeed, a practical protest against much which we tolerate in the cities of toil and commerce. It offers opportunities for leisure, repose and chances to realize the amenities of civilized life. It shows to over-zealous warriors in the war for gold a pic-

carefully, collected sketch books full of details of cottages, ancient churches, manor houses, ruins and various archeological oddments. They have marked the curious waywardness of lay-out which is found in so many English villages, and have been quick to notice that accidental grouping of buildings which is so picturesque a feature of the hamlets of the countryside. If one has a fair acquaintance with the highways and byways of England, it is the easiest thing in the

world to pick out detail after detail in the new garden cities which have been frankly borrowed from the older work. Even the disposition of big trees on the new sites, trees which in some cases may have taken hundreds of years to grow, have been so included in the planning as to reflect the often accidental distribution of elms and oaks among the cottages and farmsteads of old villages.

Yet there is one quality which no new garden city in England has been able to reproduce, a quality which by its very nature is unattainable. This is evidence of slow growth. A moment's consideration will convince anyone that a very great part of the charm of older settled districts arises from the visible evidences of gradual change and development, generation after generation. This is illustrated very well in the village High streets which are to be found in every county in England. Two or three small houses were originally put down at the junction of cross-roads as being a convenient situation. Gradually more were built here and there, and after many years they became so numerous as to touch one another. No deliberately wrought-out plan was first made to form a street. The street simply happened and, of course, it never looked at any time like a pre-ordained scheme. The line of it was never straight. Its buildings never matched in size or character. The road itself wandered along between the houses anyhow. As generations passed into history and the old buildings became insecure or unsuitable for newer purposes, they were pulled down, enlarged, or rebuilt, not always on the old site, but accommodating themselves to the ground in the way most convenient at the time of erection. Hundreds of villages in England have taken a thousand years to grow. It is true that extremely few domestic buildings still remain which date from before the fourteenth century; but there are, of course, many fragments of ecclesiastical structures going back to the time of the Norman conquest. Where the old village retains evidence of remote antiquity of the most visible form is in the direction of the roads and the general disposition of the buildings. There are villages where the principal road turns sharply round to avoid an early British encampment or a Roman fortification. Viewed from modern standpoints, such a turn in the road is inexplicable. But there it is, and there it is likely to remain notwithstanding the efforts which have been made in many country districts to soften the sharper angles by removing old walls and making the roads wider to accommodate the rapidly traveling automobile. This action in itself is a bit of patchwork which is continuing the process of gradual evolution in our own time. The number of places in old English towns and villages where two narrow roads cross at right angles to form what is regarded today as a very dangerous corner for traffic is unaccountable. Yet five and twenty years ago such crossroads were not at all inconvenient. It is the coming of the motor car which has made them dangerous. For hundreds, even thousands of years, the rapidity of the fastest moving vehicles on the road was exactly that of the fastest horse. Never before in history have the constructors of roads—leaving railroads, of course, out of the account—been faced with the necessity for making provision for anything traveling at a greater rate than about twelve miles an hour.

New Conditions—New Problems.

Now examine the conditions upon which an entirely new garden city is to be created. The land

Some Attractive Homes in



—Courtesy of The House Beautiful.

Entrance Front—The Rectory. Brick of a Different Type from the Gidea House.



—Courtesy of The House Beautiful.

An Attractive Brick Entrance.

The Garden Cities of England.



—Courtesy of The House Beautiful.

West Elevation and The Rectory—Hempstead Garden Suburb.



—Courtesy of The House Beautiful.

Garden Front and Terrace of a House at Repton

selected is destitute of buildings, excepting, perhaps, for a lonely farm or two, or, as in the case of Gildea Park, Romford, in Essex, where an old Georgian mansion still stands in its long neglected old world garden. There are no main roads. They have to be made. There may be no features of particular interest beyond a few old trees. It is a clean slate upon which the architect may write what he pleases. And he is to write quickly. He will be able to see the completion of the work easily in his own lifetime. He and his colleagues in the scheme are to do the thinking in ten years which in the case of an old country town was spread over centuries. Everybody is in more or less of a hurry. Everybody wants to improve on everything which has gone before. Modern ideas about sanitation, traffic, hygiene, heating, lighting, social intercourse, and so on, have to be considered. Moreover, the architect, according to the most approved opinion, must legislate for posterity. He must indicate the lines upon which surrounding development is to go in the future. All this has resulted in the case of every garden city in England in self-consciousness, a vice which not even the most insignificant little village of any age exhibits in any marked degree. It has also led to a certain lack of character, largely the result perhaps of the determination to build small detached houses with plenty of surrounding garden, instead of the rows of buildings of all sizes and shapes which, joined together more or less by accident, formed the High street, that valuable architectural core of the old village.

Somewhat Theatrical and Self-Assertive.

There are many small houses in the first garden city at Letchworth and at the Hampstead Garden Suburb, and at Gildea Park (three of the best known and most extensively developed places of this kind in England), which look as though they had been designed and placed where they are purely for the sake of effect. As a matter of fact, this has often been the case. It has been observed, perhaps, how delightfully picturesque some old-world cottage looks with its deep red tiles and half-timbered walls thrown up against a background of dark trees. It has been noticed that an unexpected turn in the road gives a charming view to the little building, that its plan has been placed at an angle with the frontage line resulting in a quaintly shaped garden; that the ridge of the roof has become bent with age; and that repeated mending and plastering of its gables has produced a pleasing medley of structural form. Such evidences of age in an old house are natural enough, but when they are deliberately copied in new cottages they savor of self-consciousness. Many a flagged garden path leading to the door of a new garden city house of England is laid down in imitation of old paved walks which have been mended over and over again with odd bits of brick and pebble handy for the purpose. Even the accidental charm of flags which have been split by frost and rough usage has been copied, so that the new garden walk looks as though it were a very old one badly repaired. Some architects have carried this kind of thing to considerable length; others seem to have been only slightly affected by the fashion. Another point which has been observed in English garden cities is the apparent determination of the management to hide every reasonable clue by which a stranger may find a particular house. It can scarcely be expected in a very old town or village that a system of numbering be adopted

as easy in its interpretation as those in America, but when a large and entirely new area is planned it would not be unreasonable to expect a system of some sort. Yet the fact is, that the houses of some garden cities have no numbers, and as the roads rarely continue to run to the end in the direction taken at the start, the unfortunate stranger soon finds himself in somewhat of a maze. A very large number of English people have a strong objection to their houses being known by numbers. There is just a suspicion of snobbery in this, but more often it arises from a desire to emphasize the fact that the house is not one of a row of others; that it stands by itself on its own little plot, and is just a little different from its neighbors.

Some Examples.

Notwithstanding these criticisms many of the newer houses if considered by themselves have considerable character—some people say too much character. Those by Mr. Edwin L. Luytens are particularly interesting, and he at any rate has reproduced no tricky accidents which may only be legitimately admired in old work to obtain his rather austere effects. In the rectory at Hampstead Garden Suburb the design is frankly one which relies for its impressiveness upon proportion, and there is a wonderful restraint in the use of small detail. Picturesqueness has been avoided to the exclusion of a great deal which another architect would have put in as a matter of course. It is as though Mr. Luytens were building, not so much to entertain and please his generation, as to convince posterity. There is elemental character about his work, simplicity, unity and volume. Prettiness, which in architecture so often becomes a vice, is entirely absent. The same qualities are to be noticed in all his houses, the garden front and enclosure of the house at Repton-on-Trent being typical of his style.

The nearest approach to a terrace of houses at the newest English garden city, Gildea Park, are the buildings designed by Mr. Ronald E. Jones, M. A. As a matter of fact, the houses are detached, but the general impression is that of a formal row of the kind associated with the Queen Anne and early Georgian periods. They are not copies, but are houses built in adaptation, showing a little variety in elevation here and there, but not so much as to destroy that orderliness which is one of the most pleasing features of the style. These houses cost \$5,600 each to build, including land. They contain ten rooms.

A nicely designed house has recently been completed from the designs of Mr. H. Stanley Barrett, M. S. A., the interior of which is attractive. This was erected at the cost of \$5,000. Exteriorly the building is of brick covered with rough cast, and the windows are casements with leaded lights. The floor of the hall is of red quarry tiles, and the fireplace is made of brickwork and roofing tiles. A quaint feature of the drawing room is the visible beaming—a natural result of the construction—which runs into the walls at an angle above the frieze rail. The floor of the kitchen in this house is made of wooden blocks in the center with big square red tiles all round, the idea being that in winter wood is warm to the feet while the tiles are clean and sanitary. Incidentally this arrangement prevents the floor from looking bare and uncomfortable.

In the houses which have been finished in Garden Suburbs by Mr. M. H. Baillie Scott, Mr. A. P. Starkey, Mr. Reginald T. Longden, Messrs. Forbes & Tate, Mr. Hastwell Grayson, M. A., and others, the element of the picturesque has been extensively exploited. Each house has individual character, which in some cases amounts to self-assertiveness. The rooms are usually interesting and attractive in shape. It should also be explained that by the conditions of management the expense of building, including all fees, but not land, had to be kept down to \$1,875 and \$2,500 in two classes. Those belonging to the former contain three bedrooms, two sitting rooms and kitchen; the latter, four bedrooms, two sitting rooms, hall and kitchen. Roughly those in the cheaper class are six-roomed cottages, the dearer are eight-roomed

houses. Architects, of course, had some liberty to vary the accommodations to a certain extent.

What Notable People in England Think.

Not the least interesting part of the development of the latest garden suburb in England were the expressions of opinion from a number of prominent people who were asked to answer these two questions:

(1) What has struck you as the worst point about the average home?

(2) What is the greatest improvement you have met with in building or fitting?

Now it should be borne in mind that the people to whom these questions were addressed were not architects. They included novelists, scientists, painters, schoolmasters, playwrights, doctors, politicians, business men and women, and public officials. The idea was to find out what people who live in houses think, not to garner the opinions of those who build them. It is impossible in a short article to quote all the answers, but a few of the most enlightening and interesting may be given. For instance, Mr. Thomas Hardy, the novelist, asked for "an independent bathroom to each bedroom," a convenience which it would be extremely difficult to find in half a dozen houses in England. Mr. H. G. Wells said that "his ideal house is a two-story one, with no underground parts." He also said that the "development of the narrow passage into the central hall pleased him extremely." Sir Arthur Pinero, the playwright, called the drawing room "an abomination" and preferred the "comfortable living hall." Mr. Eden Phillpotts thought that "windows were getting too small and would have them from floor to cornice." Another author, Mr. E. F. Benson, complained of the "kitchen smell coming up the back stairs into the house." Mr. Hall Caine asked for "double sashes, such as those in use in the Engadine," and Mr. Israel Zangwill quaintly pleaded for "the possibility of getting into hot water!" Another quizzical answer was that of Mr. W. W. Jacobs, who said that the "average house was hideously ugly both outside and in and that, generally speaking, people like them." Americans who have stayed for any length of time in England will be inclined to agree with a lady who questioned whether English people are yet civilized when they heat their houses so badly in the winter months that the maids are doing nothing else but making fires, here, there, and everywhere, with all the ash, coal carrying, and subsequent dusting that goes with this inevitable domestic duty. Another critic says, "rattling windows make night hideous," which is perfectly true. He asks for better fittings and "the entire abolition of the sash window," which would be revolutionary. There is a good deal of sense, too, in the view that it is ridiculous to make the hall, drawing room and dining room of about the same size and proportions. For many people use the dining room only an hour or two every day, and the hall only when they walk to the door. It would therefore seem that the drawing room, converted into a less formal apartment than usual, should be the most spacious of the three.

The foregoing suggestions thrown out in answer to definite questions may be supplemented by a number of points which presented themselves to the writer as a result of a series of visits paid to different English garden cities last summer. The following little faults were found in many houses:

1. Kitchens too small to contain a table without interfering with access to dresser drawers and cupboard.
2. No fitted hanging cupboards to bedrooms.
3. No draining board to scullery sink.
4. Lack of a bedroom big enough to contain a double bed and full suite of furniture.
5. Lavatory basins ridiculously small.
6. Larder in kitchen instead of scullery.
7. Larder in hall in full view of front door.
8. Every room in the house odd in shape and broken up by doors and windows.
9. Fireplace too close to the door.
10. Hanging cupboard so placed as to prevent its being opened more than six inches when bed was in position.

11. A number of big, deep bedroom cupboards provided, which could not possibly be reached without steps or standing on a chair.

12. Copper in kitchen instead of scullery.

These mistakes, of course, did not all occur in one house. But there were few houses which were not open to criticism on account of one or other of them. As a matter of fact, the English genius is not one for creating a new and perfect thing as the outcome of an effort of the imagination. English architects are wonderfully expert in the art of improving old houses; and in designing on traditional lines. The English mind prefers to alter, mend, adapt, or make additions rather than pull down and start afresh. So that in these new garden cities and suburbs where everything is

new, and where it is not only sought to avoid errors made by past generations but to step forward in the pursuit of the ideal, there is an element of naive experiment which is oddly at variance with the traditions of British building as practiced for hundreds of years. For centuries English village and town development has been a matter of compromise, and give and take, in the midst of which no doubt the interests of the whole of the community were often sacrificed for the benefit of individuals. But under these conditions all the pleasant old places of England have grown up, and it is still a question whether the new theories will in the end crystallize more worthily, or suit the needs of future generations any better than the patched-up towns of ancient history harmonize with ideas of today.—“The House Beautiful.”

GAS FROM GAS PRODUCERS, AND THEIR CONSTRUCTION.

By J. J. Koch.

Steam Pressure Gas.

THE next form of gasification to be taken up is the steam pressure gas producer, and in this illustration or case we will assume that the volatile matter of the coal is distilled over as such. It has been found that the sensible heat of the gases coming from the ordinary suction gas producer, in passing to the kilns, through long passages, was to a large extent lost, and is usually estimated at about 30 per cent. of the carbon energy. A variable percentage of the hydro-carbons are also condensible, in that they are products of distillation, hence, good modern practice is to make the gas-conducting flues to the combustion chambers as short as possible. Long conducting flues, unless arranged to prevent loss of heat from the gases, in turn preventing condensation of the condensible hydro-carbons, may cause so much heat value loss of such gases that the burning of producer gas may become unprofitable and expensive. The writer knows of a plant that overcame these losses by converting each fire box on their down-draft kilns into a miniature gas producer, equipped with steam pressure, and only in this way were they able to produce the high temperature required to burn their ware.

To overcome the loss of sensible heat, it is modern practice to blow steam and air into the hot zone of the gas producer, where the water vapor is decomposed into oxygen and hydrogen. In this manner part of the sensible heat is converted into latent heat, and when burning this hydrogen, in the combustion chamber of the kiln, is liberated as sensible heat. However, by the decomposition of the steam, oxygen is furnished to the gas producers, without the amount or percentage of nitrogen which would be present if all the oxygen came from the air, thus cutting out the diluent of such nitrogen, and thereby being able to create more intense heat or higher temperatures. On the face of it, using steam for production of hydrogen and oxygen would be the ideal mode of making producer gas, but it can not be carried out, owing to one important fact: The only valuable chemical reaction taking place in the gas producer, producing heat, is in the formation of carbon dioxide from carbon, and all the other reactions absorb or take up heat for their consummation in the gas producer, such as the decomposition of water, distillation of hydro-carbons, the changing of carbon dioxide to carbon monoxide, hence primary oxygen must be supplied to keep the carbon in the gas producer in an incandescent condition, to effect the dissociation of the steam especially as the oxygen formation from the steam is dependent upon a certain condition of the gas producer.

If steam were blown into the gas producer without admixture of air, it would be but a short time before the temperature in the gas producer would become so low that the steam would not be decomposed any more, and eventually the fire

would be put out. The relative proportion of air to steam, both as regards volume and pressure, is a variable factor, depending upon the type of producer, kind and grade of coal, and the use to which the producer gas is to be put. It is within the range of possibility that a producer gas which is of exceptionally good value in burning bricks may be of very little value for producer gas engine use. No definite rule can be laid down for steam practice in operating a gas producer, but intelligent experimenting, coupled with accurate records, ought to, in a short time, lead to best practice, depending a great deal upon local conditions.

The regulation of a properly constructed gas producer should not offer any great difficulties as regards steam application, if the following three factors are taken cognizance of:

I. Steam breaks up clinkers, cracks them and makes them more brittle and friable, thus affording easier passage for air and steam.

II. Steam prevents the ash and clinkers from destroying the fire brick lining and clinging thereto, thus making it easier to clean out the gas producer.

III. Steam, not in excess, causes formation of hydrogen, and in this way cuts down heat losses.

The writer's experiences show that large percentages of hydrogen are generally accompanied by large percentages of carbon dioxide, which latter is of no value as a heat producing medium. However, for some heating conditions the excessive amount of carbon dioxide is a good thing, in connection with large percentage of hydrogen, in that it entails a soft, mellow flame, and in that way cuts down the excessive heat of the hydrogen combustion. Again, if the steam is used to excess, it not alone cools down the gas producer below its normal condition, but it also passes into the conducting flue, sometimes condensing there. The writer has had considerable trouble with steam in the gas, and prefers to use just a little more steam than would be necessary to crackle the clinkers, and has had better results with such a gas in the burning of brick kilns, although the quantity of hydrogen was of smaller percentage than if more steam had been used. But with all that, it must never be forgotten that there is only just so much heat value in a given fuel, and no more can be obtained whether gasification takes place with or without steam.

Modern calculation values are based upon the following usual practice: the oxidation of 1 pound carbon by oxygen from steam to 3 pounds by oxidation from air, but the writer prefers to go a little lighter on the steam proposition, as it then takes labor less skilled and the producer is not robbed of so much heat, and therefore, in this way, it is not so difficult to keep the gas producers in a good, active condition and furnish a good, reliable gas for brick kiln purposes.

No. 3 Steam Producer Gas.

In our case we will assume that 36 parts volatile matter distill over as such, and 5 pounds carbon are carried over as

carbone dioxide, and thus of no further heating value. (See Gas No. 1.)

Fuel and Air.	Product in lbs.	Vol. in cu. ft.	Per ct. Vol.
43 carbon to carbon monoxide	$100.32 \times 12.810 =$	1285.09	26.27
5 carbon to carbon dioxide..	$18.33 \times 8.152 =$	149.42	3.05
—	—	—	—
48	118.65		
36 marsh gas distilled.....	$36.00 \times 22.429 =$	807.44	16.51
70.65 oxygen required			
¼ from steam = 17.65 O			
17.65 O ÷ 8 = hydrogen.....	$2.20 \times 178.931 =$	393.65	8.05
53.00 O from air × 3 1-3 = ni-			
trogen	$176.67 \times 12.770 =$	2256.07	46.12
—	—	—	—
70.65 O	333.52	4891.67	100.00
Or 1 pound coal gasified as above will make 48.91 cubic feet gas weighing 3.33 pounds.			

Density.

Carbon monoxide, CO.....	$26.27 \times 0.9671 =$	25.405
Carbon dioxide, CO ₂	$3.05 \times 1.5197 =$	4.635
Marsh gas, CH ₄	$16.51 \times 0.5530 =$	9.130
Hydrogen, H	$8.05 \times 0.0692 =$	0.557
Nitrogen, N	$46.12 \times 0.9701 =$	44.741
—	—	—
	100.00	84.468

Or the gas has a density of 84.47, with air taken as 100.

Heat Value.

CO	$100.32 \text{ pounds} \times 4325 =$	433,884 B. T. U.
CH ₄	$36.00 \text{ pounds} \times 20000 =$	720,000 B. T. U.
H	$2.20 \text{ pounds} \times 62000 =$	136,400 B. T. U.
—	—	—
		1,290,284 B. T. U.

Heat Value in Percentage.

Energy in coal	1,370,000 B. T. U.
Energy in gas	1,290,284 B. T. U.
—	—
Loss	79,716 B. T. U.
On an energy of 94 per cent. in the gas.	

Gas and Air Volumes for Combustion.

Carbon monoxide (CO)	26.27 + 13.14 oxygen
Marsh gas (CH ₄)	16.51 + 33.02 oxygen
Hydrogen (H)	8.05 + 4.02 oxygen
Carbon dioxide (CO)	3.05
Nitrogen (H)	46.12
—	—
	100.00 50.18
50.18 O × 4 =	200.72 nitr'g'n
—	—
	250.90 air

Or 1 volume gas requires 2.5 volumes of air.

Density of Mixture of Air and Gas Before Combustion.

100 volumes gas × 0.84468 =	84,468
250.9 volumes air × 1.00000 =	250,900
—	—
350.9 volumes	335.368

Or a density of 95.6 with air taken at 100.00.

Combustion Volumes.

Marsh gas	$16.51 = 16.51 \text{ CO}_2$	$33.02 \text{ H}_2\text{O}$
Carbon monoxide	$26.27 = 26.27 \text{ CO}_2$	
Carbon dioxide..	$3.05 = 3.05 \text{ CO}_2$	
Hydrogen	$8.05 =$	$8.05 \text{ H}_2\text{O}$
Nitrogen, air ...	$46.12 =$	46.12 N
Nitrogen, gas ...	$200.72 =$	200.72 N
—	—	—
	$46.83 \text{ CO}_2 + 41.07 \text{ H}_2\text{O} + 246.84 \text{ N} =$	334.74
350.90 volumes before combustion		
334.74 volumes after combustion		
—	—	—
16.16 volumes decrease		

Density of Products of Combustion.

Carbon dioxide	$46.83 \times 1.5197 =$	71.167551
Water	$41.07 \times 0.6218 =$	25.537326
Nitrogen	$246.84 \times 0.9701 =$	239.459484
—	—	—
	334.74	336.164361

Or a density of 1.004 with air taken at 1.000.

Resume.

Density of gas	84.47
Density of gas and air mixture.....	95.60
Density of products of combustion.....	100.40
Volumes before combustion	350.90
Volumes after combustion	334.74
—	—
Decrease	16.16
(To be continued.)	

THE OUTSIDE EQUIPMENT.

The fall, winter and spring season is the hard time on the outdoor equipment of the clay plant. For this reason sometimes one feels that part of the equipment deteriorates from exposure more than it wears out. Clay handling and working is of itself hard enough on machinery equipment, wears it out more rapidly perhaps than anything else but stone and cement working.

That machinery which is under shelter, though, is protected from the elements and, with proper care, will last much longer doing the same amount of service than the outside equipment.

The natural inference from this is that the best thing to do with outside equipment is to keep it inside as much as possible. That is, provide housing for as much of it as practical and protect it in every possible way from the weather.

Then after protecting with shedding as much as possible there is another line of protection that should be followed up faithfully, beginning in the early fall, and that is the protection of metal, wooden parts of cars, and other outdoor equipment with paint. Clean thoroughly, overhaul, and paint everything. Do not do it hastily or carelessly or without any proper deliberation. Make a study of paints, those particularly adapted for certain purposes, get what seems to be best for the metal and what seems to be best for the wood and see that the outside equipment is kept coated with it.

Paint is the greatest protecting material in the world that we have in common use and it has to be renewed repeatedly to get the best use out of it. Where one discontinues operations at the clay bank in the winter it is a good plan to get the equipment under shelter in some way and spend part of the winter months thoroughly overhauling. Do this work, too, immediately after discontinuing operations. Do not let it stand and rust with the dirt and moisture attached to it, but make this clean-up the first order of business. Clean everything thoroughly, make what repairs are necessary, and use paint and oil liberally as a protection against rust and keep the equipment in good order and ready for immediate use when operations are begun in the spring.

If the equipment is used right through the winter it should be attended to any way, either by stopping a week or two for general overhauling of this kind or by taking a part of the equipment at a time, cleaning it, letting it dry, and going over it thoroughly with paint and at the same time making whatever repairs are necessary.

It is some trouble and expense to take precautions of this kind but it saves expense in the way of repairs and new equipment that is worth while. By proper care one may prolong the life of this outdoor equipment and keep its usefulness up to the highest standard. It, therefore, becomes a duty not to be neglected and the sooner it is looked after in the winter season the better one feels about it and the better are the results generally.

NEWS FROM OUR OLDEST CERAMIC SCHOOL.

LAST MONTH WITNESSED the closing of the eighteenth successful year of the oldest clayworking school in America. There were thirteen graduates, besides several others who completed so much of the course that they will not return again for the small amount remaining. The following list gives their names and the subject of their graduating theses, and the positions now held, so far as they are known. The employment is not complete.

George E. Middleton. Chemist of the Northern Clay Company, Auburn, Wash., manufacturers of terra cotta. Thesis: "Rational Analysis."

Frank B. Allen. Assistant superintendent of the Pittsburg High Voltage Insulator Company, Derry Pa., manufacturers of electrical porcelain. Thesis: "High Temperature Under-glaze Pink."

Robert L. Clare. Studying kaolin and bauxite beds near



Mr. Forrest K. Pence, Columbus, Ohio.

Macon, Ga., for ——— Railroad Company. Thesis: "Bodies for Inverted Mantle Rings."

Amos P. Potts. Testing refractory materials for the Green Engineering Company, Chicago, Ill. Thesis: "The Relation of Composition to the Co-efficient of Expansion of Porcelains."

Harry J. Knollman. Apprentice, American Sewer Pipe Company, Barberton, Ohio. Joint thesis with Mr. Potts.

Harold F. Dingleline. Apprentice, National Fireproofing Company, Haydenville Works, Haydenville, Ohio. Thesis: "Slag Brick."

Leslie R. Wells. Chemist, Western Terra Cotta Company, Kansas City, Kan. Joint thesis with Mr. Dingleline.

Carroll T. Dun. American Sewer Pipe Company, Barberton, Ohio. Thesis: "Effect of Temperature Upon Di-electric Strength of Porcelain."

Harry E. Neal. Federal Gas Company, Columbus, Ohio. Thesis: "The Production of a One-Coat Enamel for Cast Iron."

George R. Fisher. Apprentice, National Fireproofing Company, Haydenville, Ohio. Thesis: "Leadless Enamels."

Roy E. Thompson. Thesis: "A Study of the Properties of Calcium-Alumina-Silica Frits."

Louis A. Smith. With P. A. Smith & Co., New Brighton,

Pa. Thesis: "Utilization of Heat in Products of Combustion."

Charles W. Parks. Thesis: "Low-Fire Speckled Brick."

In addition to these names, there are several who did not graduate, but who now enter their professional career. Mr. Robert K. Ayer, of Montreal, Canada, has gone back to take employment with his father in the clay industries there, after spending one year of graduate work here on top of his four years' engineering course at McGill University at Montreal. Mr. Charles A. Nicely, of Watsontown, Pa., has gone back to take a position in the kiln building business with Mr. Watson, and Mr. Fred Brower, of Seattle, Wash., has taken a position as head burner for the Ohio Mining and Manufacturing Company, at Shawnee, Ohio.

It is interesting to note in the above list how widely the subjects, upon which these young men specialized while in school, diverged from the line of work which they happened to have secured since. It emphasizes strongly the utter impossibility of foretelling what particular part of one's education a man will need first.

We who teach in the universities know that no one can become a skilled clayworker or ceramic engineer by merely taking a four years' course in college—the skill comes only when the college training has been ripened by practical experience. The chief consideration in college should be to get upon absolutely solid ground in regard to the general principles of the subject, and trust to time and experience to bring up the details and the special knowledge. But it is hard now, as it always has been, and probably will be, for young men to see the importance and the necessity of studying many things of which they do not see any definite or immediate use. They little realize that the training and mental power obtained by these various studies are the real acquisition that they get in college, and the special knowledge that they get is likely to be something that they will find no direct opportunity to use in the first position they reach.

The custom of young ceramic engineers stopping their college work for a year to take a year's practical experience in some factory, returning to graduate a year later, is becoming more common. The advantages of this course are so strong that every young man who can possibly spare a year's time should prepare himself to do so. In the case of young men who have already considerable factory experience it is not necessary, but most young men who come direct from the high schools to the universities should not go out with an engineering degree unless having had a year's practical work in the business somewhere in the course. The increased power that most young men always show on returning from their factory work is readily apparent.

The teaching corps of the department has undergone some important changes this year. Professor R. C. Purdy has left teaching to take up industrial work. He becomes the director of the Research Department for the Norton Company at Worcester, Mass., manufacturing artificial abrasives and refractories. His position is a fine one, financially and technically. Professor Purdy has endeared himself to a large circle of both faculty and students during his five years' stay at the university, and leaves with the best wishes of all.

Mr. Forrest K. Pence, of Zanesville, Ohio, has been secured to take Professor Purdy's place. Mr. Pence was originally a school teacher who came to the university and took a four years' course, leading to a degree of Bachelor of Science and Chemistry, which degree he received in 1907. He then took two years in the Department of Ceramic Engineering, winning the degree of Ceramic Engineer in 1909. He went at once to the works of the American Encaustic Tile Company in Zanesville, Ohio, where he went into the body and glaze department, rising rapidly to the principal position in the most important department of the tile company's works, and in which he has made a very creditable record.

Mr. Pence makes a very desirable acquisition for the Ceramic Department, for he is not only thereby competent

from the university side, but comes here from a responsible connection with one of the largest ceramic institutions in the United States, and he will doubtless inject much vigor and interest into his work. He will carry the senior courses in the department and have charge of the laboratories, in which body glazes and clay testing are studied.

Assistant Professor Homer F. Staley, who has been with the university now for three years, has been promoted to the rank of professor, and will continue in charge of the chemical side of the work given in the department. Professor Staley's work has recently been chiefly along the line of application of physical chemistry to the silicate industry, a field which he finds of fascinating interest, and in the study of which he is awakening a growing enthusiasm in his students.

The work in the engineering side of the subject, such as the design of clayworking plants and kilns and dryers, will be given again by Mr. Carl B. Harrop, who has had charge

Written for THE CLAY-WORKER.

IMPRESSIONS OF CLAYWORKING METHODS IN EUROPE

BY A. E. EATON.

Part III—Germany and Austria.

Near Munich there are a number of typical plants, those visited making "clinkers," or paving bricks, face brick, vitrified bricks and common bricks, there being in use at the largest plant visited, two Hoffmann kilns burning common brick, and one Mendhiem type compartment producer-gas kiln of the type seen all over Europe. Both types of kilns were giving very good results, the manager stating that they obtained from 97 to 100 per cent vitrified number one goods in the compartment kiln. The fuel consumption was given as approximately six per cent of the weight of the goods, the ware finishing at cone 2-3, rather lower than is usual in our



The Ludwigsburg Brick and Tile Plant.



One of the Largest Plants in Europe, at Goding, Austria.

of the work for two years, and who is making it very successful. Mr. Harrop's long engineering experience in the clayworking field makes him particularly competent to handle this branch of the subject.

A new departure is also to be made in the employment of a practical clayworker to act as technician and general laboratory assistant. No appointment has yet been made for this position, but it is the desire to secure a man to whom all of the manual operations of clayworking, especially pottery manufacture and the making of molds, are known. The presence of such a man in the department should strengthen the work of the student indirectly by example, and possibly directly by instruction later on.

Altogether the prospects for a successful year's work seem better than ever before, and the increasing demand for young men having training along these lines should guarantee a still larger attendance.

EDWARD ORTON, JR.,
Director.



A Buhrer Dryer Filled with Hollow Ware.

best compartment kilns, even with the smaller and lower compartments that are always found in German plants. The figures given at this plant agree as to fuel consumption with others of widely separated plants, finishing at nearly the same temperature, the kilns being of practically the same size.

The first plant visited using the Buhrer system of drying and burning was that at Ludwigsburg, where about 18,000,000 tiles and bricks are made yearly. As will be seen in the illustration, the buildings at this plant are of a most substantial character, being of brick and tile, with the kilns and machinery under the same roof. The clay at this plant contains considerable lime, causing it to receive a different treatment than is usual, it being dug and left near the works for some time, being watered to aid in the weathering. After weathering it is passed through a clay cleaner and the larger lime nuggets removed before going to the tile presses.

The tiles are taken to the dryers, of which there are 22 chambers on the ground floor and 32 on the second floor, partly on pallet cars and partly by automatic transporters, being taken from the dryers to the kiln by cars. Bricks are set with the tiles to form firing shafts, and in the bottoms of the kilns, both the bricks and the tiles being very well burned. The draft in the kilns at this plant is much higher than is usual in kilns of the tunnel type in this country, running as high as $1\frac{1}{2}$ inches at the firing holes of the chambers on fire, the fire advance being very fast, running as high as 110 feet per day of twenty-four hours. The Buhrer kiln is of 16 chambers, having a fire canal of only 7 x 7 feet, approximately, with a length of 450 feet, but with the very rapid fire advance the output is considerably larger than with the older type of kiln, with its bigger chambers, and the burns are more even. The methods in use in the firing are of interest, being typical of that in plants of this type.

The kilns are not only equipped with recording draft and heat gauges, but an automatic clock is installed that rings a large gong at regular intervals, at this plant being but fifteen minutes apart. A recording draft gauge is also used, being kept on the firing shafts of the chamber in advance of the chambers on fire, as a recorder of the time of firing, since every opening of the firing holes will cause a drop of

here that is a considerable labor saver over their usual methods. As is well known, most or nearly all tiles in Europe are not vitrified, so that some of them are given perforations running through the length of the tile from the upper end, but the bottom or lower ends are plugged and the openings placed so as to drain the longitudinal openings to the under side of the tiles.

A machine is in use here that takes the tiles from the auger machine, cuts them, plugs the lower end perforations, puts the nib on the tile and trims it up ready for the dryer. The usual force in a plant in Germany of this character is two men and three women, for nibbing, trimming, plugging and perforating, giving a saving of three people for each machine and a larger output.

Another interesting machine is that known as the "Ideal Rolls," the rolls of which are used to grind extra fine, being set from one-twenty-fifth of an inch to less, the rolls having a movement endwise as well as different speeds. These machines, along with a stone and lime removing machine in use in several works, are giving every satisfaction with clays that formerly had to be washed, owing to the large amount of lime in them. A number have been in use for some time and are capable of handling large capacities. The clay here allows of very fast burning, and it is wonderful to see the rate of fire advance, running in the largest Buhrer kiln from



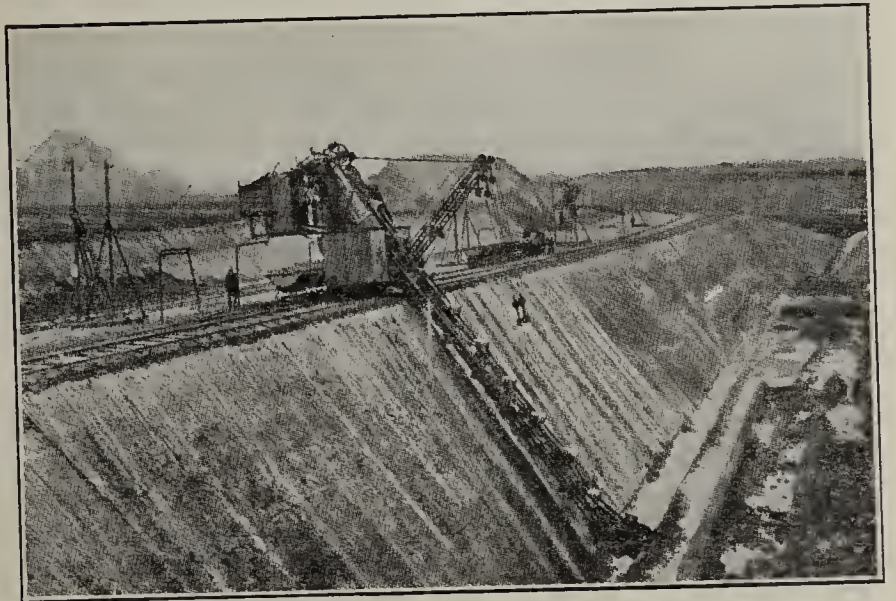
The 176-Chamber Dryer, Goding, Austria.

the draft gauge, showing plainly when each firing is done. A low grade of slack fuel is used of very small size, being nearly dust.

Another very interesting and modern plant is that of the Messrs. Vetter Gebruders at Mulacker, having an output of from forty to forty-five million pieces per year, being mostly of roofing tiles. This plant has been described before in THE CLAY-WORKER, and only points omitted in the first description will be given.

The German excavators are interesting, and get a very good mixture of the clay, there being one that gathers clay for bricks on the upper level and another that takes up the clay for tiles from a lower level, as shown in the illustration. Here, as in most of the tile plants, the clay is stored and watered for some time, the clay being taken to the storage dump by two electric locomotives. Outside of the usual machines, there are some special machines in use that are very interesting, among others being the perforated rolls used for preparing the clay for tiles. These machines take the clay from a pug mill and are set so that the clay is forced through the numerous small openings into the inside of the rolls, where it is scraped off by scrapers onto a conveyor to the auger machine, where it is formed into "clots."

A type of tile machine for making straight tiles is in use



Clay Gathering at Goding, Austria, Plant.

130 to 150 feet per day. The kiln equipment consists of two large Buhrer kilns and of one Hoffmann type kiln.

The engine room is interesting, there being in use an 800 horsepower engine for the day load, compounded, with an air condenser that furnishes heat for the very large building in winter and helps in the drying in warmer weather.

All the more important machines are electric driven, the large engine being direct connected to a large alternator. Two new Babcock & Wilcox boilers of 500 horsepower, with stokers and Greene economizers were being installed when the writer visited the plant. An interesting belt was in use at this plant, consisting of a flat steel band belt four inches wide and one-sixteenth of an inch thick, transmitting 60 horsepower to a generator, the pulleys being faced with cork. The manager stated that the belt had been in use nearly a year without trouble.

Most of the drying is done in racks and in chamber dryers on the first and second floors, there being a tunnel dryer using waste heat on the first floor for drying bricks, containing some novel features. The tunnels (of which there are five) are 180 feet in length, considerably longer than is usual in this country, but the results are very good, the five tunnels turning out about 60,000 of the large size brick per day, all bone dry. Owing to the great length of the tunnels a motor is installed at the receiving end of the dryer, connected to an arrangement so that the cars are positively

pushed along, when desired. This dryer, in common with nearly all visited, is placed between the source of the heat and the fan, the heat and air being drawn through instead of forced into the dryers. The cars used are six deck, with perforated steel decks.

At this plant one is surprised to see a considerable number of women employed, not only at the lighter work, such as dressing or finishing tiles, but also at some of the heavier work.

The illustrations of the plant at Goding, in Austria, are of one of the largest, if not the largest, plants in Europe, being also one of the best equipped. All machinery is electric driven and labor saving devices installed so far as possible. The buildings are of very substantial construction, as shown. The output of the plant is about 60,000,000 pieces per year.

A view is shown of the 176-chamber Buhner dryer, waste heat being used. The method of handling the tiles and hollow ware at this plant from the machines to the dryer and from the dryer to the kilns is very interesting. It will be noticed in the illustration that there is a small car with several arms on the transfer car sitting in front of the dryer. The pallets are placed on these arms, with the ware on them; when the small car is loaded it is transferred onto the dryer tracks shown and into the chamber (see the view of the open chamber shown). The arms can be raised or lowered and there are spaces to allow the pallets to pass between ledges shown. On reaching the desired part of the chamber the arms are lowered, leaving the pallets with the ware in place, without any handling. The same method is followed in removing the dry ware to the kiln, saving the damage from handling, and the labor.

In the chamber dryers of this type the method of obtaining a good circulation and even distribution of the air can be seen in the view of the open chamber, the walls being perforated or built of hollow blocks, as shown.

(To be continued.)

SPEND MILLION ON DRAINAGE.

Since the year 1906 Webster County, Iowa, has expended over a million dollars for drainage. This does not include the broadcast laying of tile by farmers individually. It represents only what was expended for drainage ditches built under county supervision. According to recent statistics compiled by the Auditor, \$1,018,588.05 has been spent in drainage. Thousands of acres have been reclaimed to the county by this work and property values have gone sky high. The year 1911 was the biggest of seven, \$328,306.44 being the expenditure.

DRAINING OVERFLOW LANDS.

One of the largest drainage projects in the State of Louisiana is Cameron Parish, between the Mermestian and Calcasieu rivers. This district embraces about 280,000 acres, and is to be financed by floating bonds to the amount of \$300,000 dollars. The plans include a system of drains cut through interlying ridges so as to aid the escape to the gulf of back-water from the two rivers.

In some places river bottom lands that are now practically useless and can not for some time be protected by levees might be utilized for late or short period crops if they could be quickly relieved of surplus water after floods subside. A complete system of surface and under drainage would render such lands productive and profitable almost every year, although they would always be subject to occasional overflow.

The Gulf States Farmer for May gives facts and figures of interesting data that show concisely the magnitude and importance of reclamation of wet lands in Louisiana. Thirty-eight individuals and land companies, controlling 2,106,000 acres, have under reclamation over 125,000 acres, and have already reclaimed about 30,000 acres.



Mississippi River Bottom Drainage.

THE Mississippi River Power Company is promoting the Green Bay drainage district on the Iowa side. Des Moines county has appointed S. J. Hilleary as a commissioner to represent that county in connection with H. A. Skyles, of Lee county.

These two commissioners will employ an engineer to make a survey and estimate the cost of the drainage works in Green Bay.

This action by the Des Moines county board will start again the agitation prevalent in Green Bay over the land situation. The big dam at Keokuk will inundate permanently 8,000 acres of land; there are 12,000 acres more which are now flooded at high water in the Mississippi.

The water power company proposed that instead of destroying the 8,000 acres of land, a drainage district be formed and works built which will make the whole 20,000 acres valuable and permanently available for farming. Although it has at most only a two-fifths interest in the territory, it has offered to pay half the cost of the work.

But opposition developed and the Des Moines county board of supervisors delayed proceedings until now, when it receded from its position and started forward again the attainment of a drainage district and the conservation of that thirty square miles of land.

LARGE DRAINS, TILE AND OPEN.

Mr. I. W. Hoffmann, drainage engineer, who has held the office of county surveyor of Carroll county, Iowa, consecutively for the last twenty years, has some large drainage enterprises under his supervision. In his part of the country people believe in using tile wherever possible and open ditches are utilized only where tile large enough can not be obtained.

Drainage District No. 31.

In drainage district No. 31 tile will be laid ranging in size from 26-inch down. The estimates specify the following:

2,650 feet of 26-inch tile.
6,650 feet of 22-inch tile.
4,900 feet of 20-inch tile.
1,300 feet of 18-inch tile.
950 feet of 15-inch tile.
3,000 feet of 12-inch tile.
1,400 feet of 10-inch tile.
5,220 feet of 8-inch tile.
400 feet of 7-inch tile.
1,780 feet of 6-inch tile.
900 feet of 5-inch tile.

This drain has five branches and the system comprises about two and one-half sections of land. Twenty-three farms are included in the district to be benefited and these will be assessed to pay the expense.

The contract has been let, the bid that took the contract being for \$18,400

Drain No. 23.

This drain, also under Mr. Hoffmann's design and supervision, consists of both tile drains and open ditches. The main drain is about 25 miles long, entirely open work. Seven branches of open work are to discharge into this

main. The open ditches have an average depth of 16 feet and their bottoms range through widths of 4, 6, 10, 20, 30 and 35 feet. The estimated excavation of the open drains reaches a total of 2,062,711 cubic yards.

The estimated cost of the whole district is \$213,000, of which from \$140,000 to \$150,000 is for open work.

The following is the bill of tile required:

13,500 feet of 24-inch tile.
1,500 feet of 22-inch tile.
5,000 feet of 20-inch tile.
2,600 feet of 18-inch tile.
3,600 feet of 16-inch tile.
3,700 feet of 14-inch tile.
4,700 feet of 12-inch tile.
5,200 feet of 10-inch tile.
4,000 feet of 8-inch tile.

This drain is not yet let and offers an excellent opportunity for any enterprising young man who may be looking for a job of work.



These folks must go because their homes were spoiled by Stookey's tile, made at Cedar Rapids Tile Works.

All who have tried it firmly say
That draining land is sure to pay;
And farmers' barns are filled with corn,
While frogs must emigrate or mourn.

The above is a neat advertising card used effectively by D. W. Stookey in his publicity work.

A correspondent to the Macoupin County (Ill.) Enquirer, which is published in the heart of a great drainage field, becomes eloquent:

"Tile on, oh, farmers of this State,
Oh, farmers, wise and great.
Humanity with all its fears,
With all its hopes of future's years,
Is hanging breathless
While you wait."

SIDE LINES.

It seems that this is to be a dry season. While tile have come to be considered as a staple article, like all other staples it is still affected by conditions, and tile sales will be slower this year if the season continues dry.

Factories that can not make enough tile to supply the demand in wet seasons will have time to make a few brick and hollow block. While tilemakers may not be prepared to make building brick in large quantities for building contractors, many will find it profitable to sell brick in small lots to farmers and others who will be willing to pay a fair profit for small amounts.

Cement blocks are being much used for foundations for small buildings, for cellar walls and for small buildings, and well-burned hollow clay blocks would serve the purpose better and could be made and sold by tilemakers at a fair profit in dry seasons. Make these things and let it be known that they can be had and their use will soon become general, in a small way at least.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

IN THE LAST few weeks vitrified clay paving brick have been more in the limelight in public press than at any time heretofore. It is very gratifying to note that the general public is getting educated to the use of vitrified brick for paving purposes, not only in the city districts, but also in the country towns. Edward Hamilton, a trained newspaper writer from San Francisco, visited Seattle recently, and in making a comparison between that city and his home town, he says: "In stepping from the train at the new Harriman depot in Seattle, I saw a pavement spread out before me which was clean as a whistle, even, lasting, effective and paved with vitrified brick, in sharp contrast to the mixture of dirt and irregularity that greets the visitor who steps out of the Ferry depot and enters upon San Francisco." The natural inquiry of Mr. Hamilton was, "Why can't we have such pavement at the entrance to San Francisco instead of the rough streets, which make the streets unsightly and inefficient?" Seattle has 165 miles of paved street, in which these smooth vitrified brick have been used. As to the durability of this brick pavement, he was told that the oldest pavement of this sort has been down eighteen years in a section where it has withstood the heaviest teaming and general traffic. It is now getting worn and rough and is to be replaced or rather repaired by turning the bricks over and exposing their under surface, when it is expected to last at least another decade.

Another item of public interest regarding paving brick was the awarding of the contract for the paving of Whatcom avenue for a distance of fifteen blocks with paving brick. The awarding of the contract brings to an end one of the warmest controversies over paving materials contested here in Seattle in years, and is significant in its outcome in that the cause of the home-produced vitrified brick won out by an overwhelming show of evidence of its superiority. The bid price for brick was \$239,000, which was \$12,000 higher than bitulithic. The Board of Public Works held the bids open for one week, and went at that time on record as favorable to any paving material which a majority of the property owners desired.

The success of the automobile races in Tacoma in the early part of July has brought that city in prominence regarding the building of a permanent speedway built of vitrified brick. Experience has shown that a brick track is the best for automobile racing, and such a track would go a long ways to advertise the Pacific coast. Subscriptions are now being taken for the building of this permanent track.

Reports are current that a corporation composed of French capitalists has been formed for the purpose of building a large factory for the manufacturing of brick, sewer pipe and pottery near Seattle. Z. B. Rawson, representing the new incorporation, states further that the company already has secured a large tract of clay land near Gull Harbor, and that the first unit of the factory will be built shortly, which will cost about \$50,000. It is also contemplated of making porcelain pottery ware, and the company is now looking for suitable clay deposits in the State.

Tacoma parties have been interested again in the clay deposits at Redondo. H. M. Monsey is the moving spirit in this undertaking, and states that if the prospecting of the clay turns out alright, they will erect a large plant for the making of vitrified paving brick and sewer pipe. This party is also contemplating, should the plans carry, to install a Haight continuous kiln.

SIWASH.

Some of the busy state legislatures are taking active steps to lower the cost of insurance by some kind of legislative regulation. The one best and most practical and dependable way to lower the cost of insurance is to use clay products for building and follow out the idea of fireproof construction.

MOTORING THROUGH INDIANA.

Short Visits to a Few of the Hoosier Clay Plants Manufacturing High Grade Ware.

INDIANA ALWAYS seemed like a good State to us, and we have heard many reports concerning their good roads, so on Tuesday last I slipped over to Richmond, where I met the versatile and smiling Roy Harding McElroy, Jr., formerly of Brookville, Ohio, which seaport is located in the rural district near Dayton.

Tuesday morning, bright and early, we (Mac and I)

to Cadiz, Markleville and Emporia. After luncheon, a pleasant trip through the works of the Anderson company gave us much insight into the perfect workings and manufacture of the now well-known Berg press, as well as an hour on "Billy's hobby," the oil engine, and I might say without fear of serious contradiction, that it is a good proposition.

It did not require much coaxing for Durbin to accompany us as pilot to Indianapolis, where we arrived about 7:30 Wednesday evening, having gone a round-about way over the same grand roads, which for their smoothness might have been brick paved. Here again Mr. Durbin's cordial hospitality asserted itself, and we were entertained to one of those magnificent meals for which the Columbia Club is famous.

On Thursday, after grooming the "explosion buggy" and

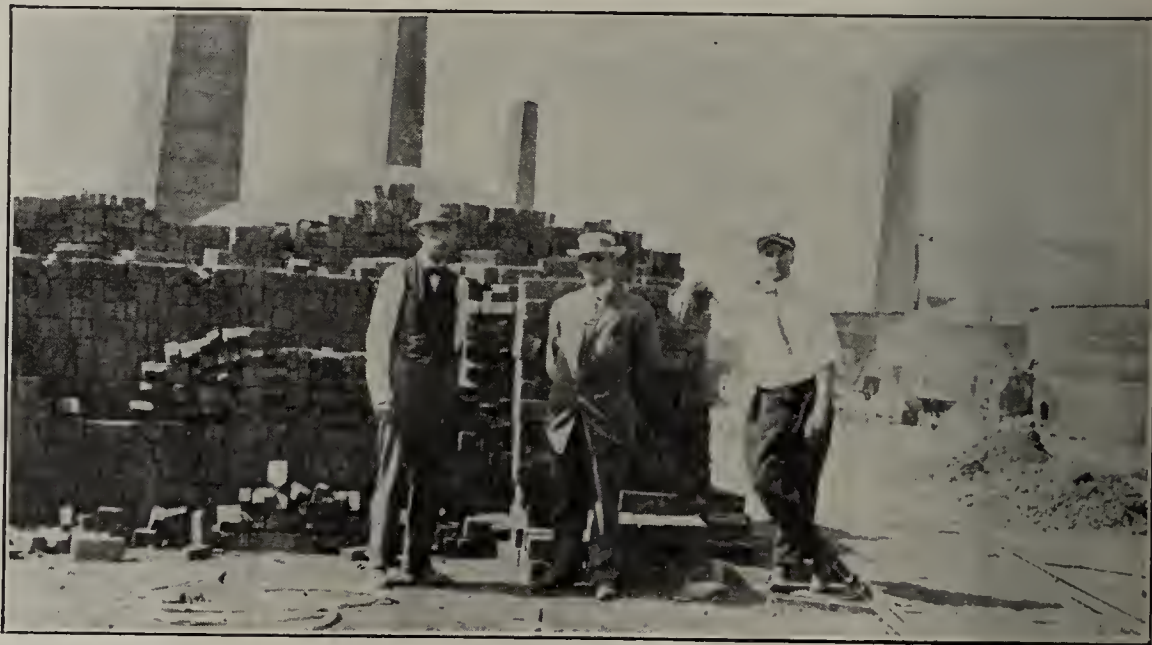
Snapshots Taken While Motoring Through Indiana.



Continuous Kiln and Loading Truck,
Indiana Drain Tile Co.



Producer Gas-Fired Continuous Kiln, Indiana Drain Tile Co., Brooklyn, Ind.



Mr. I. G. Poston, Mr. Raymond, Mr. Poston, Jr., and a Pile of "Rustique Orientals."

started for Anderson over some of the most beautiful, level roads that one could fairly imagine. Slipping along at a moderate rate of about twenty-five miles an hour, we soon found weeds growing in the middle of the road, and our pathway narrowed down to barely room enough for the wheels. After cross-questioning a native, it dawned on our minds that we were lost; but after his lucid explanation of only a mile east, a mile north and a mile south and then a mile west, we finally found the main road, and pulled into Anderson just about in time for a delightful dinner with our friend, Mr. Durbin, of the Anderson Foundry and Machine Works. This route took us through the hamlets of Greensport, Hagerstown, through the city of New Castle, and thence

asking several people for directions, none of whom told us the same thing, we started blindly toward the southwest, landed at Mooresville about 10 o'clock, and found Mr. Bradley right on the job installing a Raymond National Hollowware Machine and other equipment with one hand and taking in the money for bricks in the other. At this juncture we unhorsed our camera and commenced to shoot right and left regardless of consequences, resulting in at least one fair negative of a good kiln of brick, a good brickmaker and Mac. We slipped quietly out of Mooresville and very shortly landed at Brooklyn, where we found the continuous kiln of the Indiana Drain Tile Company in full blast, turning out beautiful ware. Here again we commenced our nefarious shooting

and caught Mr. Miller and Mac sitting on the porch of the office, probably discussing presidential probabilities.

The Brooklyn Brick Company was our next objective, which we found but a short distance away, around fourteen curves, through cinders, over the brick pile, along the edge of the pond, and then into the plant. We finally spotted Mr. Banker busy with a gang cleaning a kiln ready for setting. We struck this plant at noon, therefore did not get to see the 777 and cutter in operation, but as the reports were good and Mr. Banker hungry, we moved on to Martinsville, which was readily found by the sulphurous odor of the Martinsville springs.

After lunch at the Colonial, we motored out to the plant of our friend, Mr. I. G. Poston, and found one of the nicest,

a magnificent stone bridge over Fall Creek, passing one of the prettiest little brick bungalows that we saw during the entire trip. Our route here took us past the world-famed speedway of Indianapolis, where we stopped for a moment to see it, thence on through Pittsboro, Lizton, Jamestown and New Ross to Crawfordsville. At Lizton we were compelled to detour a matter of three or four miles on account of a bridge being washed out—at least that is what they told us—but no signs of rain for the past two weeks were in evidence.

Be that as it may, however, we pulled into Crawfordsville at noon sans accident, and after partaking of solid refreshment, located the plant of the Poston Paving Brick Company, where we were most cordially met by Mr. Waugh. This plant

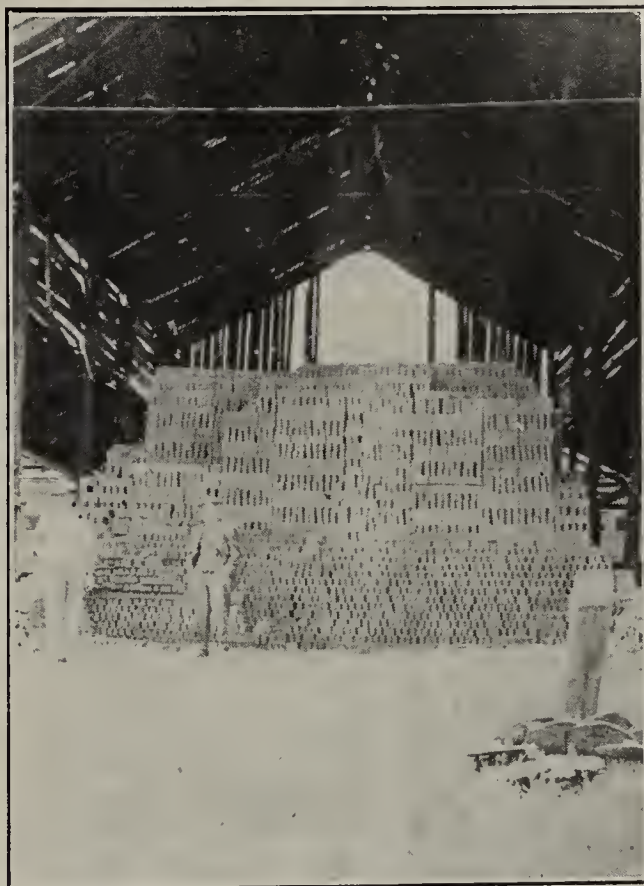


Machinery Building of the Brooklyn Brick Co.



Martinsville Brick Company's Plant, Martinsville, Ind.

Glimpses of a Few Of Indiana's Prosperous Clay Plants.



Mr. Bradley, Mr. McElroy and a Kiln
of Good Ones.

cleanest plants we have ever visited. Mr. Poston, however, happened to be down at the gravel pit, and after a little time appeared on the scene, and here were met with a very cordial welcome and saw the manufacture of the "Rustique Oriental," which is so popular throughout the country and which is keeping his yard in full operation to even come near filling his orders. After an hour's visit, we started on our return trip, which was uneventful except for the two tired travelers waiting for an opportunity to fall into the "hay" and forget their troubles.

Friday morning dawned with a good prospect for rain, but nevertheless we started out Indiana avenue, to the Crawfordsville road, on some of the most beautiful roadway, across

is one of the old established Raymond plants in that section of the country, and we attempted, but failed, to get a good photograph of a nine-foot dry pan which has been in operation for twelve years, turning out 35,000 tons per year. Surely a good record. The plant was running along nicely, making pavers and "orientals" and well filled with orders. Mr. Waugh had just completed a display of orientals in the building of a mantel and fireplace in his office. Here our camera favored us and we got a fairly good representation of it.

Leaving here, we wended our way to the plants of the Standard Brick Company and the Crawfordsville Shale Brick Company, which are both turning out a very beautiful product of common brick, the Standard Company having re-

cently set aside three dry presses and gone into stiff mud manufacture.

The return trip from Crawfordsville was also without incident excepting a sleepy yokel allowing his horse to do its own driving was a little tough to negotiate and our passing woke up the horse and the man at about the same moment, and it was pretty hard to tell which was the most surprised. However, nothing serious occurred, and the rest of the trip was pleasant.

Saturday morning we left Indianapolis for home, coming back through Greenfield, Knightstown and Richmond, closely following the magnificent new work of the Pennsylvania railroad, reaching home in the middle of the afternoon, having traveled 556 miles with no punctures and no accidents, meeting many of our friends in the business, and on the whole the cordiality we received at all brick plants made the trip well worth the time it took, in the pleasant greetings of the Indiana brickmaking fraternity.—Charles W. Raymond, Jr., in "The Claycrafter" for July.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



MANUFACTURERS of clay products have reason to feel better satisfied with building conditions on the coast at present than at any time since the season opened. Prices have been held firm, though in regard to most clay products these prices are not what they should be. Figuring on large contracts is close, and all concerns are thus stimulated to make up in volume of business what is taken from their legitimate profits. The work of the Brick Builders' Bureau, the new publicity organization, under the management of Nat Ellery, is having a salubrious effect on trade, though as yet this bureau has not attained the scope destined for it. The attention of property owners and prospective builders is being directed to the merits of clay products in a scientific manner. The work being accomplished is educational principally at present, but later no doubt it will have the effect of causing the various interests concerned in promoting clay products to work together in greater harmony than heretofore. The excellent results accomplished by Frederick C. Davis, manager of the Pacific Clay Products Publicity Bureau, in the interests of vitrified sewer pipe especially, since this bureau was organized less than two years ago, illustrates the possibilities of the new bureau in connection with its special lines.

The sewer pipe industry is thriving this summer despite the inadequate prices, and there is scarcely a plant that has the facilities for manufacturing high grade vitrified pipe that is not running full force. The unusual amount of sanitary improvement work in the smaller cities of the coast is largely responsible for the big demand. Even in southern California, where the concrete pipe has been much exploited, the demand for vitrified pipe is very heavy and steadily increasing, as its superior merits are demonstrated. In not a few instances concrete pipe has proven so unsatisfactory that vitrified pipe has had to be used to replace it.

The brick market is now in the best condition it has attained during the year. The demand for both common and face brick is heavy, and the manufacturers are all working at capacity. The demand does not come up to the supply, however, as the resources for brickmaking here are enormous. Common brick is holding very firm at the usual price of \$7.50 per thousand, and there is some little talk of raising the price this fall. Terra cotta is moving rather actively and the market for this class of clay products shows very hopeful tendencies. Fire brick has a steady and sure demand as usual, but the supply of this product is not sufficient in this vicinity, and considerable stock is shipped up from the south.

The Steiger Terra Cotta and Pottery Works are heavy manufacturers of sewer pipe, and their sewer pipe plant is

very busy this summer. This company has supplied much of the pipe being used in the extended sewer system in Oakland, and they are also supplying the pipe for new sewer systems in different communities in northern California. While no new large jobs in terra cotta are announced, the concern is having a steady demand for its products for many small buildings. One of their largest contracts recently is for \$10,000 worth of standard terra cotta for the Crocker Estate building, on Market street. There is much figuring being done on terra cotta this month.

Gladding, McBean & Co. are operating their works full force and are busy making deliveries on their numerous contracts. This company is figuring on much important new work, and it is likely that several big contracts will be landed shortly. As is the case with N. Clark & Sons and the Steiger company, this firm is especially busy turning out sewer pipe.

The Carquinez Brick and Tile Company is supplying 500,000 brick for the Crocker Estate building and large amounts for other important structures. Mr. Edwards, the manager, reports that the company has sold about 5,000,000 common brick during the season, and that the outlook is for an active market for some months to come. The company is now making preparations to manufacture face brick extensively. A kiln of 200,000 of these brick has just been burned, and the product is of a very high class. Additional machinery has been installed at the plant and the force of workmen increased somewhat.

The affairs of the Carnegie Brick and Pottery Company are still in an unsettled condition, and the large stock of brick which was on hand at the outset of the season is being rapidly exhausted. They are now completely sold out of face brick, square fire brick and sewer brick, besides sewer pipe. They still have on hand a considerable quantity of brick of the cheaper grades. The Pacific Gas and Electric Company, who are heavy users of the Carnegie fire brick, are now getting their supplies of this material from Los Angeles.

The remodeling of the Oakland Paving Brick Company's plant near Newark, Cal., is progressing fast, and preparations for operating on a large scale are being made. A big new kiln and a new dryer are being constructed and two new steam shovels have been ordered. During the alterations manufacturing has been going on in a limited way, and the first kiln of paving brick to be made under the new management is being burned. W. J. Sullivan is in charge of the works for the American Clay Machinery Company, which took the plant in hand a few months ago.

W. R. Murray, a terra cotta manufacturer of Toronto, Canada, was a visitor in San Francisco the latter part of July.

At the regular meeting of the Masons' and Builders' Association, a few weeks ago, the following were elected to office for the ensuing term: President, Thomas W. Butcher; first vice-president, James S. Fennell; second vice-president, M. J. Mealey; secretary, W. S. Scott; treasurer, Walter Reed; board of directors, T. J. Campbell, W. J. McWhirter, W. A. Rainey, Frank McSherry and J. W. Carr.

The Coalinga, Cal., Brick and Tile Company has received an order for a million brick from T. B. Craycroft, a material dealer of Fresno, Cal.

The buildings of the Apperson brick yard, near Willows, Cal., were destroyed by fire on July 22 and a loss of about \$5,000 was sustained. A tramp was arrested on the charge of incendiarism. The plant has not been in operation for several months.

The Washougal Brick, Tile and Sewer Pipe Manufacturing Company is the name of a new clay products plant to be established at Washougal, Wash. The president of the company, Dr. R. L. Smith, has been in Portland, Ore., purchasing machinery and other equipment.

A report from Portland announces that a company known as the Palmer Brick and Stone Manufacturing Company has been organized with a capital of \$50,000, and that a plant with a capacity of 60,000 brick will shortly be erected. The Palmer Brick Machine Company, of Minneapolis, is said to be interested in the enterprise.

San Francisco, Cal., Aug. 5.

SUNSET.



The Danger of Claybanks.—In Germany the government pays much attention to the method employed in claybanks and coal mines. When some workman is killed, it is determined through what carelessness this has been caused, and as a rule the guilty party will be put in jail for a certain period.—*Deut. Topf. & Z. Z. No. 52, 1912.*

A Government Free Trip.—The Danish government has this year also selected two parties for the trip to foreign countries in the interest of the ceramic industry. In 1911 there were 359 applications, while this year there were 205. R. A. Stage, of Taastrup, obtained the prize of 200 kronen, while the ceramist, S. Kongstrand, of Esbjerg, got the 250 kronen prize.—*Lehrindustrien No. 13, 1912.*

German Continuous Chamber Kiln.—In the fire brick plant at Rollhofen in Nuernberg there are two different continuous

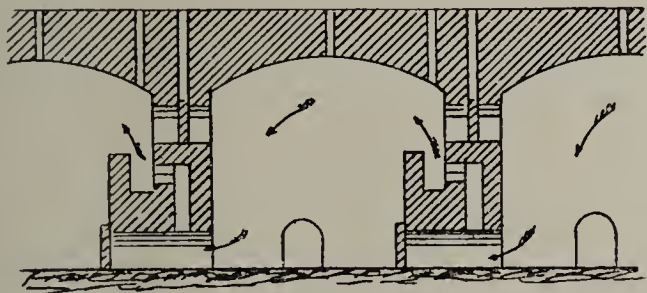


Figure 1.



Figure 2.

kilns in use. They are both patented by the owner, Lorenz Wolf, and have given excellent results. In both kilns fire brick and fire clay products are burnt to cone 11. The principle is down draft, but in order to have an even distribution of the heat the flues A can be opened with a fire clay slab damper. The two cuts shown herewith will give a good idea of the arrangement of the kilns.—*Tonind. Z. No. 71, 1912.*

The Peeling Off of Terra Cotta Slips.—When terra cotta slips peel off after being burnt, or already in the dry state, the cause can be found in that the slip contains too large a percentage of non-plastic material. The addition of some plastic clay will greatly assist in overcoming this trouble. The slips should also be of a certain age in order to give good results, as freshly prepared slips give more trouble than old slips.—*Sprechsaal No. 20, 1912.*

Brown Slips and Glazes for Sewer Pipe.—It is customary in Germany to apply a coat of slip to sewer pipe after they come from the press which will give a rich brown color after being salt glazed, or a brown glaze itself. This is done with those sewer pipe clays which will give a bad color for burnt sewer pipe. The brown slip is prepared with finely ground manganese, and about 8 per cent. will be sufficient to give a good color. A good brown glaze is made of white

lead 210 parts, flint 45 parts, clay 21 parts, and manganese 13.5 parts. When brown slips are applied, the salting is done before the pipe vitrifies, and at a temperature of cone 3, while the kiln is finished between cones 8 and 9, so that there is plenty of time to bring out the full benefit of the salt glazing on the sewer pipe.—*Sprechsaal No. 21, 1912.*

In Memoriam Dr. Max Fiebelkorn.—Dr. Max Fiebelkorn, who has acted as secretary of the German Association of Clay Manufacturers for the last sixteen years, died on June 6 last in Berlin. Dr. Fiebelkorn was also active in the management of the *Tonindustrie Zeitung*. He has been the author of many technical papers touching the ceramic industry, and has been regarded as one of the best posted technical men in Germany.

Specific Gravity of Burnt Clays.—In making some experiments for the melting points of silicates, K. Endell and R. Rieke have observed that specific gravity of silicates will diminish as the heat increased. They found that the specific gravity of a lithinum-alumo-silicate, which was 3.14 at 900 degrees Centigrade, dropped to 2.37 at 1000 degrees Centigrade, and remained constant at that point, although the temperature was increased to 1400 degrees Centigrade.—*Keramische Rundschau No. 26, 1912.*

Sewer Pipe Burning in Continuous Kilns.—The best results for the burning of sewer pipe in continuous kilns have been obtained in the ones which are gas fired. Such kilns have also been used for the manufacturing of stoneware. The regulation of the firing has no difficulties, and it can be burned either oxidizing or reducing atmosphere. The salting is done from the top of the kiln, through properly constructed holes, and the sewer pipe have always shown as good glaze in the bottom as on top. It is claimed that such gas fired continuous kilns have produced 96 per cent. first class sewer pipe.—*Tonind. Z. No. 73, 1912.*

Paving Brick in Holland.—In an interesting article Eduard Schneider shows the superiority of paving brick as they are used in Holland. Not only are the city streets paved with paving bricks, but also the country roads, and it is possible to travel from one end of Holland to the other end all over brick paved roads. The paving brick are burnt at a heat of between 1250 and 1350 degrees Centigrade. Of the 1,000,000,000 brick that are made annually in Holland, about 200,000,000 to 300,000,000 are used for street paving purposes. Of the 1900 kilometers of government road, over 1200 kilometers are brick paved.—*Deut. Topf. & Z. Z. No. 45, 1912.*

Volume Changes of Clays in the Burning.—One of the most important points brought out in the ceramic industry is the fact that certain clays will change their volume contents in ratio to the hardness at which they are burnt. It has also been shown that there is distinct limit as to the addition of sand or quartz to clays. It has been found that if too much sand is added to clays they will swell after reaching a certain heat. It is very important for every brick manufacturer to know exactly what the shrinkage of his clay is and how it behaves in the different heats of the firing. In order to determine the shrinkage, the best method is to mark on a piece of clay 100 millimeter distance. When the clay comes from the kilns the distance is measured again, and the difference is the percentage of shrinkage. If the burnt clay measures between the two marks 85 millimeters, then the shrinkage is 15 per cent.—*Tonwaarenfabrikant No. 11, 1912.*

Dutch Roofing Tiles with Inscriptions.—In an article regarding the length at which roofing tiles have been used in Holland, it was pointed out that through inscriptions made on the tile while in the green state it is quite possible to trace their age. On one tile there was an inscription which

dated back to 1765, with the initials of H. K., which has been traced to an old brickmaker who operated a yard at that time in the vicinity in which this tile was found. On another tile was found the date and also the full name of the person scratched in the tile; the year was 1825. On a roof of an old farmhouse in Enschede there were found several tiles which were marked at the year number 1766 and 1768. On another roofing tile was found a part of a text from the Bible, which has also the date of the year 1771 on the same tile.—Tonind. Z. No. 66, 1912.

Written for THE CLAY-WORKER.

CLEVELAND BRICK NEWS.



MINENTLY SATISFACTORY reports come from the brick manufacturers and dealers in the Cleveland territory as to the volume of business done during the month of July and the outlook for the later summer and fall seasons.

Every indication points to the fact that the year 1912 will be a record-breaking one in the building industry in Cleveland. Many new projects are under way and others are being planned, despite the fact that the season will be well advanced before they can be gotten under way.

The conspicuous feature of the brick business during the past month has been the shortage in brick. Building, paving and sewer contractors alike are complaining of a shortage in the supply. In all lines the contractors are from four to six weeks behind with their brick work. The brick manufacturers declare that this condition is due to the fact that last winter's weather was so severe the plants could not be operated. As a result, the reserve supply of brick was small when the spring opened, and when the unusual strong demand came early in the summer the surplus was soon cleaned up, and since that time the manufacturers have been hauling the brick out of the kilns and shipping it at once. Some firms here are being compelled to turn down orders on account of the shortage. Others are busy keeping their customers good natured as they wait for supplies.

The sound of the steel riveter and the bricklayer's trowel are to be heard on many of the down-town streets as new skyscrapers extend their heads upward. The new Leader building, costing nearly \$2,000,000, has its steel all framed. Workmen are beginning to set the mason work. The new Stattler Hotel, a building costing \$2,000,000, constructed of brick, is nearing completion, and will be ready for occupancy about the end of the present year. Work is well under way on the new Commercial building, at the intersection of the Public Square and West Superior avenue. The new \$200,000 building for the Cleveland Press, at Rockwell avenue and East Ninth street, is nearing completion, and will be occupied by the newspaper before the snow falls. An addition to the Hollenden Hotel costing upward of \$150,000 is well under way and will be enclosed before the winter sets in. These and many other large jobs for which brick have been supplied during the past season have made conditions lively in the brick business here.

Plans for the new City Hall, which have been under way for some months, were completed early this month, and bids for the new structure are to be opened on August 15th, according to Architect J. Milton Dyer. The building was originally to have been of granite throughout, but owing to the excessive cost some terra cotta will be used instead of granite and considerable brick will be used for the interior work. The building complete is to cost \$2,600,000.

A five-story brick, steel and reinforced concrete building, 440x185 feet in size, is to be constructed by the Crowell & Sherman Company for the Upson Nut Company in the flats district adjoining the company's old plant. Work has already begun on this structure.

Plans were announced during the past week for a ten-

story terra cotta and brick building at the intersection of East Ninth street and Superior avenue, to be built by Jacob Babin, just as soon as the leases of the present tenants expire several months hence. The property has a frontage of 53 feet on Superior avenue and 120 feet on East Ninth street. The Superior frontage is valued at \$15,000 per front foot, extending 100 feet deep, the highest valuation ever set in this territory in Cleveland.

The Cleveland Order of Moose has commissioned Architect W. S. Lougee to proceed with the erection of a four-story club house on Walnut avenue east of East Ninth street. The building will be 100x125 feet in size, and an auditorium on the upper floor will seat 1,300. The exterior will be of face brick with terra cotta trimmings. Contractors are to submit bids this month.

One of the large factory buildings contracted for during the past month is to be built for the Cleveland Foundry Company, on Platt avenue, S. E. The building is a five-story structure, 169x138 feet in size, of brick and steel throughout. The work is being done under the supervision of the Samuel Austin Company, general contractors.

A. E. Dudley is erecting a sixteen-suite apartment house at East Boulevard and Wade Park avenue. The plans were prepared by D. W. Korning, architect, and the Webster Company is the mason contractor. The building contains sixteen suites, with two baths to the suite, and will cost \$90,000 complete. It is of ornamental face brick throughout.

An unfortunate accident occurred at the brickyard owned by W. H. Harrison, 5132 Broadway avenue, S. E., when a pile of bricks that had been laid out to dry toppled over on John Rich, a workman. Several other men working with Rich barely escaped being buried under the bricks. When the man was uncovered it was found that he was dead.

During the past month twenty face brick manufacturers from different parts of Ohio came to Cleveland and met at the Hollenden Hotel at a meeting of the Ohio Face Brick Association. The president of the State association is F. H. Chapin, manager of the Hydraulic Brick Company, of Cleveland. The visitors were the guests of the Cleveland association, of which W. H. Fay, manager of the Cuyahoga Building Supply Company, is president. A general discussion took place as to the best methods to be followed for improving the conditions under which face brick manufacturers and dealers operate in this State. The visitors were the guests of the Cleveland brick dealers at several social functions.

If a provision to the State Constitution to be voted upon at the special election to be held September 3d is confirmed, the sum of \$50,000,000 will be authorized for good roads throughout Ohio. That the proposition will carry by a big majority seems to be conceded. It is proposed that the bonds shall be issued at the rate of \$5,000,000 per year for a period of ten years. They are to be issued for a term of twenty-five years and bear interest at a rate not to exceed 3½ per cent. A sinking fund is provided which at actuarial rates of increase will retire the bonds at maturity. It proposes to use this money for the construction of permanent highways throughout the State. For the purpose of preliminary studies and in anticipation of the issuing of the bonds, State Highway Commissioner Marker has borrowed a mile and a half of pike from Franklin county, right near Columbus, and will spend about \$9,000 in some unique laboratory experiments in road building. The commissioner is going to lay every conceivable kind of a road and maintain accurate data on how much every foot of it costs, what the expense of maintenance will be, and how much wear and tear there will be on each kind. Then, when the money is available, the State authorities will know exactly the merits of each material, the cost entailed, and considerable data as to laying it. The work is being done by twenty negro convicts from the penitentiary. The commissioner is inducing

fifteen paving brick companies located throughout the State to donate enough of their brick to pave sections of the laboratory road. The brickmakers are confident that if the bonds are voted brick will be the material most largely used in the construction of the new highways.

A rather pathetic incident happened during the past month, when three sons, all of them bricklayers, journeyed to Woodland cemetery in this city and built a brick vault in which to enclose the coffin containing the body of their father, Frank Novetny, 10004 Buckeye road, himself a brick-mason of many years standing, who died, leaving ten children. One of his last wishes was that his grave be made of brick and that it be sealed so that it will keep out the water. The three sons proceeded to build the grave of brick. Brick almost like marble were cemented together for his tomb, and a marble slab was made for the top. Space was left for the body of the widow, who survives.

A. BUCKEYE.

Written for THE CLAY-WORKER.

BRICK NEWS OF MAINE.



GOOD EVIDENCE that this is a brick age may be seen in Bangor, Maine, the city which is literally rising in splendid brick buildings from the ashes of the terrible conflagration which destroyed \$3,500,000 worth of property in about twelve hours on April 30, 1911. While a few structures

of concrete or stone have been erected, about 95 per cent. of the new buildings are wholly brick, or brick with stone trimmings. In the year and a quarter that has elapsed since the fire, twenty-five business blocks, ranging in value from \$10,000 to \$150,000 each, have been constructed, and there is a \$200,000 block under construction—a brick block, of course.

The preference of Bangoreans for brick is well illustrated in the case of the latest structure to be decided upon, that of the six-story building for the Bangor Real Estate Company, at the corner of State and Exchange streets, one of the best business locations in the city. The architect's plans gave a choice of either terra cotta or brick for the five upper story fronts, but after careful deliberation the choice was made in favor of brick. The first story will be of Maine granite and the five upper stories of light-colored brick. Work on construction will commence September 15, and the building will be ready for occupancy in the early summer of 1913.

Work is now in progress on the new city buildings, a \$300,000 high school, of brick and granite, and a \$150,000 public library, to harmonize with the school. When completed, these two will be among the most notable examples of the nobility of brick design in the State of Maine. It is expected that the high school will be ready for occupancy in September, 1913, and the library will be ready at that time or earlier.

Among the buildings of brick under construction are a \$200,000 block on the corner of State and Exchange streets, for the Stetson heirs, to be faced with tapestry brick; a brick block for the Clark heirs on State street, and a building being erected for the Eastern Trust and Banking Company, opposite the old postoffice site. This will be five stories high, and will cost about \$150,000.

One of Bangor's handsomest school buildings is St. John's parochial school, which is built almost entirely of brick, and recently completed at a cost of \$85,000. The design was by Chickering & O'Connell, of Boston, and it is along ecclesiastical lines, resulting in a very attractive school.

Bangor, Maine, will, in 1915, when it is expected that every burned business building will be replaced, be an example of what can be done with brick in artistic city building.

Waterville recently had a \$40,000 conflagration, and one of the owners of the burned buildings has decided to rebuild with brick. Mark Gallert will put up two three-story buildings that will be a credit to the city. Waterville's new brick high

school, built by Horace Purinton & Co., from brick of their own make, will be ready for occupancy in September. This will be one of the prettiest brick schools in Maine.

Cooper & Co., of Belfast, are the latest Maine lumber dealers to show their appreciation of the value of brick in building. They are putting up an office building with a brick front.

Considering its size, Maine is one of the most active brick-making States in the Union. Why haven't the Maine brick-makers made themselves heard on the possibilities of brick for making good roads? The good roads movement is stirring in Maine now. A proposition to issue \$2,000,000 worth of bonds, to be paid for annually by the new automobile tax, will be put before the people in September. Now is the time for brick manufacturers to explain the merits of brick for roads.

The Maine Central railroad is to replace its old brick station at Augusta, which is too small, with a new brick passenger station, to cost about \$50,000. Contracts will be awarded soon, and it is planned to start work September 1. The plans call for an attractive and substantial building of brick with stone trimmings, adequate to the needs of the traffic, and which will be a source of pride to the city.

Striking Albanians in the yard of the Saco Brick Company, recently, caused the plant to shut down. The strikers threatened the life of one man who refused to strike, and another man was clubbed. The shovelers, who had been receiving \$1.50, struck for \$1.70 a day. Two brick workers who assaulted the boss of the yard each paid a fine of \$25 and costs in the police court.

Saco is excited by the mysterious disappearance of Asin Therkoula, an Albanian brickmaker who was employed by the Saco Brick Company for several years. He was a very steady man, never having left the city in the five years that he lived there. He disappeared suddenly, leaving money in the bank and money due him from the company. There were rumors that he had been murdered.

The Maine Society of Architects, the first association of its kind in the Pine Tree State, has been formed, with the following officers: President, Frederick A. Thompson; vice-president, Edward F. Fassett; secretary and treasurer, Leander Higgins; executive committee, John Calvin Stevens and P. J. Mayo. The headquarters of the society is in Portland.

While brickmaking conditions in Maine have not been up to the average, on account of frequent showers and unusually cool weather since the first of July, this is not expected to restrict the output to any extent. Brickmakers are taking advantage of every moment, and will probably manufacture later in the season than usual. The market is excellent all over the State, but particularly in Bangor and Brewer.

BRICKMAKER'S SON.

TIDEWATER PAVING BRICK COMPANY.

Under the above title a company has been organized for the purpose of purchasing, re-equipping and operating the plant at Catskills, N. Y., formerly owned by the Catskill Paving Brick Company. The new company has been incorporated with a capital stock of \$300,000. The following will constitute the directorate for the ensuing year: W. B. Duncan, New York City; A. A. Gery, Reading, Pa.; W. H. Stayton, Wm. Baker, Jersey City, N. J., and Charles M. Crook, of Youngstown, Ohio. The latter will move to Catskill and devote his entire time and attention to the reconstruction and operation of the plant, the chief product of which will be vitrified paving block. The plant is located in a residential portion of the city of Catskill, and an injunction was obtained against it on account of damages claimed owing to the smoke nuisance. This trouble Mr. Crook will overcome by building a tall stack and adopting other means providing for more perfect combustion and a consequent lessening of the smoke nuisance. Mr. Crook's host of friends, particularly the members of the N. B. M. A., will rejoice that he has "come back" and is in fine form. He spent the better part of the past year on his farm in Texas, where he recovered from the physical ailments which threatened his undoing at the time he gave up the management of the Youngstown plants.

GOOD ROADS AND WHAT THEY MEAN.

SPEECH OF HON. WILLIAM SULZER, OF NEW YORK,
IN THE HOUSE OF REPRESENTATIVES, FRIDAY,
JULY 12, 1912.

THE PLAIN PEOPLE of the land are familiar with the truths of history. They know the past. They realize that often the difference between good roads and bad roads is the difference between profit and loss. Good roads have a money value far beyond our ordinary conception. Bad roads constitute our greatest drawback to internal development and material progress. Good roads mean prosperous farmers; bad roads mean abandoned farms, sparsely settled

South and West, is good roads. The establishment of good roads would, in a measure, solve the question of the high price of food and the increasing cost of living. By reducing the cost of transportation it would enable the farmer to market his produce at a lower price and at a larger profit at the same time. It would bring communities closer together and in touch with the centers of population, thereby facilitating the commerce of ideas as well as of material products.

When the agricultural production alone of the United States for the past eleven years totals \$80,000,000,000, a sum that staggers the imagination, and when we consider that it cost more to take this product from the farm to the railway station than from such station to the American and European markets, and when the saving in cost of moving this product of agriculture over good highways instead of bad would



A Stretch of Fine Brick Paved Country Highway in New York State Which Speeding Automobiles Do Not Injure.
The Gentleman in the Background is M. E. Gregory, Corning, N. Y., Ex-President of the N. B. M. A.

country districts, and congested populated cities, where the poor are destined to become poorer.

Good roads mean more cultivated farms and cheaper food products for the toiler in the cities; bad roads mean poor transportation, lack of communication, high prices for the necessities of life, the loss of untold millions of wealth, and idle workmen seeking employment. Good roads will help those who cultivate the soil and feed the multitudes, and whatever aids the producers and the farmers of our country will increase our wealth and our greatness and benefit all the people.

We can not destroy our farms without final decay. They are today the heart of our national life and the chief source of our material greatness. Tear down every edifice in our cities and labor will rebuild them, but abandon the farms and our cities will disappear forever.

One of the crying needs in this country, especially in the

have built a million miles of good roads, the incalculable waste of bad roads in this country is shown to be of such enormous proportions as to demand immediate reformation and the exercise of the wisest and best statesmanship.

But great as is the loss of transportation, mercantile, industrial and farming interests, incomparably greater is the material loss to the women and children and the social life, a matter as important as civilization itself. The truth of the declaration of Charles Sumner, fifty years ago, that "the two greatest forces for the advancement of civilization are the schoolmaster and good roads," is emphasized by the experience of the intervening years and points to the wisdom of a union of the educational, commercial, transportation and industrial interests of our country in aggressive action for good roads.

It looks like a rush of building this fall. Are you prepared for it?

Written for THE CLAY-WORKER.

THE VITRIFIED BRICK COUNTRY ROADWAY.

THE BUILDING of country highways with vitrified brick is becoming so frequent in so many sections of the country that procuring pictures of all of them is now out of the question. The State of New York will build one thousand miles of such roads in 1912 under the county commissioners. As their value and economy become thoroughly understood by the taxpaying public, hundreds and thousands of such roads will be built. They will become the universal road material on roads subject to excessive traffic.

The accompanying view is part of an old road, now paved with brick, which parallels one of the old-

tation, the vitrified brick country highway exceeds it in this respect.

For transporting heavy freight, an automobile truck will carry, over a brick-paved highway, tonnage in unlimited quantities in one-twentieth of the time and at one-tenth the cost. There is no charge for the up-keep, no gates and locks to open and shut, no hindrances whatever to the movements of the load of freight. All kinds of motor-driven vehicles, all kinds of horse vehicles, can pass over this road with the greatest possible expedition, during all kinds of weather, at all seasons of the year, night or day. It is a perfect passway for pedestrians—clean, sanitary and healthy. It does not breed mosquitoes in summer or freeze up in winter. In fact, no earthly objection whatever can be made to it.

The State of New York is building a great canal down the



An Old Time Country Road Modernized by a Vitrified Brick Pavement. Clean, Smooth Highway Open to Any and All Sorts of Traffic the Whole Year Through. The Farmers Along This Road Are Advocates of Brick Pavements.

time canals which was built years ago, at a cost of a great many thousands of dollars, and maintained at an enormous cost since that time. The canal served its purpose in its day, but it no longer has any value except for flume purposes. For traffic purposes it is in "innocuous desuetude." Sometimes a small boat carries a load up or down the canal, but so infrequently that it is regarded as a curiosity, bringing everyone within sight of the canal into a standing spectator as the boat passes by.

The freight transported on this canal does not amount to the tonnage of the products of a single quarter section of land. Transporting fresh vegetables over the canal is out of the question. Their freshness would be gone, by reason of the slow transportation. The canal, in comparison with the brick-paved highway, affords an object lesson in progress that is a revelation. However good a canal may be for transpor-

Mohawk valley, not only at the expense of thousands, but at the expense of millions of dollars. A great brick highway from Buffalo to New York City could be built at a cost of perhaps one-tenth the money that is expended on this canal, yet be worth tenfold more to the State.

Both of the roads shown in the pictures are a part of the twenty-four main arteries which lead from the center of Cleveland, Ohio. These brick roads traverse many miles of farming country and connect Cleveland with near-by cities. This season finishing touches are being put on the brick-paved stretch between Akron and Cleveland.

It is a common sight to see heavily loaded trucks from department stores carrying packages for distribution to the farmers. A farmer who is fortunate enough to live on one of these roads can give an order to a near-by city in the morning and receive his order on the same day.

The brick-paved country highways which have been laid

by the New York State Highway Department in the western part of New York during the last three years have been such an extraordinary success that the highway department this year is putting in one hundred miles of brick pavements.

A single county of Ohio (Cuyahoga) is this year putting in seventy-five miles of brick-paved highways, which will bring the total mileage of county roads improved in that county to five hundred miles. In many other States of the Union brick roadways are being laid at a remarkable rate. Communities which have adopted brick pavements find that they are a splendid investment, for their first cost is practically their last cost.

NEW JERSEY'S ROADS.

NOTWITHSTANDING the fact that New Jersey was the pioneer in the construction of improved highways under county and State aid, she has permitted them to deteriorate since the automobile became so common, and now she is far behind the procession of progressive States in the condition of her roads. Experts are urging the necessity of immediate action to save her highways from destruction. The State contributes the automobile tax, which is several hundred thousand dollars, and a good deal besides, but the stream of machines is so continuous throughout the length and breadth of the State that the roads are going to pieces despite this action. Some more modern course will have to be provided, such as permanent brick paved highways.

Some experts are urging experimenting with brick, pointing out that other States have found it satisfactory, but so far it has been impossible to secure acquiescence in this proposition. Perhaps this will come later. In the meantime she is watching her highways being ground to powder as fine as flour and carried away by the winds. Macadam will not stand the wear, and amasite is too smooth for horses, particularly when wet. There are still a good many horses used. Indeed, the residents of the State are quite apt to point out the fact that they are forced to build expensive roads for the benefit of automobile tourists who at best make but a short stop in the State. And there is some truth in the assertion. The location between New York and Philadelphia makes it a favorite for tourists, while the coast resorts draw thousands during the summer months. It is a problem which New Jersey must solve without being able to fall back upon precedent, since no other State has such a problem confronting its road builders.

RICKETSON MINERAL PAINTS HIGHLY RECOMMENDED

Mortar colors and dry iron ore paints of the Ricketson Mineral Paint Works always prove satisfactory to the purchaser and are so substantial for their purposes that the company is constantly receiving numerous unsolicited letters complimenting them or their products.

We are pleased to print below the following recommendation:

"Ricketson Mineral Paint Works, Milwaukee, Wis.:

"Gentlemen—As to the quality of those colors of yours, which we have been using, we must say they are the strongest, most lasting and the most perfect we have ever used in any our of work.

"We have just completed a retaining wall put up of concrete blocks, in the facing of which we used your brown mortar color, and we have had more compliments over that wall than any piece of work we have ever done, all because of the color.

"We will be very glad to have you refer to us any prospective purchaser.

"Yours very truly,

"WATSON CEMENT AND COAL COMPANY."

Written for THE CLAY-WORKER.

BOOST YOUR PRODUCT.

ARE YOU BOOSTING your product in a practical and effective way? That is a question that is of more vital importance to the clay-workers of the land than the cost keeping, economical production, efficient management, good quality of ware; in truth, it is the all important factor to the individual manufacturer in any line of work to-day.

That you are selling your product at a profit is a natural supposition; that your product is ultimately sold is without question, but are you selling all your plant could possibly make? Are you selling your product in your local market, where freight rates do not cut into your profits? Are you getting all the business near your plant you could get? In other words, have you boosted your product and made it the all important building material in your local territory? It should be, for there is no question about the superiority of your product. You know it, but does the general public know it?

There are clayworkers in the land who have doubled the capacity of their plants and can sell more than they produce because they have built up the local market and have created a demand for their product far beyond their expectation simply by means of local advertisement and publicity work. What is good for their business is good for yours. Get the boosting fever and boost for all you are worth.

On the opposite page we reproduced an advertisement that Mr. George O. Berry, of Columbus, Ga., placed in his local paper with good effect. This is one of a series of ads he uses in boosting his product in his city and nearby towns. He believes thoroughly in boosting, for he knows its true value as a trade getter.

Try boosting in this practical and effective way and at the end of the year you will have the boosting fever so firmly entrenched in your heart and mind that you wouldn't be without it for hundreds of dollars.

SECOND-HAND EQUIPMENT.

Said a machinery man, in speaking of business in a western State, "There are so many second-hand plants offered for sale that it will take the best part of one good season to clear the market for new clayworking machinery." That being so, or if there is more second-hand equipment being offered for sale now than usual, there should naturally be more than the usual amount of interest attached to the subject of this class of machines and equipment.

The buying of second-hand machinery is pretty closely related to bargain buying, and it is really the bargain buying instinct that generally inspires attention to second-hand offerings. Of bargain buying it has been said that the only man qualified to do it is the man who is an expert judge of what he is seeking. The same thing may be said in regard to second-hand equipment—the man that is safe in buying it is the one that knows the business thoroughly. There are bargains to be had now and then in second-hand equipment. Of this there is no question. The question is, how to know when there is a bargain in an offering. The only man that can know is a man who is an expert judge of such equipment. If you are an expert yourself you need but little advice on this subject, but if you are not, about the best thing you can do is to employ an expert to pass judgment on any offering of the kind you contemplate buying.

Some of the machinery and equipment used in clayworking wears rapidly because of the service required of it, and for that reason one should perhaps look more closely at second-hand offerings than in other lines of work. But, after all, this second-hand game is pretty much the same the world over. The age or length of service itself does not stand for much. It is the actual condition of the equipment at the time it is offered that counts. That and its up-to-dateness as compared to new offerings in the same line. Those are the things to use as guides, and they should be used along with the eyes of an expert to make it a safe proposition.

Concrete Failures

Jan. 26, 1909, Elkhart, Ind., new concrete bridge collapsed.

March 10, 1909, Louisville, Ky., the great Coliseum Building of cement blocks totally destroyed by fire, showing inadequacy of cement as a fire resister, loss \$350,000.

Dec. 11, 1909, San Francisco, Calif., reinforced concrete building collapsed, two killed and several injured.

April 1, 1909, Houston, Texas, engineers discovered large cracks in concrete foundation in the new federal building; work stopped for further investigation.

March 9, 1909, New York City, seven-story reinforced concrete building near Lexington Hotel, collapses.

Dec. 16, 1909, Williamsport, Md., four killed and a score injured in the collapse of a concrete bridge.

May 10, 1909, Peoria, Ill., the \$250,000 concrete bridge collapses; in use only three weeks.

June 5, 1909, Fond du Lac, Wis., complete failure of expensive concrete sewers.

July 21, 1909, Chanute, Kans., concrete bridge collapses.

July 10, 1910, Chicago, Ill., the so-called fireproof reinforced concrete buildings at the Union Stock Yards entirely destroyed by fire; result, 11 killed and money loss of over \$2,000,000.

Dec. 20, 1910, Carol, Ohio, section of the new concrete school building collapsed; two workmen seriously hurt.

Sept. 4, 1911, Austin, Pa., the great dam of the Bayless Paper Company, built of reinforced concrete, collapsed; result, 74 lives sacrificed, the town of Austin ruined, with a loss of over \$1,000,000.

March 2, 1911, Rockport, Ind., the new \$100,000 concrete bridge condemned as unsafe, being in use only three months.

March 5, 1911, New York City, four men killed and forty injured in the collapse of a concrete apartment house.

April 6, 1911, Chicago, Ill., building of the University of Chicago constructed of reinforced concrete, collapses; loss, \$225,000.

Oct. 11, 1911, the reinforced concrete viaduct over the C., A. & C. R. railroad, at Akron, Ohio, collapses; loss, \$250,000.

BRICK

IS THE ARISTOCRAT OF BUILDING MATERIAL
USED AND ACKNOWLEDGED FOR CENTURIES

as the safest, the most economical, the most artistic, the most durable, the most sanitary, and the most fire-proof building material known.

Having devoted a lifetime to the study and manufacture of brick exclusively, we have, with the aid of the most modern equipment, produced a product without a peer. Used and endorsed by the most exacting engineers and architects in the country. We have furnished brick for thousands of the most notable structures in Georgia, Alabama, Florida, North Carolina and South Carolina—and not a case on record where a wall or building has COLLAPSED.

When building see that BERRY'S BRICK are specified. They cost no more than the inferior kind.

Orders large and small receive our careful and prompt attention. Address

George O. Berry,

The Pioneer Brick Manufacturer

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GEORGIA



W. G. WORCESTER.

Preparation of Roofing Tile Clays—Winning.

THE TERM WINNING, when used in connection with the clay industry, covers that portion or part of the work required to loosen and load the raw material ready for its transportation to the plant. By some, the term winning is used to cover the transportation as well as the digging, quarrying or mining. In the present case the term will be used to cover both loosening and delivering to the plant.

As mentioned in a previous article, the character of the clays used for roofing tiles ranges from the soft clays easily dug by hand to the hard shales which require the use of blasting powders to dislodge them. With such wide degrees of density or hardness it is only natural that we find various means of winning or gathering them. Frequently local conditions enter largely into the matter of determining the best method to win a certain deposit of material. This phase, of course, cannot be discussed to any degree of profit, hence the subject will be treated by describing the methods employed at the most important plants of the present day.

At the plants where soft clays are used, it is found that during a considerable portion of each year the clays are quite wet and soft, so that about the only available method of obtaining them is by hand digging with spade or shovel. While it might be possible to use a steam shovel on these clays, the tonnage of material required by the average roofing tile plant is too small to warrant the use of such an expensive machine.

While the hand spading is in most cases the least economical of all, it is, in some cases, desirable—for instance, where it is necessary to reject or select certain portions of a given bank there is no other method so well adapted. For roofing tile work a selection of the clays is to be desired in many cases.

In some pits, where the condition of the clay is such as to permit of it, plows and scrapers are at times used to good advantage. Care should be exercised, though, in working a pit by scraper to see that a uniform sample or mixture of the entire bank, vertically, is taken at each load, otherwise much trouble may result later on in the course of manufacture. About the best plan to secure a careful working of a clay pit by scraper method is to open the pit as a huge shallow bowl, the central or deepest part being at the bottom of the clay bed. The clay is first loosened by a plow or harrow, working up and down from the rim to the base of the bowl. The scrapers, either slips or wheelers, take up the freshly loosened clay by being started at the bottom of the pit and loading as they move up to the rim or top. In this manner the load taken represents the entire depth of the pit.

The question of which to use, slips (small scoop scrapers) or the wheel scrapers, is most usually determined by local conditions, but ordinarily for a haul of one hundred or more feet the wheel scraper should be used on account of the economy due to a much larger load taken each trip. There is at present on the market an excellent machine known as a clay gatherer. It is, in action, quite similar to the wheel scraper, though it is a much superior machine for the work. It can

be operated by one man in its loading and unloading, while the scraper requires, in addition to the driver, a helper at each end to assist in the loading and unloading.

In some few cases, where the distance is not great, wheelbarrows can be used; again, wagons and carts are used; but most frequently the small dump cars are used, depending in each case on the distance and local conditions. The wheelbarrow method is by far the most expensive, unless the distance is fifty feet or less. The wagon is second in line of cost, while the small dump car run on rails is the most economical of all under ordinary conditions. By the car method larger loads can be moved with less power and at a faster rate than by either of the other methods.

In one case a belt conveyor, extending from the grinding room to the clay pit, has been used, but from experience it is not to be recommended for the following reasons: as the clay is dug from day to day, the working face gradually recedes from the conveyor, so that it becomes necessary to convey the clay to the conveyor; then, again, the clay is usually wet and sticks to the belt more or less, causing trouble; thirdly, the horse power required for the work done is relatively high.

Taking up the consolidated clays or shales, their loosening is quite different from that of the soft clays, in so far that they must be previously loosened by picks, bars or blasting before it is possible to load them by hand shoveling. The softer shales are usually loosened by picks alone and then shoveled up, while the harder and more consolidated shales are loosened by blasting; it is then necessary to break up the larger pieces by sledging before they can be loaded.

The transportation of shales is seldom, if ever, accomplished by scrapers. The hardness and irregularity of size forbids this system. Without question, under most conditions, the dump-car system is the most preferred and economical for the moving of shales from pit to plant.

There are at least two roofing tile plants which ship their raw material in by railroad—in one case, a distance of a hundred miles or more. This method can hardly be recommended. As a rule it will prove better to locate on the material, and then ship the finished product. Freight is then paid on the actual tonnage of salable ware, while in the case of shipping the shale freight has been paid on the tonnage lost in scrap and otherwise unsalable.

Regardless of what class the raw material may be or its method of excavation and transportation, there should be held in reserve a large stock of it to be drawn upon during the stormy weather. With clays it becomes almost an absolute necessity to store sufficient clay for several months' run, due to the clay bank freezing in winter, and as spring approaches the clay is usually too wet to work.

While it is customary in America to store the clays and shales just as they are taken from the pit or bank, the custom in some of the foreign countries is in some respects better. Their clays are not only dug in advance, but are pugged or tempered before storing. They are then allowed to soak or sweat, in many cases for months before using. While their method requires more elaborate storage conditions and a possible extra handling, there are physical reasons which are highly in its favor.

Grinding and Screening.

Taking up first the soft clays used for roofing tiles, it is found that the clays coming from the pit are rather soft and plastic, so that it is hardly true to say that they are ground, instead they must be shredded and crushed. This is accomplished by means of disintegrators and rolls. The disintegrator consists of two rolls, one large roll moving at about 150 revolutions, and one small roll revolving at a rate of about 500 revolutions per minute. The small roll is usually provided with projecting lugs or bars, which act as knives on the clay, cutting and tearing it thoroughly. As the clay

passes from the disintegrator it drops into a set of rolls of equal size and speed. These rolls are set very close, about one-sixteenth to one-eighth inch, so that all lumps in the clay are completely crushed or squeezed down to a fine state. In the use of rolls it should be stated that the crushing rolls should be kept true and perfect, that is, they should be taken from the machine and then turned up true in a machine shop, otherwise they will become badly grooved and will allow small stones and lumps of clay to pass uncrushed. These uncrushed granular particles will give trouble, such as breaking the dies and causing the tiles to check and crack while drying.

In this country it is hardly ever that more than one set of crushing rolls is used, though in Germany, for instance, clays are frequently passed through two and even more sets of rolls. While this may be necessary on clays containing stones, the average clay can be put into good condition for pugging with one set.

The wet pan has at times been used to prepare clays for roofing tiles, but it has been found that its work, while good, is far too costly and slow, in addition to using a great deal of power. Undoubtedly, on the whole, the best method of grinding soft clays for tiles is to dump the clay, as it comes from the pit, into a clay feeder, which in turn thoroughly blends and works the clay and then automatically feeds it into a disintegrator, where it is more completely torn apart before it enters the crushing rolls for its final crushing.

In the grinding of shales it is necessary to use other machinery than that used for clays; in fact, there is but one type of machine used for the crushing of shales. This one machine is the dry pan. It, above all other types of grinding machinery, seems best adapted on shales. The size of machine used is the standard nine-foot pan, which is capable of grinding 100 or more tons of ordinary shale per day of ten hours.

Screens.

The screen plays an important part in the manufacture of roofing tiles. The ordinary mesh to which shales are screened for the manufacture of tiles is somewhat less than for bricks or other structural clay products. With brick the mesh will run from 8 to 12, while for tiles the same clay would be screened either 16 or 18 mesh, or even 20, frequently finer, though, on the average, 18 mesh is fine enough. It is therefore important that one looks well to the selection of this piece of machinery. There are in use at present various styles of screens, though the majority are of an inclined type, with movable screen plates, which are automatically brought into contact with a revolving brush which tends to keep the openings in the screen plate free and clean. There is to be found, as well, the stationary inclined screen, which requires frequent cleaning by hand. This work is frequently left to the dry pan operator, with a result that one or the other job must suffer. As a consequence, the screen fouls, and the capacity of the pan is thereby reduced. It is therefore better to purchase a screen as near self-cleaning as possible.

The piano-wire screen has been used some in the past, but, on the whole, it has not proven satisfactory, due largely to the wires sagging and allowing coarse and uneven particles to pass through. The piano-wire screen has been greatly improved during the past year or so, and should it again enter the tile field, it may be found more satisfactory.

There are, at present, two or three patterns of centrifugal screens, but little if any use has been made of them in tile plants, because nothing can be said for or against them.

(To be continued.)

One reason why we do not get more of what we want in this world is that half the time most of us don't really know what we do want.

BALTIMORE BRICK AND TERRA COTTA NEWS.



THE BRICK MANUFACTURING plants of Baltimore are kept busy, judging from the number of newly announced dwelling operations, factories and warehouses.

The Baltimore Brick Company has undergone a transformation recently.

Since the last election, the officers stand as follows: Carroll Van Ness, president; Richard Cromwell, Jr., vice president; Warren Griffis, general manager; Harry A. Remley, secretary and assistant treasurer; J. Guild Cook, assistant secretary and assistant treasurer. Since this election a death has occurred in the ranks. We regret to announce the decease of Richard Cromwell, Jr., vice president.

The office held by Mr. Busey for a number of years is now filled by Mr. Warren Griffis, one of the two men who made the Baltimore Brick Company a possibility. He has been with the company since its inception, but devoted his time and energy to outside matters.

Since Mr. Busey's severance with the company, it was thought that Mr. Griffis, with his forceful activity and energy, could better and more efficiently devote his time and ability to the management of this large corporation. Most of the employes are shareholders in the company. With this new basis one can almost foretell the wonderful future success. At present, in spite of last year's dull season, there is an improved condition in the manufacture, sales and delivery of bricks, and prices are normal and satisfactory.

Mr. Griffis has a tremendous proposition and feels that he has two full years of hard, steady planning and ploughing—when he would like to do it all in a few weeks. In truth, aside from anything he may say, he strikes the observer as a man of keen mental force and untiring energy. If it be possible for a man to follow out his ideas, he will do it and do it smiling, too.

Contrary to the easy going methods (no offense) of many brick manufacturing concerns, the Baltimore Brick Company knows its actual cost.

A call on Mr. Tully, of the Maryland Terra Cotta Company, elicited the following information:

Unless some unlooked-for slump occurs in the building business, which at this time appears very unlikely, the year 1912 will no doubt surpass all records for volume of trade in the manufacture of ornamental terra cotta.

From the viewpoint of the Maryland Terra Cotta Company, located at Baltimore, Md., the outlook is splendid. This firm ships the bulk of its product to points south and southwest of Maryland, its geographical position enabling it to enter this field to better advantage.

Architects are awakening more than ever to the realization of the economy in the use of terra cotta in building construction. This fact is very encouraging to the manufacturers of this commodity, and is due not only to untiring efforts on the part of the producers themselves, but is also a result of general observation of the many advantages derived from the use of terra cotta.

That this material is durable has been demonstrated for centuries. It is considerably lighter than granite, marble or limestone, and will withstand the elements, particularly when appearance and attractiveness is concerned, to a greater degree than any stone. Terra cotta can be made in any color desired, is easily handled and is fireproof.

All of the points being considered, the greatest argument in favor of its use is its comparative low cost.

In view of the many excellent and valuable qualities of this material, it is not difficult to understand why terra cotta is being specified more frequently as each month rolls by, and it does not require a prophet to forecast an increase in the demand for terra cotta next year, and each succeeding year thereafter.

M. E. THOMPSON.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF PITTSBURG.



BUILDING OPERATIONS in Pittsburg still continue with the marked activity that has been apparent since early spring. Many buildings are being razed in the "Hump" district, and from architects' plans indications are that they will be replaced with modern brick buildings. Some of the largest brick projects now in course of development are the new machinery hall of the Carnegie Institute of Technology, and a new waterworks and pumping station to be erected for the city of Pittsburg at Aspinwall.

Construction was recently started on the rebuilding of the shale brick plant at Middletown, Pa. B. Dawson Coleman, of Middletown, is the owner of the plant.

The Henry Schenk Company were awarded the contract for the erection of the new power plant of the Erie Lighting Company at Erie, Pa. The building will be of brick construction, 42 x 81, and will cost \$235,000.

Architects W. G. Wilkins Company, of Pittsburg, awarded to the Charleroi Lumber Company the contract for the erection of the three-story brick factory building for the Macbeth-Evans Glass Company, of Pittsburg.

A two-story brick building of fireproof construction is to be erected for the board of education of West View, Pa. Architect A. G. Lowe, of Pittsburg, awarded the contract to Charles J. Wilson.

W. C. Kinsley, of Beaver Falls, will place the brick and masonry for the three story brick and stone high school building to be erected for the board of education of Freedom, Pa. L. C. Kirker & Son hold the general contract.

Architect Frank L. Packard, of Columbus, Ohio, has been selected by the board of education of New Philadelphia, Ohio, to prepare plans for a two-story brick fireproof school building.

A contract was let at Middletown, Pa., for the rebuilding of the shale brick plant of that place. B. Dawson Coleman, of Middletown, is owner of the plant.

Rapid progress is being made in the construction of the new brick sewers which the city of Pittsburg is placing in the downtown sections of the city. The brick sewers are the largest in the city, the great underground tunnels under Try way, Try street and in the valley of Negley Run, rivaling in size the famous sewers of Paris.

The accompanying illustrations adequately illustrate the immense proportions of these subterranean waterways and show that contractors have lost no faith in brick as the best material for this work.

The demand for terra cotta is equally large, much of this clay product being used in the improvement of West Carson street, where the street is being raised and widened in its course along the Ohio river.

Boost clay products at your local fair this year, for it affords a golden opportunity.

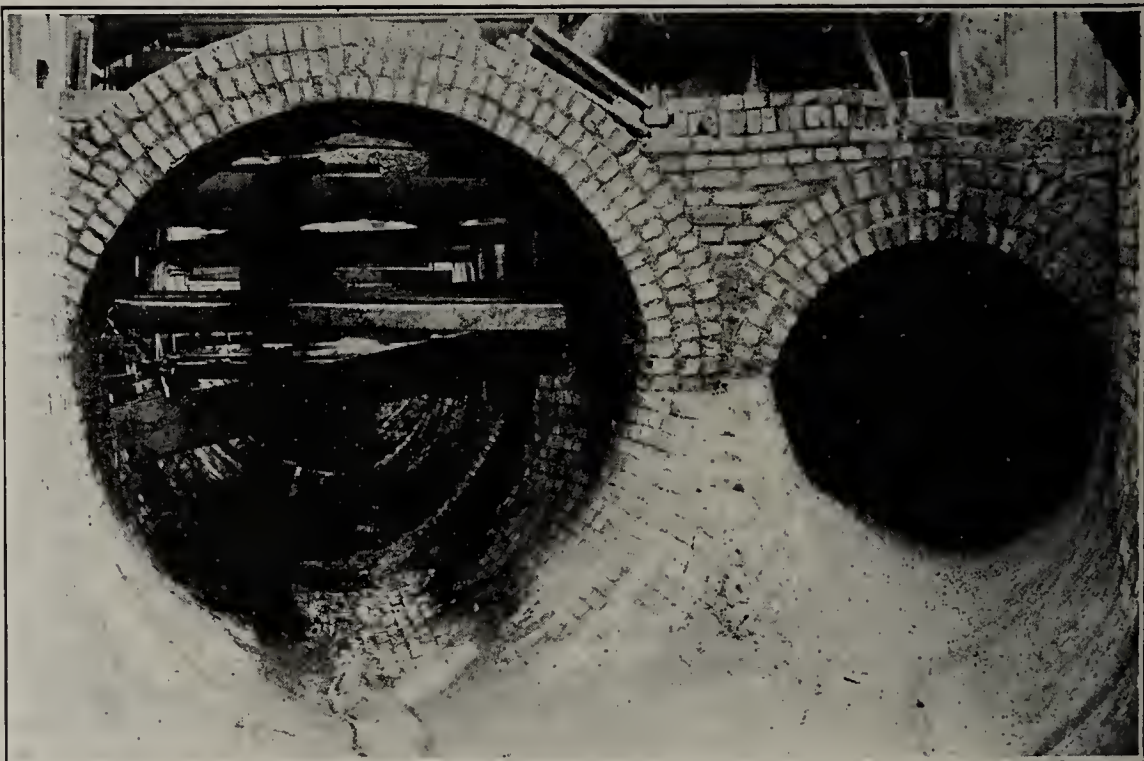
Written for THE CLAY-WORKER.

A VISIT TO A WELL KNOWN BRICK WORKS.

A FEW DAYS AGO my business took me to a well-known paving brick works. Having finished my business at the office, I leisurely strolled in the direction of the kiln. There is a kind of an attractive influence which involuntarily draws me to a burning kiln. The firemen were standing in a group and as I drew near I heard very loud talking as though some one was mad. I am acquainted with the head burner, who is usually very



Try Way Sewer, Pittsburgh, in Course of Construction. |



Try Street Sewer, 96 in. x 54 in. Interior Chamber.

quiet, has the interest of the firm well at heart and was never known to neglect his duty, but as it was he who was doing the angry talking, I knew that some one had been "rubbing the fur the wrong way," and although at the distance I was from him I could not distinctly tell what the subject was which they were discussing, yet every once in a while I distinctly heard the name of Prof. Bleininger. "Who is Prof. Bleininger?" one of the firemen asked. "I suppose he is some college professor who is always advocating some so-called 'advanced ideas.' I will bet right now, boys, that if he were here he could not put in practice his own theories."

I stepped up just in time to hear these last few words, and, after the usual morning salutation, I said that I had been personally acquainted with Prof. Bleininger for the past fifteen years or more, and that as far back as that time he was well able to, and did, put his ideas into practice.

"But what about the professor?" I asked. "He is too well-known to the members of the craft for anything which you or I could say to hurt his reputation." "Well," said the burner, "the boss has given me a copy of Prof. Bleininger's book, 'The Effect of Heat Upon Clays.'"

"Yes," I replied, "and the man who said it was 'worth

that, but do you never have a kiln which you consider below your standard?"

"Well, once in a while," he said, "we get a kiln that is not vitrified; I do not know what is the cause, as I handle it just the same, as far as anything I can tell, and yet when we empty it the bricks have not quite reached the point of vitrification. I suppose I ought to have hung onto it a little longer."

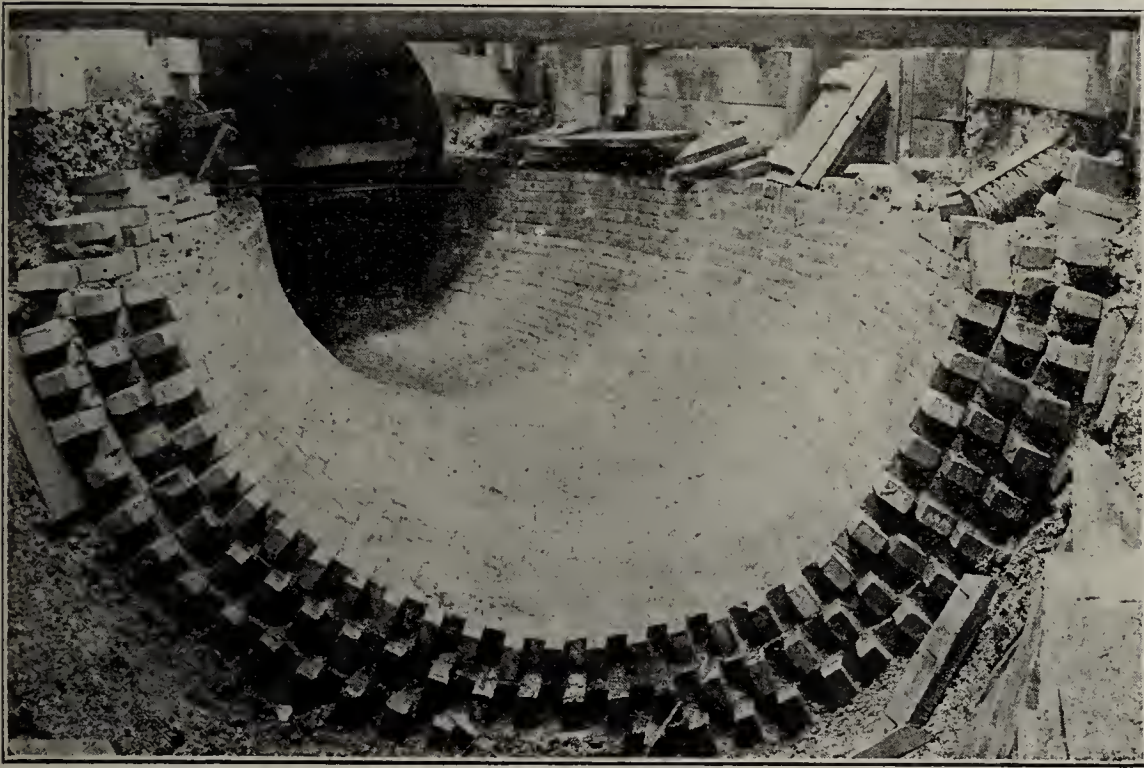
"Allow me to throw a little light on why the kiln was not vitrified," I said. "Some time ago I received an urgent message by wire to go to a paving brick plant, as they were in trouble with their burning. As it was over five hundred miles away, I went as far and as fast as the train could take me, wondering in my mind what I was up against. I had visions of melted brick and the like, but imagine my surprise when in company with the general manager we walked out to the kiln. There was kiln after kiln, with their doors down, full of what appeared the most beautiful paving brick. They had a rich gloss on them and not a damaged brick in sight.

"I said, 'Why did you send for me? I can not burn any prettier brick than those.' 'But,' said the general manager, 'there is not a single brick in the whole kiln that is vitrified.' Then I knew that my duty would be light. The man that was burning this kiln was a building brick burner and was known as a first-class man in many big works where he had been. In this case he had kept a thin, clean fire on the grates, through which the air could draw freely and also allow the air to draw freely over the top of the fire. This was an oxidizing heat, and although he got the settle, yet the temperature never reached the heat that would vitrify this particular shale. He happened to have a kiln under fire that had gotten as much settle as the shale called for, except two inches. I saw that I had to act quick, as the kiln would in a few hours be called finished and closed. I had the firemen to put in a quick fire which cut out a large amount of the air which was going through it. I allowed only enough air to go over the top of the fire to save the brick from being too black. I kept this reducing heat up only a few hours, long enough for it to reach the bottom of the kiln. When this kiln was cooled and emptied, the brick were found to be vitrified right to the bottom of the kiln. This kiln was treated all right and was a fair sample, I believe, of how all kilns of paving brick ought to be burnt, and, my friend," I said, "let me tell you

how it is once in a while you have a kiln that is not vitrified. It is not because you did not hang onto it long enough, but because you never brought the heat up to a temperature that would melt the fluxing material in the shale and thus cause a perfect vitrification."

R. T.

A man that is really worth good wages will not be long satisfied with them; what he will want next is a share in the business or the profits, and we are coming to the time when we must face this problem of equity and satisfaction between labor and capital and solve it.



Try Street Sewer, Complete to Springing Line.



Try Way Sewer. Brick Invert on Reverse Curve.

its weight in gold' did not over-estimate it." "But," said the burner, "he talked of oxidizing and reducing heat and the like, and what the hell do I know about them?" And, looking me square in the face and pointing his index finger at me, he said: "You know that this plant has for twenty years been turning out millions of No. 1 paving brick, and that there has been hundreds of streets paved with them in this and adjoining states, and all are wearing well and giving satisfaction, and that for all this time I have had charge of the burning; and, more than that, this plant is paying dividends." I said, "You have done well, there is no doubt about



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

A Canadian Enthusiast.

Editor THE CLAY-WORKER:

Find enclosed \$2.00 (two dollars) for renewal of my subscription to THE CLAY-WORKER for the twelve months ending May, 1913. I think it is the best of papers for anybody working in clay, and would not cancel my subscription for anything. Yours very truly,

Manitoba.

JAS. H. HAMBLIN.

Drain Tile Growing in Favor in Mississippi.

Editor THE CLAY-WORKER:

The brick and tile business in this section is exceptionally good. Our plant is turning out the capacity 45,000 brick per day, and will not be able to supply the demand for brick for the next six months. Drain tile is just beginning to be used in this section extensively, trial demonstrations having proved its great value in farm drainage, and there will be more drain tile used in this State within the next two years than has been used altogether heretofore.

Notwithstanding excessive rains for the past six months, the general conditions of the country are bright.

Yours very truly,

WEST POINT BRICK AND TILE CO.

A Good Motto.

Editor THE CLAY-WORKER:

Enclosed please find our check for THE CLAY-WORKER for another year. We have installed a dry press at our plant, and are at present making brick, our first contract being for 235,000. We have also remodeled our machinery and engine rooms, wrecking the frame building and erecting a machinery room 40x54 feet, and engine and boiler room 30x36 feet, all built of hollow blocks. We expect to build two more kilns this season.

Business has been good with us this season, although some are complaining that business is very slack. "Quality" is our motto, and it is quality that gets the business.

Extending to you our best wishes, we are,

Yours very truly,

ALGONA BRICK AND TILE WORKS.

Building and Brick News from Detroit.

Editor THE CLAY-WORKER:

Building operations during the month of July, as shown by the records from the Department of Buildings, shattered all previous July records, and a new high mark for construction work for the month was established. Permits were taken out for work, the aggregate of which represents an expenditure of \$2,038,265. Both in the number of new buildings and the number of additions for the month of July this year also established a record. The total of new structures is 573, and additions 184.

The notable feature of this amount is that the larger percentage consisted of homes of moderate cost, for which the demand remains unsatisfied, and 75 per cent. were of various types of brick construction. Few buildings of the larger type are included in the list, the majority of the

homes were of the moderate cost variety ranging from \$1,500 to \$5,000. In one section of the city more than 200 homes have been erected by one concern. So eager are buyers for homes that at times a dozen or so are sold in advance of construction being started.

The brick situation, which has been a source of much handicap to the contractors, is still beyond the demand, and when it is considered that the manufacturers of Detroit produce about 275,000,000 common brick each year, it substantiates the fact that Detroiters are building homes that they expect to live in for years to come.

WOLVERINE.

Will Build Two More Kilns and Enlarge Dryer.

My Dear Randall:

Enclosed find check for two dollars for my subscription to THE CLAY-WORKER for twelve months ending July 19, 1913. It certainly is always a pleasure to send check for THE CLAY-WORKER, as I enjoy reading the dear old paper.

Regarding business for this year, would state that I am entirely sold up at this writing and have orders on the books that will keep me going steady for the next twelve months.

We had a meeting of the directors last week, of which I have the honor to be one, and we have decided to erect two more Yates kilns and enlarge the dryer by the addition of four new tracks. Even with this addition, when in operation, it will give me all I can possibly do to keep up. Trusting you are well, and with kindest personal regards, I remain,

Yours very truly,

D. WARREN DE ROSAY.

More About Continuous Kilns.

Dear Mr. Randall:

I notice a letter in your magazine of June on the "Working of Continuous Kilns," by T. G. Maxwell. There is a lot in the letter that he had better explain more fully. There is the case of a foreman building a kiln of his own design, which in after years he (T. G. Maxwell) had to alter. He also says that before altering, it took from 400 to 500 pounds of coal to burn one thousand brick. Now I should like to ask him if he can put one on any yard to burn with 200 pounds of fuel. If so, his fortune is made. He talks as if he were the only man that understands the continuous kiln, but I don't think he is. He also says that any man with common sense ought to learn to burn a continuous kiln in a fortnight. He seems to me to mean that a man with proper brain power, if brought up on a farm, ought to be able to burn one in fourteen days. It is simply out of the question for any one to either say that it is possible or practical to expect such a thing. Now he talks of coal being much dearer this side of the water than in the States. I wonder if he has been to the States. If he has, he will find that he is wrong there. Now I and the readers of THE CLAY-WORKER also will be obliged if he will answer the following: What patent has he got, how many chambers does he burn weekly, what does each chamber hold, and what kind of fuel does he use, and where does he get it? From what mine or district. He must know that in burning a continuous kiln it all depends on the quality of fuel used. The dust out of some fuel used in England will burn the kiln much quicker than others will.

Now I am not going to state that I know everything about continuous kilns, or more than anyone else does, but I have a thorough practical knowledge of the handling of all classes of kilns on the market on this side of the water, also some in the United States, and I here state that I can work this class of kiln with any man, I don't care where he comes from. I went to manage a yard four years ago where the man before me was using 890 pounds of coal per thousand brick. Now I want Mr. Maxwell to see my point. Here

I did not have the kiln altered, but took charge of the kiln on fire with the same men burning, and the average of coal used during the summer on the same kiln with the same men under my management was 280 pounds per thousand. Also, the quality of brick was 85 per cent. better. I burnt 1,400,000 with only 230 waste.

Now I will give him one that I took charge of out in the States. I was on the yards four months and a fortnight. When I went to the yards they were making nothing but half bricks and waste, and not a great many of them for the size of the yard. In this case I had the setting altered. We made three times the quantity without any waste whatever. I burnt them with less than half the coal used before. Now I here state, and state from practical experience, having been in the trade all my life, that Mr. Maxwell can not teach two novices to burn a continuous kiln in fourteen days and then leave them to carry on the work by themselves. There must either be one of them that thoroughly understands the burning, or the manager or foreman of the yard must be an expert himself, and if it comes to the manager or foreman having to take over the management of the kiln, he might just as well be doing hard labor, as it means that he must be off and on the yard night and day.

Mr. Maxwell recommends a practical kiln engineer to build these kilns. There I must differ from him, as any man with a thorough knowledge of the clay trade in all its branches, also the uses of all classes of kilns, could build one as well as any man calling himself a kiln engineer, and then he ought to be able to construct the one he is going to burn. If not, he ought never to take over any brick works as either manager or superintendent. I could put my own continuous kiln on any yard and guarantee to burn same. If a kiln does not burn right under one man, that is no reason it should not work right under another man without any alterations. I hope that THE CLAY-WORKER will receive an answer to this letter. If so, I will give my way of working these kilns fully.

Yours—a well wisher; one from the old country.

Nuneaton, England.

H. W. HARDY.

Large Down Draft Kilns vs. Continuous and Up Draft Kilns. Editor THE CLAY-WORKER:

I want to back up some of Mr. H. W. Hardy's statements in the July CLAY-WORKER, replying to Mr. W. D. Richardson's letter to the Canadian Fireproofing Company. I, like Mr. Hardy, have had a life-long experience in burning all classes of clay goods, and most all kinds of kilns, but give me a good down draft kiln for burning any kind of clay goods in the way of brick or tile. In speaking of down draft kilns, I don't mean a small down draft kiln, such as round kilns or any kind of a down draft that holds any less than three hundred thousand brick, but I will try to show that a man can get much better results for the amount of money outlaid from down draft kilns than he can from any other type of kilns. In the first place, if a man has got enough money to build a continuous kiln to burn 45,000 bricks per day, he don't want any kind of a kiln at all, for he has got all the money he wants. I knew a man at Atlanta, Ga.—in fact, I was with him—and he had a continuous kiln built that cost him \$20,000. He only used it a little over a year, and in that time he lost about \$13,000, in bad burns and other losses. Then he had it changed into a down draft and it paid him back some of what he had lost. I know a man in Florida who had four or five down draft kilns that were paying him all right, but some one told him how much better he could do if he would build a continuous kiln, so he had one built. He told me that he had all of his down draft kilns but one torn down, and this he saved to burn his best brick in. The old bricks from the other kilns were used in building the new continuous kiln. This new continuous cost

him \$40,000 before they set fire to it, and after using it some time he found out that it was not large enough to burn 45,000 brick per day, and was so hot all the time that he could not get men to work in it, so he had to build on to it and make it twice as large as it was in the first place, and that cost him another \$40,000, making \$80,000 he had spent altogether. Then it was still too hot for men to work in, and he had to have a fan put in to keep it cool enough for his men to work in, and then they could only work at two-hour shifts. He said he could burn the bricks for half what he could in the down draft as far as fuel was concerned, but he could get no result as he had so much money invested, and it cost him more to set the brick in the kiln and about twice as much to get them out after they were burned, as he could not get a team in the kiln and the bricks were most always stuck badly if they were burned enough. His next trouble was that just about the time he got a man taught enough to handle the kiln at all, he had to get a new man, and he wished he had never done away with his down draft kilns, for he knew that he could never get back the money (to say nothing of interest) that he had spent on the continuous kiln.

I think Mr. Hardy is quite right and knew just what he was writing about. Now for the up draft kiln. I think that most of the brickmakers know what they are and will admit that the up draft is out of date for getting good burns that are all good, hard and sound brick. There is, on an average, a loss in the arches and benches of brick that are out of shape and stuck and broken up into bats; then there are always lots of salmon or soft brick—more than most brick men want, as they have to be sold for much less than good hard brick, yet they cost the brickmaker just as much as the hard brick. Then there are, most always, a few courses of salmon or soft on top, and on the heads, right where they are not wanted, and must be moved before you can get to the hard brick, and it costs just as much to move them as it would to load them into wagons or onto cars; and then there is another big cost for lumber for shed roof, which doesn't last very long, over a kiln, and it must be put on and taken off every time a kiln is burned, and sometimes it catches fire and is burned off before there is time to save it. There is all this cost, besides the loss by putting plating on and taking it off again every burn, and it costs quite a bit to clean such kilns out after every burn before they are ready to set green brick in again.

Now for the good points of the down draft kilns. It is not known by lots of men what a good down draft kiln is, for there are so many different kinds that have been built by all kinds of men, who think they know how to build a good down draft kiln. Some of them do, but most of them do not. The good down draft kilns are few and far between. I don't believe that five per cent. of the brick men have a chance to see a good down draft kiln. In fact, there have been more improvements and better down draft kilns built within the last two years than there ever was before in ten years. I know a man, or a brick company, that started up a new yard one year ago last May, that made 40,000 brick per day. They started their brick at first in up draft kilns to get brick to build down draft kilns, and now they have three down draft kilns, each one holding about 350,000 brick, and they burn all hard brick in these kilns. If they burn any salmon at all it is because they want them to fill an order. They burn hard from top to bottom, and have hardly any loss whatever in any of their burns.

There are two more yards close to this company that have been there for many years. They have the same kind of clay and the same kind of machinery, yet this new company can sell all the brick they can make and get from a dollar to a dollar and a half more for their brick than the two old companies can. This is the difference between the old companies burning in up draft kilns and the new company burn-

ing in down draft kilns. Then it only takes about half the labor to burn the down draft kiln of the same capacity, and not so much coal. However, if a man wants good burns, he must not figure too close on coal, as long as he gets results. It is not what is put in the kiln, it is what you take out that either makes or breaks a man. The above company that has three new down draft kilns, spent about \$3,000 on each kiln, common brick included, so you see by spending \$9,000 they can burn as many or more brick, and all good brick at that, as the other man that spent \$80,000, and the man who built the down draft kilns is making a good profit, while the other man is not at all satisfied. How does this look to a man who says the continuous is a better kiln than a down draft? The brick kiln men know now how to build an arch over the down draft kilns that is safe and will not be liable to fall in like they would a few years ago. I know of a down draft kiln that holds about 400,000 brick that has been in use steady for seven years, and the main arches look just as good as they did when they were built, and it has not cost one cent for repairs.

If the brickmakers would build large down draft kilns and put a roof over them like they do over the continuous kiln, they could use the waste heat as soon as one kiln is burned to watersmoke the next kiln, by using the waste heat fan system. Some of the best brick plants do this and find a big saving in labor and fuel. I should know a little about kilns, for I have been working in brick ever since I was eight years old, and now I am past the half hundred mark, and I have run and had charge of some of the largest brick and tile plants in America and Europe, so I speak from experience.

F. W. DENNIS.

THE SECOND NATIONAL CLAY SHOW.

Chicago, February 26 to March 8, 1913.

THE EXACT dates for the Second National Clay Products Exposition have been announced by Secretary Hopley, who also states that prospectus for the coming show will be completed and distributed early in September. The show itself will open Wednesday, February 26, and continue until Saturday, March 8. The great Coliseum will be open to exhibitors a week or ten days prior to the opening date, thus affording more time for the installation of exhibits

than was possible last winter. This will insure perfection in structural detail, which will add immensely to the artistic phases of the show. When it is remembered what was accomplished at the first show, with but a few days for the perfection of exhibits, the reader will not have to draw very largely on his imagination to realize that the coming Clay Show will be even more marvelous and impressive than the first. Many of the most notable exhibits will be reproduced, but on a larger scale, with more attention to detail. A model moderate cost brick bungalow will be erected and be given as a prize to some lucky patron, as was done last winter.

The books of the Exposition Company are now open for reservations, and Secretary F. L. Hopley, whose headquarters are at 815 Chamber of Commerce building, Chicago, will be very glad to give prospective exhibitors full particulars as to cost of space, or any other phase of the work of which information is desired.



MOREHEAD CANADIAN COMPANY.

THE CANADIAN BUSINESS of the Morehead Manufacturing Company, of Detroit, Mich., manufacturers of the Morehead system of steam line drainage and boiler feeding, has grown to such proportions in the past few years as to make necessary the organizing of the Canadian Morehead Manufacturing Company, Ltd., with headquarters at Woodstock, Ontario.

The new company is incorporated under the laws of Ontario, with the following officers: A. Fitzgerald, president; D. E. Stott, vice president; George H. King, secretary, treasurer and general manager.

The Morehead line of non-return, return, vacuum and condenser steam traps will be manufactured under the direct supervision of Mr. George W. Cole, who has represented the Morehead Manufacturing Company for the past nine years and is regarded as the oldest in experience and best posted steam trap and drainage man in the business.

One of the new products of the company is the condenser trap, designed for use on low pressure and exhaust steam heating lines. This device is in general appearance similar to the old and well-known Morehead return steam trap. In detail, however, the condenser trap differs from the return trap in the addition of a cold water connection made through a flexible tube with the tank of the trap. The flexible connection terminates in a perforated pipe inside of and running the length of the trap tank. In short, the condenser trap is nothing more or less than a combination of the principles of the jet condenser and the Morehead automatic return steam trap.

Eliminating High Pressure.

In a recent article on "Economic Efficiency of Steam Mill Plants," James M. Taggart, M. E., says:

"One reason that leads to the use of high pressure steam in heating and drying apparatus is the fact that a positive pressure is often needed to remove the condensation. That is, to render the apparatus effective the condensation must be removed as fast as it collects. High pressure is, however, not necessary to accomplish this. It can be accomplished more easily by means of condenser trap, in which a vacuum is formed by a cold water spray. In practice vacuums ranging from five to twelve pounds per square inch are obtained. In some cases vacuum pumps have been used for this purpose. However, for handling hot water, traps are most efficient and reliable."

Description of the Trap.

The condenser trap is held to dispense with the use of vacuum valves and pumps continuously used on such systems, and, furthermore, it may be installed at less cost than the others.

Connected to the return line of vacuum heating systems, where a difference of pressure is maintained between the ends of the system, the line condensation and accumulating air is taken into the tank of the condenser trap, as in the case of the return trap, but with the added pulling power of the vacuum created in the tank of the condenser trap.

When the steam is turned on in the heating system, the various lines of which are full of air, the cold water supply valve, as shown in the sectional view of the trap, is opened slightly. As the condensation from the return lines and the condensing water fills the tank the latter tilts, opening the live steam valve, allowing the steam pressure to enter and discharge the water contents into a return steam trap above the boiler or into an open heater.

As soon as the water is discharged the tank containing the steam which is left after the water is discharged, resumes a horizontal or filling position. The tank, returning to its horizontal position, automatically opens the control valve on the cold water inlet and allows the cold water spray to come in contact with the live steam contained in the tank. This cold water condenses the steam and forms a vacuum in the

tank of the trap, which, in turn, performs the usual functions of created vacuum in heating systems of pulling the condensation from the lines to be drained.

Water Consumption Small.

The cold water supply is furnished either from city water-works or a tank or other source that is available for that purpose. Particular attention is called to the fact that a surprisingly small amount of water is required in the condensing process.

A receiver is always used in connection with the condenser trap, the water seal in the receiver taking the place of the thermostatic valves on the heating system. The condenser trap is used as the lower trap, taking the place of the return trap in the Morehead standard double trap installation, the lower or condenser trap discharging to the return trap placed above the boiler.

PENNSYLVANIA STATE HIGHWAY.

State Highway Commissioner Edward M. Bigelow and his engineers have completed plans for the improvement of the State highway between Pittsburg and Philadelphia. It is believed the work of the great pike will be completed by August of next year. According to Bigelow, the highway will be the equal of any in the country, with scenery that is unsurpassed by any in the United States. Much of the work is now under way, only a few days ago the contract for the work in Fulton county having been placed. This includes the work of crossing the Allegheny mountains, something like fourteen miles from the west to the east foot.

The rest of the contracts will soon be let. The road will follow the old pike in its entirety. The job of following the old road is a gigantic and expensive one. There is one seven-mile stretch of sand deposit, where macadam will not do. This will be covered with asphalt or amasite.

The plan calls for a great park at the summit of the mountains between Somerset and Bedford counties. This will be known as Grandview. A turntable for automobiles will be made, and timber cut so that an unobstructed view for twenty-five miles through the valleys can be enjoyed by tourists. The road in this vicinity is identical to that of the Forbes road laid out by General George Washington. Where Grandview Park is to be located is the spot called "Davie Lewis Lookout," which, according to history, is the place where Davie Lewis, a highwayman, awaited travelers over the pike to hold them up. It is said that he could see the roadway for twenty-five miles from this place. Stories of buried treasure in this vicinity are also of such a nature that they will not down.

THE DUNN WIRE-CUT-LUG BRICK.

The popularity of the Dunn wire-cut-lug brick for paving purposes grows apace as its advantages are made manifest by increased use. Mr. Dunn advises us that his company has recently closed a contract with the Bessemer Limestone Company, of Youngstown, Ohio, and the Metropolitan Paving Brick Company, of Canton, Ohio, providing for the manufacture of wire-cut-lug blocks in all their plants. This makes twenty-three plants licensed to date by the Dunn Wire-cut-lug Brick Company, whose main office is at Conneaut, Ohio. Any of our readers desiring information relative to lug brick are requested to communicate with the company direct.

THE CHICAGO OIL BURNING SYSTEM.

The Chicago Brick Machinery Company, of Chicago, Ill., issued to the trade during the month a well printed bulletin on their oil burning system that is well worth your time reading if you are interested in the burning of clay wares with oil. This circular was issued as a preliminary to their coming catalogue, and, judging from the bulletin, the catalogue will be a most valuable one. This leaflet contains numerous illustrations and descriptive matter relative to their burners, and their pumping, heating and regulating system. If you are burning with oil or are thinking of changing your burning system, write to the Chicago Brick Machinery Company for this excellent bulletin.

Written for THE CLAY-WORKER.

BRICK NEWS FROM WILMINGTON, DEL.

WE REGRET TO announce the demise of Mr. John P. Allmond, president of the Delaware Terra Cotta Company. The company felt his loss very keenly, his son, W. Stewart Allmond, secretary and treasurer, has been associated closely with him in the brick business since 1876.

This has been a busy season for them and the prospects for the fall are very bright.

With the exception of Odd Fellows' Hall, which they are just finishing, no particularly large buildings are under way. There are a great many small houses being erected in all parts of the city. They have just completed the delivery of bricks to the new Dupont Hotel, which, by the way, is to be the latest thing in the hotel line, up-to-date in every particular.

All the brick manufacturers in Wilmington are having a good season; in fact, the best year for some time; the prices have not been changed; there's plenty of business to go around, and no cutting to get work.

James B. Oberly, manufacturer of bricks, No. 3 East Ninth street, Wilmington, states that he has had a very good season. They lost only two days, Labor Day and July 4. He sold and delivered about 700,000 more brick than they made up to date. He purchased from other yards and took partly from their own stock. Prospects are good for the near future.

Mr. Oberly hopes to have his new plant (42,000 daily capacity) in operation early next year and proposes to install soft mud machinery, but has not yet decided upon his system of drying to be adopted.

D. E. L.

LONG PLEASURE TRIP.

William Conway, the affable ex-president of the N. B. M. A., of Philadelphia, together with his wife and daughters, has spent the past month in the far Northwest on pleasure bent. A series of post cards from Ketchikan and other points in Alaska tell of a very pleasant trip. His building brick plant, one of the best in the East, has been run to full capacity during his absence, with his son, William Conway, Jr., on the "bridge."

BUSY DAYS FOR F. W. DENNIS.

In a recent communication from Mr. F. W. Dennis, well known as the inventor and builder of the Dennis double chamber, single chamber and round down draft kilns and the Dennis hot air and direct heat brick dryers, he states that he is extremely busy and has many months of work ahead of him. His last letter, printed below, is interesting and will be read with pleasure we are sure:

"Publishers THE CLAY-WORKER, Indianapolis, Ind.:

"Gentlemen—I am glad to tell you that I am doing well with my double chamber down draft kiln. I am getting all the work that I can attend to. I have received inquiries from all over the world, sometimes I have to go all over town to find some one to read my letters, for they are written in so many different languages. They come from all parts and proves that THE CLAY-WORKER finds its way into every corner of the world. I have received letters from England, France, Spain, Germany, Russia, Turkey, Egypt, Portugal, Cape Colony and various parts of Africa. My ad in your paper is the only advertisement I have used for years.

"I have finished my work at Goldsboro, N. C., for a little while. Have built three of my double chamber-down draft kilns for the Borden Brick and Tile Company, of that place. These kilns hold 350,000 brick each, so you see they are good sized kilns. They wanted me to stay and build one more kiln, single arch, to hold 150,000, but I had other jobs on hand and could not give this immediate attention, but will go back in September or October. I enclose change of ad for this month.

"With best wishes for THE CLAY-WORKER, I am,

"Yours truly,

"F. W. DENNIS."

Written for THE CLAY-WORKER.

AMONG PHILADELPHIA BRICKMAKERS.

WILLIAM H. SPANGLER and S. G. Davis, treasurer and manager, respectively, of the Central Brick Company, of Barnegat, N. J., were recently held in court on complaint of Amos Ellis, of Philadelphia. Mr. Ellis testified that both Spangler and Davis requested him to promote stock of the company, and \$15,000 worth of shares in the company were promised to him in the event that he was successful in securing purchasers. When the contract was made Mr. Ellis was informed that the company owned 11,000 acres of land at Barnegat. The complainant avers that several months ago he discovered that the men had misrepresented themselves and that the actual land they owned at the time he entered their employ was not more than 500 acres. Mr. Ellis declared that he had spent much time in visiting friends and prospective investors and that he had made arrangements with many persons to invest large sums in shares when he discovered that the company did not own as much land as claimed in the circulars. The attorneys for the defendants claim, however, that the company does own 11,000 acres of land and have held title to so much since the advent of T. L. Lovett to the presidency of the company.

The Mack Brick Company, Fidelity Building, Philadelphia, report that business is more brisk now than was anticipated in the early summer. Building operations in the western part of the city and suburbs are showing signs of greater activity and are keeping abreast with the general prosperity of the trades.

The Northwestern Construction Company, Wilmington, Del., has been incorporated under the laws of that state, with a capitalization of \$100,000. J. G. Gray, of Wilmington, is the resident incorporator.

Scott B. Walters, of Chambersburg, Pa., has recently completed the installation of a modern brick-making machine at his yards on Carlisle street. The machine has a capacity of 50,000 a day, which will enable Mr. Walters to turn out a much greater supply of bricks without extra cost to the consumer. A greater force of men has been employed to handle the enormous influx of trade.

Edward J. Stokes, 1208 Harrison Building, Philadelphia, has taken another trip to Southern territory in the interest of his sewer pipe line. He confidently expects to get some "plums," which he is ready and capable of filling at once. This is the second trip made to that territory within the last nine weeks and many substantial contracts have been signed.

The Lackawanna Railroad has under consideration the building of a brick and terra cotta station at Montclair, N. J. This type of construction is a comparatively recent innovation for railroad stations, as there are only a few examples in existence. The main piers of the building are to be of brick, and between these will be laid the wall blocks of hollow terra cotta. The roof will be of tile, so that the building in its structural parts will be all fireproof, even to the platforms, which will be made of a clay product.

The Star Clay Works, at Merztown, is erecting an upright boiler at the John Mabry clay banks to pump water.

Dr. William P. Wilson, director of the Philadelphia Commercial Museums, calls attention to the fact that it is a real waste of money and effort to try to stimulate trade in the district of Kehl, Baden, Alsace-Lorraine, by the use of catalogues or literature of any sort. Agents of the museum report that the buyers must see the goods and that nothing else will answer. They will not even open a catalogue. Manufacturing industries calling for all kinds of sewer pipes and tiles, as well as brick, are multiplying in this district very rapidly, but the American trade is small because the American exporter clings to the catalogue habit despite the fact that no returns come from them in this particular district.

The city of Kingston, Pa., has taken a long time to settle

the question of street paving. At a special meeting of the board of trade and at the instigation of the property holders in the city a bill was signed for the continuance of the Clearfield Clay Working block as the material to be used. They specified that the paving on all the streets must be brick, not cement, asphalt, concrete or anything but brick which stood the test. The material standing the greater test was the Standard brick and tile block.

Chief Connel, of the bureau of highways, Philadelphia, declares that every effort is being made to rush the work of repairing the streets and country highways before the cold weather sets in. At the present there are 238 street and road contracts in operation, representing a total estimated cost of \$1,071,270. Specifications have been prepared and seventeen contracts will be shortly executed for brick streets. Many proposals for vitrified brick will shortly be opened.

The Independent Brick Company, No. 1002 Crozier Building, reports business to be in a better condition than a month ago, when the orders were coming in surprisingly well. The company has many contracts to supply brick in the best building markets in Pennsylvania.

Hyzer & Lewellen, No. 952 North Ninth street, one of the largest brick firms in the city, has awarded a contract for the erection of a garage at their place of business, to cost \$3,000.

The Foster Paving Block Company, of Bradford, Pa., has been incorporated under the laws of Pennsylvania with a capitalization of \$5,000.

Ezra Kline, of Reading, Pa., a retired brick manufacturer, died recently of neuralgia of the heart. He was a former councilman and at the time of his death was sixty years old.

A. QUAKER.

THE FIRE PREVENTION ARGUMENT BOOSTS CLAY PRODUCTS.

When big politicians fall out, get excited and worked up the public gets a lot of enlightenment that it might go a long time without otherwise, as many of us can testify right now. But this is not a matter of politics, and this little reference is merely because the political band wagon has been monopolizing the limelight, and it serves to illustrate one of the uncharted ways by which information and enlightenment is distributed.

There is another matter particularly in mind, a matter that is close to the heart of the clay products man, and that is enlightenment in the matter of fire prevention. Down in Birmingham, Ala., there has been a hot fight in progress for some time that originated through the introduction of a city ordinance against the use of wooden shingles. Already a Texas city or two had passed such ordinances, but by the time Birmingham got to the matter, the cypress manufacturers of the south, seeing the welfare of part of their product threatened, had become aroused. They got into the game with an advertising fund, and a bunch of word slingers to tell about "the wood eternal," and since then there has been one lively row between the wooden shingle people on the one hand, and the metal and other fire-resisting material men on the other. It has been as hot a fight, in its way, as the little rumpus in the G. O. P., and it has given wonderful spread to the subject of fire prevention and has furnished enlightenment that many might otherwise have long gone without.

The best talent in the country has been brought into action in the controversy, to present in forceful and convincing form arrays of facts and lines of arguments, that at times have been confusing, and often contradictory. But no matter what the outcome of the wrangle itself, it has done this: it has set the public to thinking on the subject of fire prevention, and this will of itself do a lot of good for the clayworking industry, though it does not seem to have been

the clayworkers who precipitated the fight. It is a fight that cannot help but result in good; it has unintentionally and indirectly been the means of a lot of good advertising. Nor is it merely a matter of opening the way for burned clay roofing tile, for once the public gets thoroughly enlightened in the matter, it will turn naturally to brick, the ideal material for fire prevention in home building. It is merely an instance illustrating how enlightenment is spread by wrangles when they get into public print, an instance that is of particular interest to the clayworking industry, because the result will naturally be a livelier interest in brick on the part of the building public that has harkened to the noise of it.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



BRICK PRICES remain the same here, and the demand is fairly good in the city. A good deal more business than at the same time last year, and still not nearly as much business as could be taken care of by the trade. Teams continue to be scarce and the price is \$5.50 and \$6 per day.

The demand from outside points is very light at this time, and little is expected in this direction until the corn crop is an assured fact, but everyone looks forward to a good fall business in the surrounding country. Just at the present time the greater part of this trade territory is needing rain, but with a few good rains scattered out a week apart there would be a tremendous crop of corn, and we will have a pretty good crop even if the rains do not all come around on time. Down in Oklahoma the corn crop is now practically made, but most of the cities in that State have already grown ahead of their needs, and this makes dealers expect but little from that direction this fall, even with the good crops assured.

Here in the city there is a good demand for face brick that is different from the general run, and plants which have been turning their attention to the production of something attractive in the way of face brick are getting rid of a good deal of brick at profitable figures. It is the plant producing the common brick which is having a hard time to get along at this time, and a good many of them are probably going to remain shut down for the balance of this season. Paving brick is also in poorer demand at this time than for a good many past seasons.

Although Louis R. Ash, the city engineer, has advised the use of clay pipe when the bids for vitrified clay and concrete sewer pipe are the same, the Board of Public Works recently decided which material should be used by the flipping of a coin. Robert L. Gregory, president of the board, was anxious to see the concrete pipe people get in, and Wm. Buchholz, the other member of the board present, was for upholding the opinion of the city engineer. They finally settled it by flipping a coin on each of three contracts on which the bids were a tie, and the clay pipe won in two cases out of three.

Walter S. Dickey and his brothers engaged in the manufacture of tile with him as the W. S. Dickey Clay Manufacturing Company have the sympathy of the trade at this time, owing to the death of their mother, Mrs. Elizabeth S. Dickey, who died a couple of weeks ago, not quite surviving her husband one year, as he died August 22 of last year. Mrs. Dickey was 70 years old and was the mother of nine children, eight of whom are still living.

The Liberal Vitrified Brick and Tile Company, of Liberal, Mo., has opened up under new management, and is now producing a tapestry brick which appears to be a fine product, and is making many friends in this market.

The Knobnoster Brick Plant, Knobnoster, Mo., is being rejuvenated, and has opened an office in Kansas City at 617 Rialto building, under the management of Mr. Stump.

The Denton Pressed Brick Company, of Denton, Tex., is

reported to have awarded the contract for four additional kilns.

The Fidelity Material Company, of which T. C. Jacoby is manager, has taken over the yards of the Halliwell Cement Company, at Nineteenth street and the Belt line, where they will have ample storage capacity for brick and other building material. This company has secured the agency for the Diamond paving brick of the Hydraulic people, and this brand is an old friend of Mr. Jacoby, as he has sold it for years while in the employ of the Hydraulic company. The Fidelity Material Company reports having landed the contract for the material for paving streets in Marceline, Mo., which will require some 750,000 blocks, and Warrensburg, Mo., where about 600,000 blocks will be needed. They are also furnishing some blocks in both Kansas City, Kans., and Kansas City, Mo. They also have the contract for material to pave streets in Carrollton, Mo., which will require 350,000 blocks or about a million brick, and it has not been decided which will be used. They have also landed a nice contract for Cleveland brick to be used in a large apartment house in this city.

Frank H. Tondreau, a well known material salesman of this city and surrounding country, is now with the Fidelity Material Company in the capacity of salesman.

R. W. McCreery, of Elgin, Texas, has purchased the plant of the Lanus Pressed Brick Company, in Abilene, Texas.

KAW.

BRICKMAKERS LISTEN AND REFLECT.

Newton's portable system of handling brick in and out of kiln saves forty to fifty per cent of the cost over the old way, with common labor. This is not a theory or forced calculation, but a fact. It has been in actual operation for two seasons and thoroughly tested out. It is practical and applies to men, being a proven success for the brick manufacturer, doing away with this hard, dusty old way of handling brick in and out of kiln.

Lowering Brick out of Kiln by Gravity.

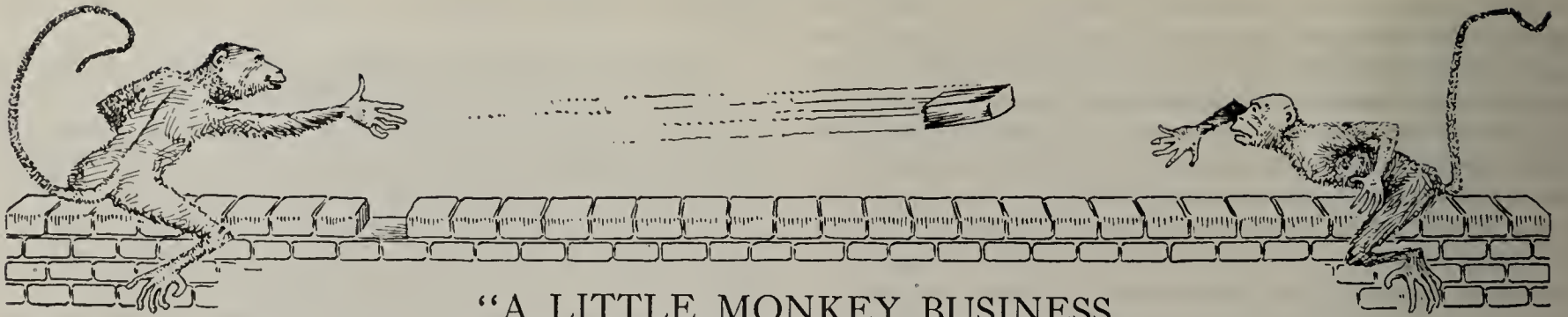
A man goes up with his barrow of brick to the level of the platform staging, either section, wheels his load of brick anywhere along the whole face of the kiln, placing it close and convenient for the setter, without chipping or breaking the brick, and returns to the elevator with his empty barrow and is lowered to the ground in a quick and easy manner, as shown in cut on page 206, making it an easier and faster way to set brick, showing what an easy matter to get along with adverse labor and keep the work moving. A whole arch is set up at a time, the cut shows an outside arch going up. Get their circular illustrating the same in detail.

No staging is required, the kiln being burnt takes its place. A small gangplank is used with one end hooked on the elevator, the other end resting on the kiln, two short planks running from the gangplank to each head along the face of kiln, this way with the use of the practical brickbarrow two or three workmen or boys load the barrows and run them in the elevator, which are lowered and an empty barrow returned very quickly, and the operation may be repeated, taking the place of several experienced brick hands required the old way.

Its Durability, Simplicity and Portability.

The elevator and staging is built in a way that it is strong in its construction, and durable; mounted on wheels and wheeled to and from the kiln (whole with one man or more), is easily and simply operated and requiring but a small space of kiln ground, can be unhooked and tilted over in a horizontal position and wheeled from one kiln to another, by way of elevated and set up in a short space of time.

This system installed and operated for two months, Mr. Newton claims, will pay for itself and make the brickmaker a little fortune every year.



"A LITTLE MONKEY BUSINESS NOW AND THEN IS RELISHED BY THE BEST OF MEN."

LUCKY, INDEED.

"Do you think it's unlucky to have thirteen at table?"
"Not if the thirteenth is paying for the dinner."—Judge.

PART OF THE TRUTH.

"Robert, dear, how do you suppose these dozens and dozens of empty bottles ever got into our cellar."

"Why, I don't know, my dear. I never bought an empty bottle in my life."—Fun.

A BOY SCOUT'S OPPORTUNITY.

"Son, I hear you have joined the Boy Scout movement."

"Yes, dad."

"Well, s'pose you scout ahead and see if your mother is sitting up for me."—Pittsburg Post.

RELIGIOUS OPINION.

"Come up and jine de army of de Lord, sister!"

"Ah done jine."

"Where you jine?"

"I jine de Baptis' Chu'ch."

"Lawdie, sister, dat ain' de army! Dat's de navy!"—Judge.

POSTERITY AND COMMERCIALISM.

Charles D. Hilles, secretary to the President, says the funniest advertisement he ever saw was stuck up in front of a grocery store on a side street in Cincinnati. It read thus:

"Twins are come to me for the third time. This time a boy and a girl. I beseech my friends and patrons to support me stoutly."

FLED FROM DEATH.

We questioned the applicant for a position as laundress.

"Are you married?" we asked.

"No, suh. I'se a widdah."

"Ah—and your husband is dead?"

"Yassah—he's sho' daid."

"How did he meet his death?"

"Meet it? Laws, man, he didn't meet it! Dey had ter chase him two mile fo' dey-all could ketch him an' put de rope roun' his neck."—Cleveland Plain Dealer.

MINDING HIS OWN BUSINESS.

An Irishman, just landed, secured a position as fireman in a large brick factory. The chief engineer instructed him in his new duties, saying: "To run our engine we require 160 pounds of steam; you can always tell how much steam you have by looking at this gage."

Shortly afterward the engineer noticed that the engine was slowing up. Calling to the boiler-room, he inquired of Pat how much steam he had on.

"Oi have 145 pounds, sor," answered the new fireman.

"Why, man, I told you we had to have 160 pounds to run."

"Niver moind that," was the cheerful answer. "Use what ye have got, an' whin that's gone Oi'll have more for ye."

SUMMER VACATION.

40 weeks' anticipation.

10 bustling preparation.

1 to pack and reach the station.

1 of final realization.

52

—Judge.

DIDN'T BOTHER HER.

Miss Quizz: "Have you ridden in Charley's new auto?"

Mrs. Malaprop: "Yes; it was lovely. There was some osculation, but it didn't bother me a bit."—Brooklyn Life.

FIXED.

"Has Dinny got a stiddy job yit, Mrs. Mulcahey?" asked Mrs. Brannigan.

"He has that," said Mrs. Mulcahey. "They've sint him to the pinitinchery for twenty years."—Harper's Weekly.

MAGNIFICENT OPPORTUNITY.

"I don't see any sense in referring to the wisdom of Solomon," said the man smartly. "He had a thousand wives."

"Yes," answered the woman, tartly, "he learned his wisdom from them."—Brooklyn Life.

SPEAKING FROM EXPERIENCE.

Little Virginia was greatly bothered with freckles, of which she had more than her fair share. She was in her first year of school, and the teacher was asking easy geography questions.

"Virginia," she said, "what two things does the sun give us?"

Virginia looked puzzled a moment, and then answered with a smile, "Light and freckles."

THE KIND SHE WANTED.

A charming young woman walked into the First National Bank a few days ago, and, stepping up to the window, she said:

"I should like to open an account at this bank, if you please."

The teller gazed at her admiringly and replied.

"We shall be very glad to accommodate you. What amount do you wish to deposit?"

"Oh," she said, smiling, "I mean a regular charge account. You know the kind I mean—such as I have at the department stores."—Exchange.

CLAYS AND CLAYWORKING IN MASSACHUSETTS.



CAREFUL EXAMINATION of the clays of Massachusetts discloses the fact that the bulk of those suitable for brickmaking are located principally in the eastern portion. The higher ground of the western part has a paucity of suitable clays, though there are occasional deposits which are worked to some extent.

Most of the brick yards are situated in the eastern and southeastern parts, with a few along the extreme southern border, where they connect with the clays in Connecticut. In the southeastern part they shade insensibly into the clays of Rhode Island, both being laid down at the same period and in the same manner.

Roughly the clays are divided into two main classifications. In the first, they are composed largely of feldspathic materials, while in the second these materials have been replaced by others, principally those of a character closely approaching quartz. The second division is notable for the fact that a wide range of minerals are included, each one of which, if present in any considerable quantity, exerts an influence upon the clay and changes its character and its color.

In some sections this classification requires one more division. In this the mass was originally in the state of an under clay; that is, the soil was loaded with a swamp vegetation, from which these rank-growing plants took all the soluble basic material, such as lime, potash, soda and residue. This clay is, therefore, composed largely of siliceous matter and forms an excellent fire clay. All the elements which will flux when much heated are absent.

Along next to the Atlantic ocean the clays are found principally in small beds or pockets. These pockets occupy the lowlands bordering the shore, and in only a few instances are they suitable for extensive operations, though all manufacturers would find them extensive enough to suit their needs. It would seem that a sheet of clay underlays a considerable portion of the shore at no great depth. About Boston it appears as a sheet of mud at low tide. Other localities display similar characteristics under encouraging conditions.

In general the brick clays of this region exhibit tolerably clear stratification. In the more southern sections the layers of sand are less distinct, but in others they almost entirely disappear. Some of these clays, but by no means all, have glacial boulders and pebbles. There is, too, some crumbling, which seems to show a sudden thrust from somewhere, probably through the action of glaciers, or possibly some slight upheaval or land slip. These evidences of the deposits so far as exposure and examination have disclosed the facts in each case. Perhaps a prospector would do well to have this matter thoroughly investigated before undertaking extensive operations. There is always the possibility that the deposit would be so badly dislocated as to be unworkable, or else workable at only an exaggerated expense.

The question of thickness, or depth, is of importance. The examinations so far made have been insufficient to demonstrate this thickness in all localities, but so far as known there appears to be little difficulty in that direction. The deeper indents, or fiord-like deposits along the shore, are far enough below the surface to allow of indefinite working. Where tunnels have been constructed these deposits have been found scores of feet below surface. In instances the thickness exceeds two hundred feet, and no observations yet made have determined whether they are any thicker or not.

It will be seen from this that all clay used in manufacturing in Massachusetts, using the term all in a general sense, must be raised from a considerable depth. The cost of keeping the water from the pits is also considerable, yet perhaps not more than in other similar localities. The places where clay can be obtained near the surface, or from an elevation, which precludes the necessity of expensive hoist-

ing, are few, unhappily, and the expense of manufacturing is thereby considerably increased. Where all are affected alike, however, the difference constitutes no favoritism as regards cost of production.

The clay deposits of Massachusetts are by no means exhausted, nor have suitably located deposits been all pre-empted. There is still plenty of opportunity for development, and the growing cities and towns of that vicinity afford an excellent market for all desirable brick and other clay materials which may be made for years to come.

Beston & Kelly, of Chicopee, report an excellent business last year and promise of one equally as good this year. D. J. Curtis & Son likewise do a large business there. Chicopee has been a very rapidly growing locality these past few years, and these brick firms have profited accordingly. The situation is promising this season. Building operations will probably be quite as large as ever. Factory construction has been one of the principal sources of consumption recently, though some dwelling house demand has been created.

Danversport is another center for the clay industry which has been much developed of late. Four firms are credited to that section, and all four are prosperous. Edwin F. Day, Frank S. Evans, Gallivan Brothers and William T. Trask are all manufacturers of importance and turn out many brick each season which go into buildings in their immediate vicinity or are shipped to larger places where building is more active than there. They make a quality which brings them good prices and a continuous demand. Danversport is in the town of Danvers, and Edward Carr is credited with doing business in Danvers itself, supplying his local market and making a surplus for other towns less fortunately situated.

Greenfield is well toward the western part of the State, and is one of the few towns in that section which has profitable brick enterprises in operation. Three firms are doing business there, finding a ready market in the rapidly growing communities with which Greenfield is surrounded. C. C. Dyer, J. E. Mitchell and A. L. Smith are all three live men, and they are doing a good business. Greenfield is an important manufacturing town and a railroad center, where several important lines cross. The home demand is sufficient to consume practically everything offered. They do little shipping beyond their immediate neighborhood.

At Turner's Falls Thomas Brothers seem to monopolize the business, though at Montague City, not far from there, A. C. & F. E. Burnham and the Turner's Falls Brick Company have large plants. The abundance of timber in this portion of the State has tended to reduce the quantity of brick used in building, but in recent years a change has occurred and the demand for building brick has increased somewhat. The market is largely local, but increases as more dwellings and factories are constructed of burned clay. The deposits are much larger than are now being worked.

Marcy & Gardner have a plant at Amherst and another at Palmer, both of which are located in desirable environment where development is active and where building goes on rapidly. Palmer is a place of about 12,000 people, largely manufacturing, though surrounded by a well-developed residence section, where building is going forward much faster than in some places. Amherst is not so large, but the growth there is active and business in their particular line is good.

Springfield, on the Connecticut river, in the southern part of the State, is a center of importance, commercially and otherwise. A number of important manufacturing towns, like Holyoke and Thompsonville, which is in Connecticut, but near to Springfield, surround it, and in these towns factory development is proceeding very rapidly. The brick companies doing business in the city all find enough to keep them at work, and some years, notably last season, they had difficulty in filling their orders. The Connecticut River Brick Company, Daniel J. Curtis & Son, the Hampden Brick Works, Moses G. Morse, the Standard Brick Company and the Wellington Brick Company are the firms which are now bidding for business in that vicinity. Springfield is the center for a population of close to 500,000, and therefore these numerous firms find little difficulty in disposing of all they can make at good prices.

HIRAM.

Written for THE CLAY-WORKER.

JUST A BIT OF BURNED CLAY.

ONLY A COMMON BRICK. Just a piece of clay, old, perhaps, as the world, burned hard in a kiln. That is all. Yet empires have been founded upon it. Civilizations have come and gone, have waxed great and waned, ultimately disappearing, leaving only memories behind. Yet this bit of burned clay has outlasted them all and will last for centuries yet to come.

The hardest granite will waste under the influence of the atmospheric forces. Clay will remain as it was. The trap rock which forms the basis of many mountain chains will split into fragments under the disintegrating influences of time. Clay never changes. The solidest rock known cannot stand the destructive force of fire. Clay comes out of it in quite as good condition as it went in. Water will spoil the best rock known. Clay resists its action for centuries. Iron oxidizes and passes away, disappearing much as though it were burned. Clay will never show the effects of those chemicals which make iron oxidize.

Go to the Metropolitan Museum of Art and look at the bits of clay written all over with indistinguishable hieroglyphics. They are the records of a civilization which passed away many thousand years ago. The monuments built of rock are gone. Only heaps of ruins mark the sites of their splendid cities. But these little, apparently inconsequential bits of clay have remained and are now telling to the civilizations of the present the story of what occurred so long ago. No other material has withstood the ravages of time. No other records which go back so far into the past are known. Clay alone has recorded the history of the peoples that disappeared centuries ago. Clay alone has claims to be called imperishable.

And what is clay? Merely the result of the disintegration of various classes of rock. Water, for example, works into the little crevices of all rocks. Gradually through freezing, or chemical action, the solid rock is rent asunder and the bits fall. The weather disintegrates them still further. Heavy rains cause the residue thus formed to wash down the hillsides into the streams. Thence they are carried to standing water, where they are laid down, and after the lapse of untold centuries clay beds are formed. The different colors arise from the different classes of rock from which the particles are formed. The lamination is caused by the fact that the rush of water from above brought down more in one day than another. Or, rather, the supply of disintegrated material was not continuous. This caused layers. It is all simple enough. Indeed, by watching a little stream caused in the gutter by a shower you can see all the processes going on before your eyes now. Nature has not stopped her work. She is just as busy remoulding the globe today as ever. And she may be laying down today in various places huge beds of clay which will be dug by civilizations so far in the dim future that the mind cannot grasp the period of time which must elapse before they are here.

As a structural material clay has proved its value. Indeed, it is the one article used in building that seems to be permanent. Any structure made of burned clay stands all stresses of weather, or any other force. That seems to be the verdict of experience. It does not decay like wood. It does not split under the fiercest heat like stone. It does not disappoint like other structural materials in its general reliability. Indeed, it possesses all the qualities required in a permanent building material. And it is practically universal in its extent. Almost anywhere clay beds can be found, always marking a point where there was still water during the formative processes which made this globe habitable.

It is cheap. It is relatively cheaper than any other building material. And its plasticity admits of manipulations impossible with other building materials. There is nothing too

delicate and nothing too massive for clay to be used in making. It makes the most beautiful of solid walls and it is capable of being made into the most delicate of ornaments. In short, there is nothing in structural work or decoration in which brick may not play a prominent part. It all depends upon the workmen.

Clay can be made into pottery so delicate as to be practically transparent. There are dishes so frail that they closely resemble the delicate shells of a bird's egg. Or the same material can be transformed into something so massive that it would take a Titanic power to destroy it. Few materials are capable of such a wide variety of uses.

Look at the immense building towering toward the sky. The beauty of the design worked out upon its walls is due to the different colored brick used in its manufacture. The grotesque gargoyles which decorate its cornices are made from the same clay treated differently. The floors inside are of richly colored tiles, all made from the same clay, and the walls are traced in patterns of landscape or other designs, all made from clay and put in permanent shape with little trouble. No other material can compare with this. It is truly ubiquitous. Its usefulness has no end.

Clay is dug from the bank, put through certain prescribed preparatory processes, burned in a proper kiln and then it becomes permanent. From that time on it would be impossible for any force to injure it. Even the strongest acids make no impression upon it. As long as time shall last it would seem that this bit of clay will remain, bearing its message or contributing its share of beauty.

Almost every State in the Union has clay. In almost every State in the Union it is used to some extent for the purposes outlined here. Its use is increasing. It is made more and more beautiful each year. Always there is some new way of manufacture, some new process of shaping or decoration. And it is absolutely permanent. A record once made upon it, a decoration once formed, will outlast the ages and carry the message of information, or beauty, or utility forward far into the future.

Stone monuments will disappear. There will be nothing left of the wood structures which now dot the world. The paper records will be consumed by time. But after they are all gone and the portion of the world which used them is a blank to those to come they can look upon the clay records and determine something of the civilization of this age.

It is well to make brick structures beautiful. It is well to lavish upon them the best of architectural adornment. It is well to so construct them that they will accurately interpret the civilization of the time. Everything else will be gone tomorrow, but clay will remain, undissolved and indissoluble. The one material which will stay as long as the globe itself shall stand.

KILN BAND LUGS WORTH WHILE.

The E. C. Tecktonius Manufacturing Company, of Racine, Wis., is hearing good things about their kiln band lugs every day (see ad on page 204). It is seldom a purchaser of their product finds the least fault with this lug, for they meet all requirements. The following letter speaks well for this firm's excellent product:

"E. C. Tecktonius Manufacturing Company, Racine, Wis.:

"Gentlemen—It gives us pleasure to advise you that we have used your kiln band lugs on all of the kilns which we have built at our two plants, and they have given us the best satisfaction.

"We consider them the most durable, economical and simple kiln band lugs on the market and kilns present a neat appearance when used.

"Yours very truly,

"GEORGE O. BERRY,

"BY T. E. BERRY."

FIRE PREVENTION CONFERENCE.

MADISON SQUARE GARDEN will be the scene of the first international conference and exhibition embracing every phase of fire prevention, fire protection and fire fighting, next October, from the 2d to the 12th, including Fire Prevention Day in New York State, October 9.

Fire Prevention Day is now annually set by proclamation of State Fire Marshal Ahearn, the former deputy fire chief of the New York City Fire Department. Its purpose is to provide an annual day for the cleaning up and removing of fire dangers such as accumulations of paper, rags, etc., from factories, warehouses and all business and residential buildings.

Fireproof building construction and all accessories, fire alarm systems, automatic sprinklers and fire extinguishers, motor fire engines, fire escapes, and in fact every device and manufacture in the fields of fire prevention and extinguishment will be exhibited and demonstrated, and in addition an important conference will hold sessions daily providing the first general consideration of the fire question by architects, builders, engineers, insurance men and fire chiefs and fire fighters on the same platform.

The mayors of the principal cities of the United States have already appointed their fire chiefs and commissioners as delegates to attend the conference and exhibition.

The committee of this fire conference and exposition includes Thomas J. Ahearn, New York State Fire Marshal; Joseph Johnson, New York City Fire Commissioner; W. E. Waid, representing the American Institute of Architects; Charles H. Cole, recently appointed Fire Commissioner of Boston, Mass.; Chief Charles E. Swingley, of St. Louis, Mo.; Richard H. Johns, president Board of Fire Commissioners, Baltimore, Md.; Charles H. Seyferlich, Chicago Fire Marshal; Chief Edward A. Waters, Philadelphia, Pa.; A. Friedlander, editor "Firemen's Herald"; W. P. Comstock, editor "Architecture and Building"; Guy W. Eskridge, editor "Fireproof Digest"; I. G. Hoagland, editor "Insurance Engineering"; F. W. Shepperd, editor "Fire and Water Engineering"; Russell F. Whitehead, editor "Architectural Record"; E. Jay Wohlgemuth, editor "Fire Protection"; Henry R. Yates, Fire Chief Schenectady, N. Y., and secretary New York State Association of Fire Chief Engineers; John Stephen Sewell, late major engineers U. S. army and U. S. government expert on fire protection; C. A. Palmer, Michigan Fire Marshal and president Fire Marshals' Association of North America; Felicien Michotte, the French fire protection expert and president and engineer of the Society for the Prevention of Accidents and Fire, Paris, France. The committee also includes a number of other fire chiefs, insurance officials and fire marshals, with A. D. V. Storey, 1269 Broadway, secretary and general manager.

Awards will be made for the new inventions of value and merit, a campaign of fire prevention education will be waged in the interests of the general public and the practical work of fire fighting will be shown with life-saving exhibitions by firemen with scaling ladders, nets, the life line and similar equipment.

CLAYS AND CLAY PLANTS ALONG THE SOUTHERN RAILWAY.

The above is the title of a neat pamphlet recently issued by the Land and Industrial Department of the Southern Railway, and contains a brief discussion of the clay resources and conditions relative to the establishment of clayworking industries in the southeastern states of Virginia, North and South Carolina, Georgia, Florida, Alabama, Mississippi, Tennessee and Kentucky. Important facts about this territory so rich in clay deposits and transportation facilities are given in detail, the whole pamphlet from beginning to end containing very interesting matter. Write for a copy, addressing M. D. Richards, Land and Industrial Agent, Southern Railway, Room 1369, Washington, D. C.

OBITUARY.

Well-Known Potter Passes Away.

Thomas Richardson, aged 56, a well-known potter of East Liverpool, Ohio, died in his home in that city on July 24. He was born in Hamilton, Ontario, Canada, and went to East Liverpool about ten years ago. His widow and five children, as well as two sisters, survive.

Constructor of Potteries Succumbs After Long Illness.

William P. McClain, aged 75, who built the big pottery at Newell, W. Va., died at his home in East Liverpool, Ohio, on July 14, after a long illness. In his early life Mr. McClain followed the river. Later he enlisted and served throughout the civil war, at its close taking up the contracting business. He was especially successful as a constructor of potteries. He left a widow, two sons, two brothers and one sister.

Death of Prominent New Jersey Brick Man.

The death of James C. Dobbs, of Collingswood, N. J., on July 9, removes one of the pioneers in the brick and tile industry in the East.

Mr. Dobbs was born in Boston, England, seventy-four years ago, and came to this country at the age of twelve and engaged immediately in the brick business in the employ of his uncle at Collingswood. After about ten years he launched in business for himself at Westville and later secured the plant of his uncle at Collingswood, which he has conducted successfully for a half century. He was the pioneer in drain tile in this part of the country.

His family consisted of five sons and five daughters, eight of whom survive him. Each of the sons have been at some time identified with the brick business.

S. B. Dobbs, the eldest son, is one of the largest face brick dealers in the East, with offices in Philadelphia, New York, Washington, D. C., and Atlantic City, N. J.

The plant is being operated to its capacity by the executors of the estate.

Noted Potter Dies at East Liverpool.

Joseph Chetwyn, aged 60, one of the best known potters of East Liverpool, Ohio, died in his home in that city on the morning of August 6, after an illness of five days. He suffered from a complication that developed peritonitis. He was born in Hanley, Staffordshire, England, and embarked in the ceramic industry when but a boy. He served six years as an apprentice to his father.

Mr. Chetwynd came to the United States in 1872, and first located in Jersey City, N. J., leaving there in 1879 to go to East Liverpool. His brother Jesse was the designer and modeler of the famous American Cable Shape and made all the shapes for the Harker Pottery Company. Jesse Chetwynd soon left East Liverpool and his brother took up his work. He was well fitted for the place, as for the past one hundred years members of his family had been in the first rank as designers of pottery in England.

Later Mr. Chetwynd returned to Jersey City, then went to Wheeling, W. Va., and later returned to East Liverpool, where he and his brother-in-law, H. D. Wallace, purchased the Harker potteries. That was the beginning of the firm of Wallace & Chetwynd, in later years incorporated under the name of the East Liverpool Potteries Company. Later Messrs. Wallace & Chetwynd retired from the company, Mr. Chetwynd taking up the management of the Colonial Potteries.

Mr. Chetwynd left a widow and three children, as well as several brothers and sisters, who live in England.



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A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-NINTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis

Vol. LVIII.

August, 1912.

No. 2.

CURRENT COMMENT.

How's the brick motor truck coming on? Have you tried one? If so, why not tell us about it.

* * *

While others are baking at the seashore, the brick man is baking clay at home so as to be ready for the fall building season.

* * *

The crops are looming up better than the early spring indications, and the prosperity wagon should be pretty well loaded this fall.

* * *

The auto owner is a big factor in the matter of good roads and well-paved streets, so don't forget to keep telling him about the qualities of brick paving.

* * *

No matter whether you sell your brick kiln run or sort them out into grades, the more good brick you have in the lot the higher will be their marketing value.

* * *

One of the good signs of building brick progress is in the fact that the carpenter and builder papers are giving a lot more space to brick house ideas now than they did a few years ago.

* * *

There is more than alliteration in the connection between sewers and sanitation. They just naturally belong together, and the cry for better health is leading to more sewers—and this in turn is leading to the sale of more clay products.

* * *

There is a fine crop of excursions this summer, and you can pay your money and take your choice of rubbernecking, according to your means and inclination. There's the private car, the specially conducted, the "catch-as-catch-can," and boat rides and the auto tours. So, if you don't take an excursion

of some kind, you will have to dodge many a good-looking and persistent opportunity.

* * *

The digging machine that will make ditches just as well in summer and fall as in the spring ought to make for a good late summer business in drain tile.

* * *

More burned clay products entering into partition walls not only means better and more permanent homes, but it also means more work for the clayworker.

* * *

The dealer in builders' supplies and the maker of brick can work together to their mutual advantage. Get together and talk it over; that is a good way to start.

* * *

And what about advocating the brick garage? The fire-proof idea is strong enough here that the metal people are making quite a feature of it. Why not urge the right kind of a permanent garage—one built of brick?

* * *

One of the things that helps the big electric stations furnish power economically is the use of the very latest types of boilers and engines, and the same things should prove a help to the brick man producing his own power.

* * *

Some folks think it might help some to have cheaper postage, and then there are some others who think that better service would be a greater help to the public, but it is perhaps what the Postmaster-General thinks that will count for the most.

* * *

Exportation for the fiscal year ending with June, of our manufactured products, went above the billion-dollar mark for the first time. This is more than double the amount of the trade in 1903, which shows something of how we are growing as a manufacturing country.

TRANSIT FREIGHT MATTERS.

Those of the clayworkers who are operating on clay shipped in by rail on any raw material basis contingent on outgoing freight of brick or other clay products should keep a weather eye on the Interstate Commerce Commission for the next few months. The commission has been out gunning for abuses in various forms in transit rates, has been giving hearings and gathering evidence all over the country with a view to adopting some uniform rule or ruling to govern and police these rates. It looks now like the final outcome will be an abolishing of all rates involving rebates, and that the raw material and concentration rates will be all made flat rates, and most of them made somewhat higher than they have been. So if you are getting in clay on a raw material rate, have a talk with your railroad man and keep in touch with what is doing lest you wake up suddenly some day to find an unexpected additional cost at the raw material end.

DOES CHEAP HELP PAY?

A bunch of plant owners were discussing the problem of help. One called attention to the advantage of a certain manufacturer in that he had plenty of cheap help at hand, help that cost 50 per cent. less than his. Finally another man got into the discussion with the argument that what they needed was more five-dollar men, not more cheap help. Then he told of having a cheap man running a machine, and finally getting another man temporarily at \$5.00 a day. The high-priced man did more work and did it so much better that he really proved to be cheaper in the end than the low-priced man. As a result, this man became a convert, widening the market for your own product. The big clay

aye, even more, a rank advocate of the idea that cheap help doesn't pay. And when he got through telling about it the others were left wrestling with the question, Does cheap help pay?

Now, the real truth of the matter is that all help pays if you use and handle it right, and there are places for the cheap men to work in advantageously as well as the high-priced ones. It is all a matter of selection and distribution, of studying the game and playing it for the best results in the way of team work. At a machine that requires skill and sets a pace for a number of men, it is an expensive proposition to use an inefficient man, no matter how little he may cost for hire. On the other hand, it is rank foolishness to pay a high price for a skilled man to push a wheelbarrow when a less expensive man can probably do more work with it. A man should go into business with the idea that all help must pay, and fit the work, the wages and the help together the way they will work the best and show the greatest results.

TILING AND THE DITCHER.

It used to be that the main time to sell drain tile was in the winter and early spring; at least, this is the time most of it was put in. It is a time of some leisure on the farm, and it is a time that the ground is soft and easy to dig. This is the main reason for the spring being the busy time for tile, but the ditch-digging machine is changing all this. It works best when the ground is dry enough to be firm on top, better than it does when the top surface is soft and muddy. In other words, one of the best times to use the ditch-digging machine is in the late summer and fall, and at this time the farmer has about as much leisure as at any other time. The tilemakers should make a point of advocating summer tiling and the use of machines for ditching, for that not only gives them a longer and better season, but it also makes it better for the farmer—he can have the work done while it is the easiest to do, and the tile will be there to do the draining early the following spring, so that he can get at his plowing and planting all the sooner. It will take a little time and effort to change the habits of people in this respect, but it can be done, and in the doing of it the tile man should be able to make business better for himself.

GOOD ROADS MOVEMENT IN OHIO.

No more important movement to the people of Ohio has been up for consideration during recent years than that of good roads—inter-county good roads, if you please. It is a question that touches the pocket nerve of every tax payer and its solution will prove a big factor in reducing the high cost of living, something greatly to be desired by every one. It goes without saying that the cost of transportation is borne by the consumer, but because it is not itemized in bills for groceries or meats, few realize when they pay their bills that a goodly per cent of same is an indirect tax for excessive transportation charges.

We are a careless people, and, as a rule, give little heed even to things of much moment, unless they are brought to our attention in a direct and definite way. This indirect tax that we are paying amounts in the aggregate to many times the actual cost of good roads or their maintenance, a fact which ought to be brought home to every thinking tax payer. An effort is being made to do this in Ohio now in order that a clause in the new constitution, to be voted on September 3, providing for a bond issue of \$50,000,000 may receive the favorable consideration at the hands of the voters that it should. It is to be devoutly hoped that the voters of the Buckeye state will awaken to the importance of this measure and work for its passage. An organization has been formed,

known as the Ohio Good Roads Federation, with headquarters at Columbus, for the purpose of advocating this measure and our Ohio readers who have not already done so are urgently requested to write to the federation for literature giving facts and figures which they have compiled on the good roads question.

It is a matter of very great importance to every wage earner, every farmer, every merchant, every manufacturer and every professional man, all of whom will profit directly or indirectly by the success of this good roads movement. Mr. Buckeye, do your part to boost the state-wide good roads movement. You can do this best by at once getting in touch with those who are behind this movement. It deserves the active and earnest support of every good citizen.

THE CHECKERED CAREER OF SAND-LIME BRICK.

The clayworking industry is pretty well aware that the sand-lime brick idea has blown its horn and, figuratively, retired into its hole, but now we have official recognition of the checkered nature of the career of this would-be competitor of clay brick in a recent report of the United States Geological Survey, showing the decline of the industry since 1907. The idea came over here from Germany and started into active business in 1901, and for two or three years it prospered greatly, on the promotion spirit. But when those that had been promoted got down to the regular brass tacks of business, things too often failed to pan out the way it was hoped they would. So the industry began to wither, and in the four years from 1907 to 1911 the number of plants operating dropped off from 94 to 66, and they are still dropping off. In a few instances where peculiar conditions existed, such as good sand easily available and no clay for brickmaking, it has done well and actually made a profit for its operators. These instances, however, are the exception. As a rule, sand-lime brick plants have proven a failure from a profit-making standpoint if so located as to be brought into active competition with clay products. It made a noise for a while and there will probably always be some market for sand-lime brick in places where it fits in. But as a general proposition the career of sand-lime brick has been so checkered with failures that it has but little in the way of encouragement for the investor left today.

"THE NATION'S BUSINESS."

There is a good idea going the rounds, if it will just be carried out intelligently and in the right spirit. The idea is fostered by the Chamber of Commerce of the United States, of which Harry A. Wheeler, of Chicago, is president, and has to do with informing the nation of the nation's business. That is really the name of a publication it is intended to issue from Washington, "The Nation's Business." This is not a publication for general circulation in itself, but one that is to be mailed to the trade organizations of the country, to the newspapers and editorial writers. The intent is to furnish a review of the progress of the nation in agriculture, mining, manufacture, transportation, distribution and finance. The publication headquarters will be in Washington so as to keep in close touch with the various government bureaus, and to promptly compile and report facts and statistics and put them in good form before the editors of the country, so that through them the whole nation may be properly and uniformly informed.

It is a splendid idea if it can be carried out right, and with no influence behind or mixed up in it other than the desire to give correct information as to what is doing, and if it can bestir those statistical people of Washington to give us the facts while they are fresh. This thing of waiting from one to three years after a thing happens, to get the

government figures on it, is too slow for the present age and the American people. We move too fast for service of that kind to be of much material benefit, and what the country needs is information of this kind hot off the bat. So if "The Nation's Business" is to be a real compendium of progress news, here is one suggestion for G. Grosvenor Dawe, chief of the editorial division—get at the statistics as they come in and beat the time of the departments in compiling and making them public.

Hey! DO YOU USE HAY?

Those of our readers who answer "yes" to the above question will find an ad on page 196 that will interest them. The Interstate Hay Company, Goshen, Ind., solicits correspondence. Write them for quotations.

FROST MANUFACTURING COMPANY PROSPERING.

The Frost Manufacturing Company, of Galesburg, Ill., write that they are extremely busy in all departments, and from present indications expect that happy condition to maintain the balance of the year, but with all their work they are not too rushed to look after all dry pan orders that come their way. The sales office of the company has recently been moved to 112 Adams street, Chicago.

AN ATTRACTIVE CATALOGUE.

The Chase Foundry and Manufacturing Company, of Columbus, Ohio, has issued to the trade one of the best catalogues of the year in their line. It contains over 100 pages of interesting matter well illustrated, setting forth the important features of their dryer cars, dump cars, portable track, switches and turn tables. We wish to call special attention to their flexible bearing, described on page 103 of this catalogue. If you haven't one, write the Chase Foundry and Manufacturing Company, Columbus, Ohio, and they will be pleased to furnish you with same. This firm makes a high grade line of roller bearing trucks, industrial cars of all kinds, wheels, axles, turn tables, switches and industrial railway equipment. They will be pleased to quote prices and give any additional information desired. See their ad on page 211.

THE BOOK OF SMILES.

"Any man can make a woman do exactly what she pleases," is the trite statement on the cover of the clever Book of Smiles for July and August, issued by the Standard Dry Kiln Company. This bi-monthly little joke book is brim full of funny sayings and the latest up-to-date stories and is always a welcome visitor. Of course, incidentally, the Standard Dry Kiln Company mentions the fact that they are the manufacturers of that well known Standard Dry Kiln, which has been installed in plants in nearly every state in the Union, and requests all those who have not received one of their latest catalogues to write them and same will be mailed forthwith. When you write them for the catalogue, also ask for the Book of Smiles, for it is full of laughs and good humor. See the Standard Dry Kiln Company's advertisement on page 140 of this issue.

NEW YORK PLANT BUYS RAYMOND MACHINERY.

After exhaustive investigation which led them through many plants, where they saw various lines of machinery in the grind of daily operation, and after using ample time and means for a careful investigation, the Central Clay Products Company, of North Tonawanda, N. Y., have made their decision, and recently placed with the thoroughly responsible firm of the C. W. Raymond Company, of Dayton, Ohio, their order for the complete machinery and drying equipment for their new electrically driven clay works, which is to be a model of its class. The list of purchases includes standard Raymond equipment as follows: "777" brick machine, 14-foot box frame pug mill, "Victor" repress, 9-foot dry pan, equal roll crusher, 8-tunnel dryer, dryer cars, hoists, elevators, conveyors and complete electrical installation, transformers, motor, switchboard, etc., for 200 h. p. plant.

We congratulate both parties to this contract, and feel that the interests of either could not be intrusted to better hands.

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“GETTING THE MOST FOR A DOLLAR” has been given as a definition of good engineering such as is done by

The Richardson-Lovejoy Engineering Company.

[See page 214.]

FOR SALE, WANTED, ETC.

FOR SALE.

85 rotary dump cars; side or end dump; 24 in. gauge, 25 in. wheel base; operate satisfactorily on curves of 45 ft. radius. Heavy oak trucks, 12 in. box oiled chilled wheels; 1 3/4 in. axles; heavy oak body 48 in. x 54 in. inside and 18 in. deep; loose tail gates and steel couplers.

Will make an attractive figure for the lot. Address

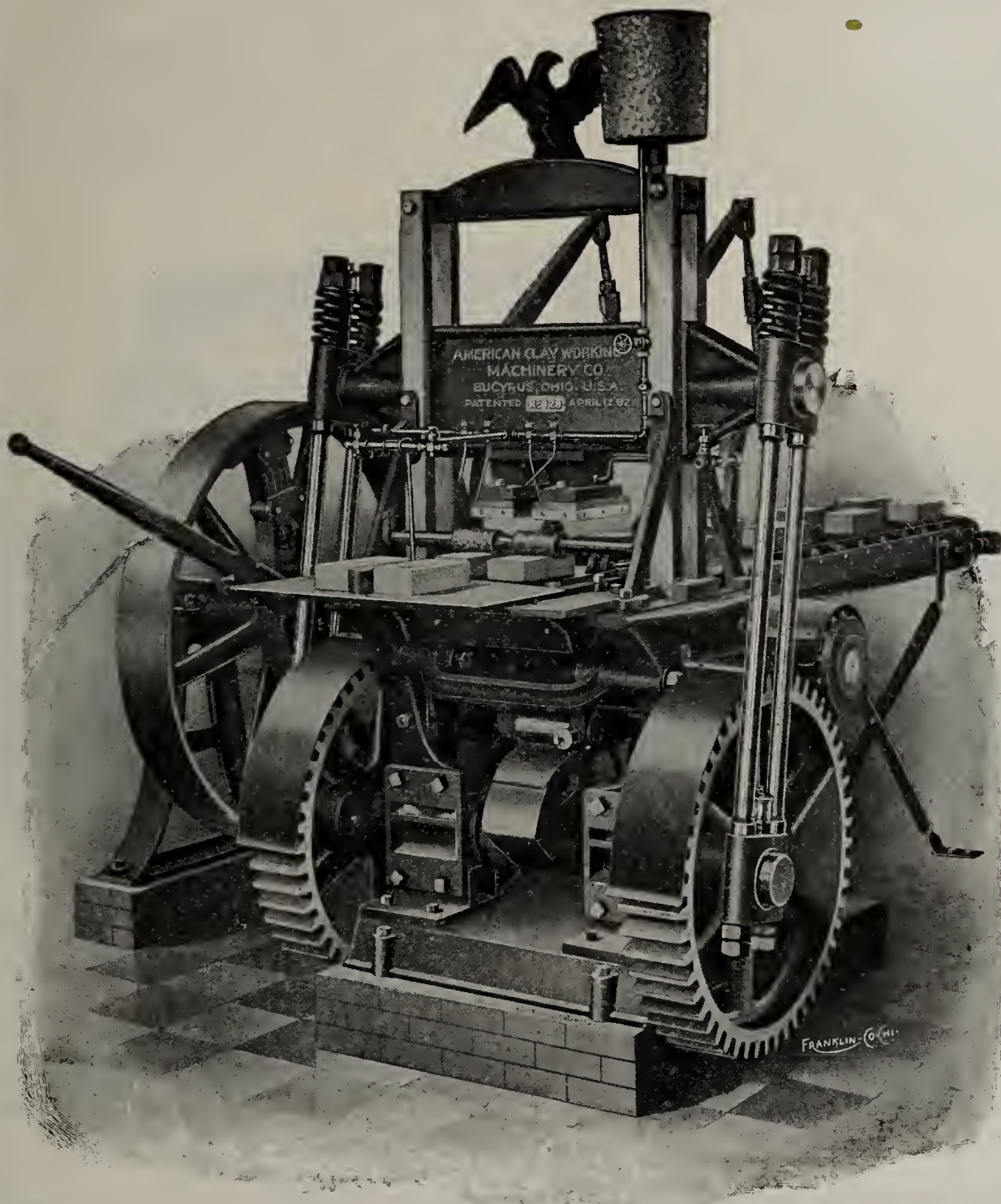
LACLEDE-CHRISTY CLAY PRODUCTS CO., St. Louis, Mo.

For Sale, Wanted, Etc., Ads Continued on pages 202, 203 and 204.

A QUALITY OF MACHINERY ABOVE ALL OTHERS.

No Unpleasant Memories

"I had almost forgotten that I own an **EAGLE REPRESS**," said a successful brick manufacturer the other day. "The fact is the **EAGLE** gives us so little cause to think unkindly of it that we scarcely think of it at all. Aside from the natural ills of all machinery the **EAGLE REPRESS** goes right along, day in and day out without attention. Even our Corliss engine is inferior to it when results are counted at the end of the year, and we lavish attention on the engine where the **EAGLE REPRESS** has scarcely any attention at all. If I were to buy another repress tomorrow, or a hundred represses, there is only one press I would consider, and that is the **EAGLE REPRESS**. I am sure no press would do what it has done for us, and I can look back upon the accomplishments of the **EAGLE**, and what it has done, with much more confidence than I can look forward to the promises of some other press."



The above is only one of many approving things said of the **EAGLE REPRESS** by those who know. It is easily the staunchest and best press upon the market today, and will be sure to give you more and better output with less trouble than any other press. Let us send you particulars about the **EAGLE REPRESS**.

We build every machine and appliance for the manufacture of Clay Products by all processes. Write for new catalog. It ably reflects the quality of the "Built Right Run Right" line.



The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.

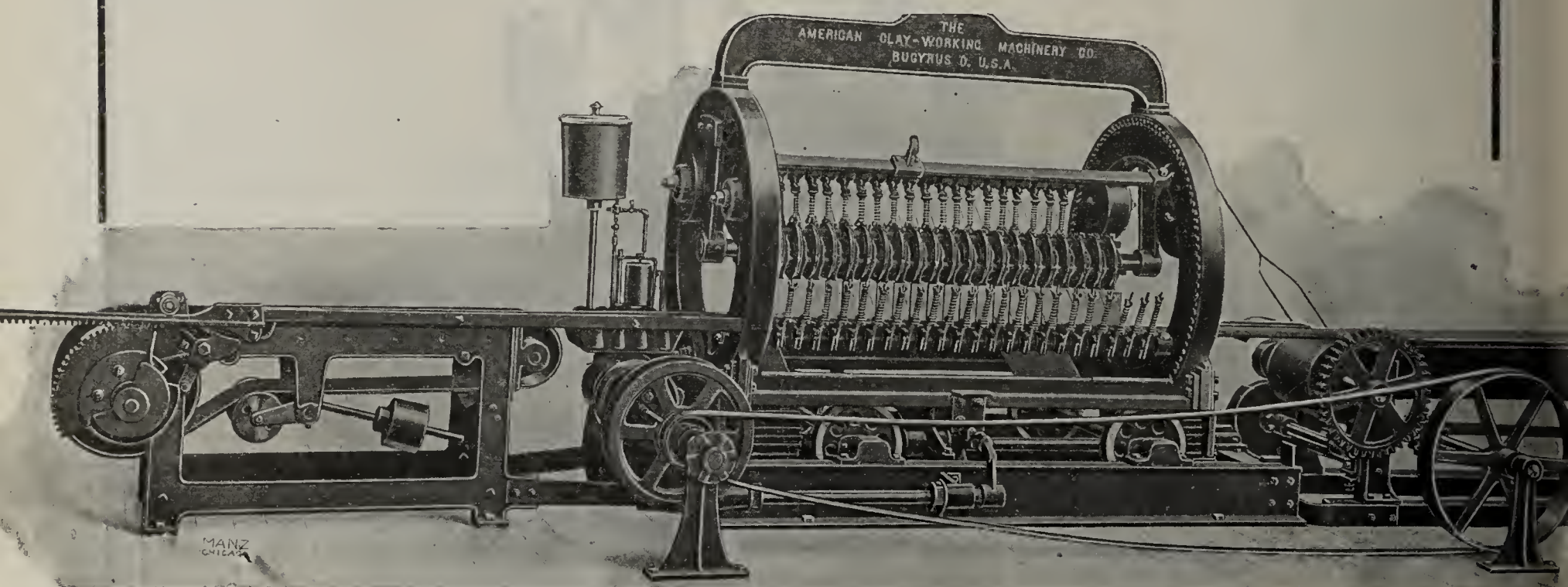
Much the largest manufacturers of Clayworking Machinery in the world. And much the best.

Mention THE CLAY-WORKER.

A QUALITY OF MACHINERY ABOVE ALL OTHERS.

You Can't Beat the Combination

There is a lot of talk about beating the "combinations," but here is a combination that you can't beat. It is a combination of our No. 20 Automatic Cutter and our Superior Cutting Wire. With these two combined, your cutting-table troubles will be near the vanishing point—as near, in fact, as is attainable. The No. 20 Cutter has a long record of successful installations which back up our claims for it. Let these users talk to you. We will cheerfully give you names for the asking, and they are so pleased with the No. 20 Cutter that they will tell you all about it.



Our Cutting Wire is superior simply because it had to be to reach the standard of excellence we had set for it. In our many years study of cutting wire, from both the manufacturer's and user's standpoint, we have hit upon a combination that insures strength and long life to the wire. We can promise you that our wires will cut more brick than any other. We solicit a trial order.

We build every machine and appliance required in the various branches of the Clay Trade. Have you seen our New, Big Catalog? Nothing approaching anywhere near it was ever issued to the Clay Trade before.



The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.

Much the largest manufacturers of Clayworking Machinery in the world. And much the best.

Mention THE CLAY-WORKER.

The Haigh Continuous Kiln

The Haigh Kilns are in daily use in all parts of the United States and are producing the greatest per cent of first-class ware of any Kiln on the market. This production—high in percentage of first-class ware—is attained with less fuel consumption than in any other kiln, and in less burning time than any other kiln. Then there is the ease of handling, the convenience in loading and unloading and the improved quality of ware.

To tell the whole story of the Haigh Kiln in a few words we are offering you:

First—The highest per cent of marketable ware.

Second—The highest per cent of first-class ware.

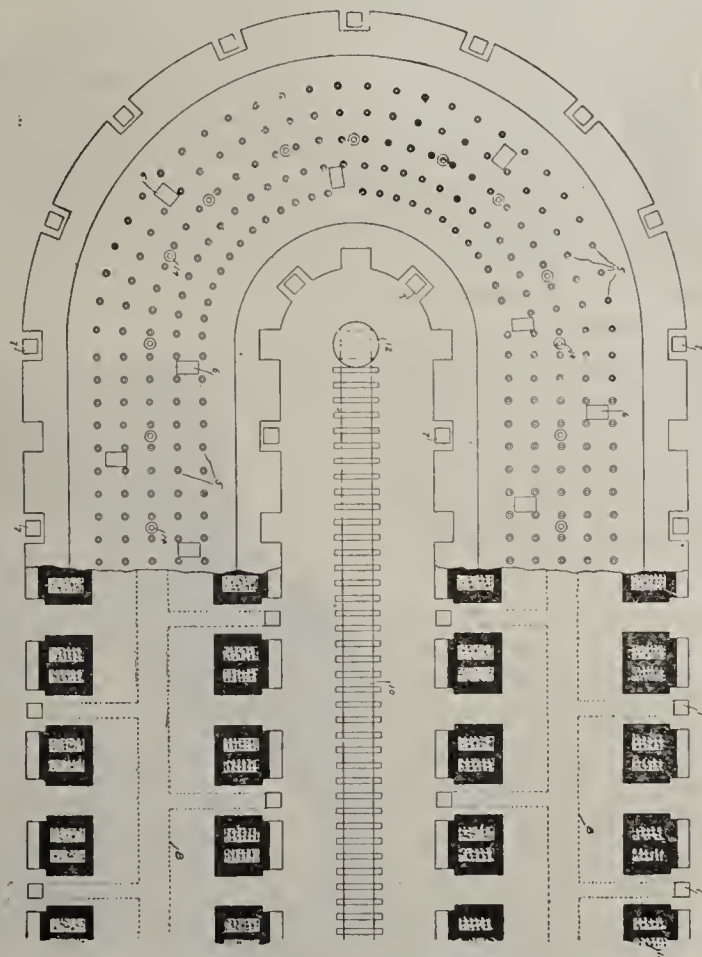
Third—The lowest consumption of fuel.

Fourth—The least time in burning.

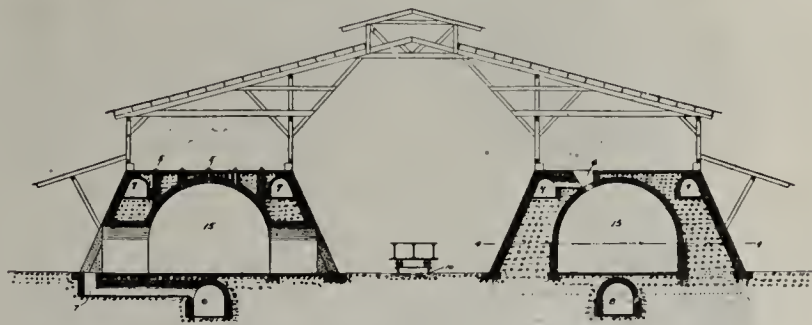
Fifth—The greatest convenience and simplicity.

And last, but not least, the greatest per cent of profit.

These features considered separately make the Haigh Kiln worthy of investigation. Taken collectively they make the Haigh Kiln the very best investment in kilns. The Haigh Kiln is in line with the quality of our Machinery and appliances for the profitable manufacture of Clay Products. Let us send you testimonials of users. Tell us what you are interested in and we will let the users tell you of their experience with that same machinery. We furnish full information and advice. Our Engineering department is at your service and is worthy your trust.



Top Plan View with Part in Section on Line A-A



Transverse Section Through Waste Heat Connection

5 Top Firing Holes
6 Waste Heat Connections
7 Smoke Duct Connections
8 Main Smoke Duct
9 Waste Heat Duct

10 Transfer Track
11 Turn Table
12 Firing Hole
13 Measuring Hole
14 Burning Chamber

The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.



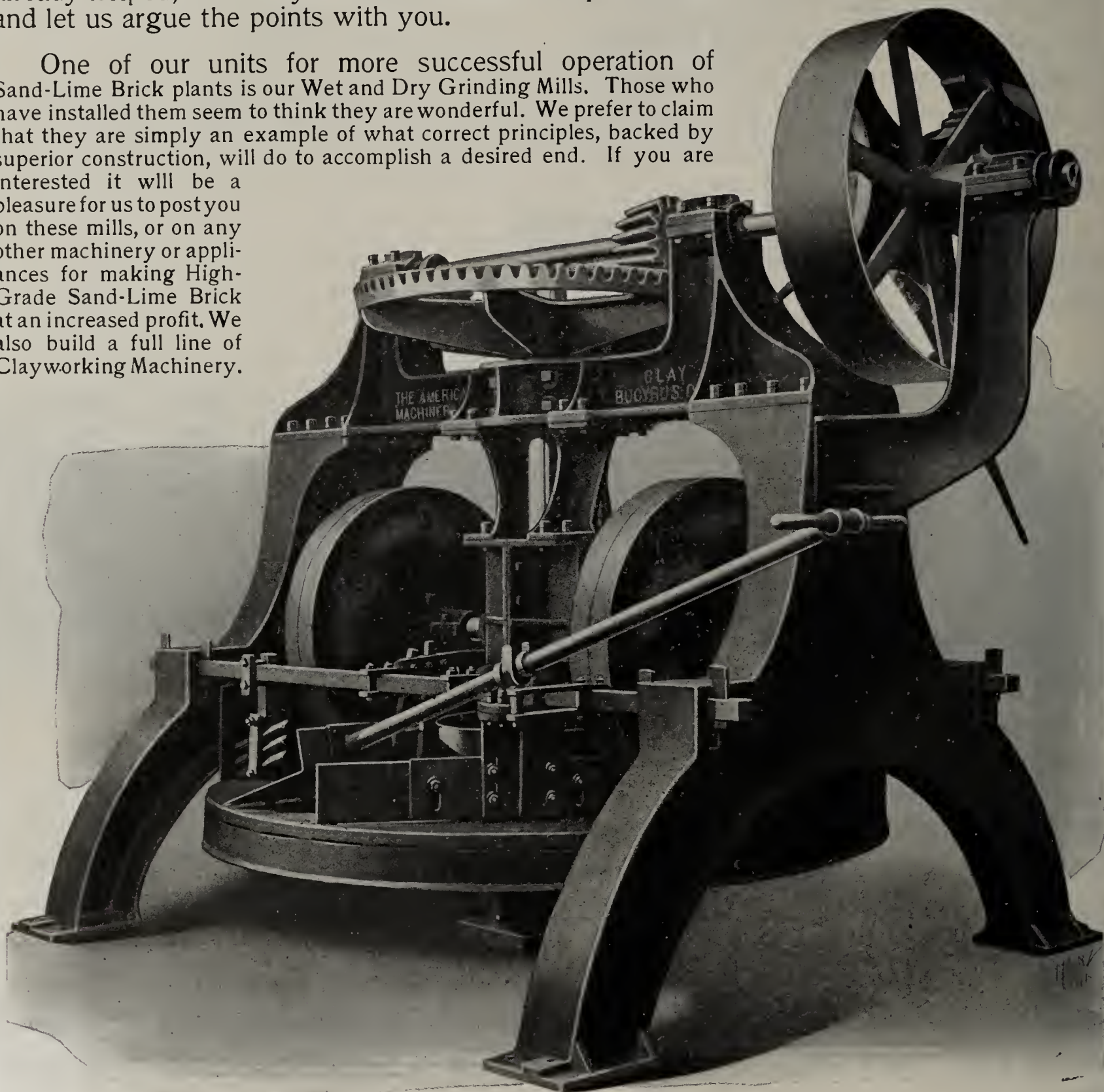
Much the largest manufacturers of Clayworking Machinery in the world. And much the best.

Mention THE CLAY-WORKER.

Others Say We Can Help YOU

When others say that we can help you to improve your Sand-Lime Brick and increase the capacity of your plant it ought to be worth while for you to listen to their statements until you are satisfied that we can or cannot help you. If you find we can't assist in stimulating your profits it will be time enough for you to tell us that you are not interested; but if we can benefit you, according to the statements of those whom we have already helped, then why not take the matter up with us and let us argue the points with you.

One of our units for more successful operation of Sand-Lime Brick plants is our Wet and Dry Grinding Mills. Those who have installed them seem to think they are wonderful. We prefer to claim that they are simply an example of what correct principles, backed by superior construction, will do to accomplish a desired end. If you are interested it will be a pleasure for us to post you on these mills, or on any other machinery or appliances for making High-Grade Sand-Lime Brick at an increased profit. We also build a full line of Clayworking Machinery.

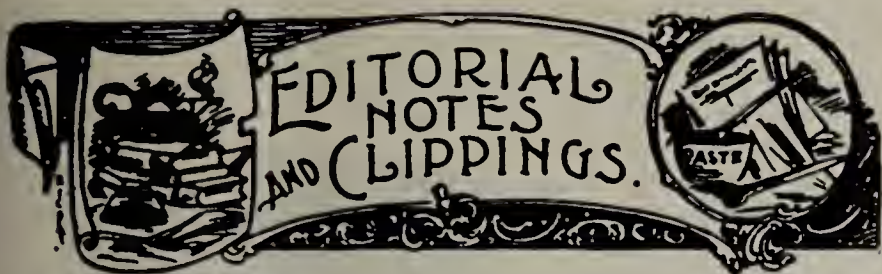


The American Clay Machinery Co.

Willoughby, Ohio, U. S. A.

Much the largest manufacturers of Clayworking Machinery in the world. And much the best.

Mention THE CLAY-WORKER.



Mr. J. Huer is erecting a small brick manufacturing plant at Florence, Ala.

Charles Beck has purchased the Magnolia Brick Company's plant at New Martinsville, W. Va.

C. T. Wilson has purchased the brick and tile factory of Martin & Younkin, at New Sharon, Iowa.

S. M. Hoyer, N. H. Ganz and M. L. Kring will apply for a charter for the Cambria Clay Manufacturing Company, of Altoona, Pa.

L. J. Bergdoll, E. L. Webster and George H. B. Martin have applied for a charter for the Romig Brick Company, of Philadelphia, Pa.

The Jersey Clay Products Company, of Newbern, Ill., is having a very busy season, turning out 30,000 red and red granite brick per day.

Fire at the stables of the James Oberly brick plant, at Wilmington, Del., caused a damage of \$300 recently. All of the horses were saved.

The Standard Brick and Tile Company is building a new plant on its land south of San Bernardino, Cal. E. F. Van Luven is secretary and manager of the company.

The brick yard of John Apperson, at Willows, Glenn County, Cal., was destroyed by fire recently, entailing a loss of \$10,000. The plant has not been in operation all summer.

The Mack Manufacturing Company, of Philadelphia, Pa., advises us that E. H. Goodrich, for a number of years connected with that company, is no longer associated with them.

A voluntary petition in bankruptcy has been filed by the Blue Ridge Enameled Brick Company, of Saylorsburg, Pa. The company's liabilities are given at \$415,838.93, with \$358,000.00 assets.

The Calhoun Clay Products Company, of St. Louis, Mo., will spend \$75,000 enlarging its plant at Golden Eagle, Ill. Charles P. Tilley is secretary of the company, with offices in the Fullerton building, St. Louis.

Oliver C. Brallier, manager of the Soisson Fire Brick Works, at Layton, Pa., for a number of years, died at his home in Layton, August 15, after an illness of seven months. A wife and three children survive.

Joseph P. McCollum, one of the pioneer brick manufacturers of Louisville, Ky., died recently at the advanced age of eighty-five. He was born in Ireland, and came to Louisville fifty years ago. Two daughters and eight sons survive.

The Opelousa Stone and Brick Company is the name of a new concern which has been organized to manufacture brick by the sand-lime process at Opelousa, La. The company is capitalized at \$25,000. Oscar Daspit, of Baton Rouge, is at the head of the organization.

Joseph D. Conrad, who has recently taken charge of the Alhambra Brick and Tile Company's plant at Phoenix, Ariz., writes that they are making a number of alterations in the plant, with a view of enlarging its capacity. They expect to add hollow building tile to the output.

The Ayer-McCarel-Reagan Clay Company is making some extensive improvements at their hollow brick plant at Carbon, near Brazil, Ind., including the installation of a large boiler and engine, and the building of a number of kilns, with a view of enlarging the capacity of the plant.

The Whippany Brick Company, of Whippany, N. J., has been incorporated with \$100,000 capital stock, and has taken over the old plant of the Philadelphia and New York Face Brick Company, at that place. The plant will be thoroughly overhauled and remodeled and operated to full capacity in the very near future.

J. C. Steele & Sons, manufacturers of the New South brick machinery, at Statesville, N. C., writes that they are busier just now than they have been all season, regardless of the fact that this is supposedly vacation time. Messrs. Steele & Sons say the people of the South are just waking up to the

great advantages of drain tile, and they are equipping a number of drain tile plants throughout the South.

The Kalona Clay Company, of Kalona, Iowa, has been incorporated with an authorized capitalization of \$80,000.

The plant of the Denton Pressed Brick Company, at Denton, Texas, will be materially enlarged. Work on same will be commenced at once.

The King & MacDonald Brick Company, of Middletown, Conn., has filed a certificate showing a change of name to the Macdonnell Brick Company.

The Sweetzer Drain Tile Company, of Sweetzer, Ind., has been incorporated with \$10,000 capital stock. C. and M. E. Baum and F. T. Bacon are interested.

Jackson & Church have purchased the business, consisting of rights, patents, good will, etc., of the American Sandstone Brick Machinery Company, of Saginaw, Mich.

The Northampton Brick Company has been incorporated at Northampton, Mass., with \$20,000. William Bailey is president and Charles L. Sauter treasurer of the company.

Arbuckle & Sons, drain tile manufacturers, of Homer, Ind., have in contemplation the erection of a drain tile factory at Waymansville, Ind., to cost in the neighborhood of \$30,000.

Henry R. Schenk, foreman of the Saylorsburg Brick Works, died at his home in Saylorsburg, Pa., July 16. He had been foreman of the plant for the past nine years. He is survived by one son.

James B. Spahr is at the head of a company which is erecting an immense brick and tile manufacturing plant at Shippensburg, Pa. The plant is to have a daily capacity of 175,000 brick.

The Canton Roofing Tile Company, of Canton, Ohio, recently placed an order with the Illinois Supply and Construction Company, of St. Louis, Mo., for one of their revolving roofing tile presses.

The Riggs Clay Products Company has been incorporated at Sullivan, Ind., to manufacture clay products. The company is capitalized at \$20,000. Those interested are J. R. Riggs, C. L. Davis and Felix Jones.

The Sharon Clay Products Company started operations at its new plant at Rose Crossing, near Sharon, Pa., August 1st. The company has orders on their books for over 3,000,000 brick, and are remodeling their old plant at Sharon.

The Thornton (W. Va.) Fire Brick Co. sustained a heavy loss during the recent flood in that vicinity, when the burning kilns were inundated, and in a number of cases the tops of the kilns were blown off by the steam raised by the rush of water into the red-hot kilns.

One hundred and fifty men employed at the Crown works of the Robinson Clay Products Company, at Canal Dover, Ohio, went on a strike August 1st, because their request for an increase in wages of one and one-half cents an hour was refused by Superintendent H. C. Enck.

A. Brewster, after twenty-eight years in the brick business, has disposed of his interest in the Pine Bluff (Ark.) Brick Company, at Pine Bluff, Ark. A new company has been organized and incorporated, with John B. Speers, who purchased Mr. Brewster's interests, as president; F. Brewster, vice-president, and Garland Brewster, secretary.

The largest brick yard yet built in the city of Evansville, Ind., will be erected in the near future by Henry and H. C. Kleymeyer on a tract of sixty acres purchased by them recently. They will manufacture a high class building brick and drain tile, and the new plant will have a larger capacity than any plant now in operation in that vicinity.

The plant of the Stefler & Brown Brick Company, at Darlington, Pa., was almost totally destroyed by fire July 23, from flames which started in the oil room where the miners had been filling their lamps. The office was about the only part of the plant that was saved. The plant will be rebuilt at once, the loss being partly covered by insurance.

The Northern Brick and Tile Company, of St. Ignace, Mich., is to be reorganized and arrangements made to operate the plant regularly. The plant was first put in operation about a year ago, but the funds of the company were so exhausted in the acquisition of the clay land and the building of the plant that they were unable to carry on the business, and the plant has been idle most of the time since. It is now proposed to secure sufficient working capital to put the plant in full opera-

(Continued on next page.)

EDITORIAL NOTES AND CLIPPINGS—Continued.

tion, after which there will be plain sailing for the company. E. A. Reavie has the matter in charge for the stockholders.

The stockholders of the Jewell (Iowa) Brick Company recently voted to dissolve the corporation. W. A. Tidhall was president.

Thomas Stevens, an employe of the Lehigh Sewer Pipe and Tile Company at Lehigh, Iowa, was instantly killed by a fall in the clay pit, where he was working.

The Dickinson Fire and Pressed Brick Company, of Dickinson, N. D., recently booked an order for 500,000 hollow brick for the new Northern Pacific Hospital, at Glendive.

The Keystone Clay Products Company, of Greensburg, Pa., recently booked an order for 600,000 face brick for the new factory of the Hupp Automobile Company, at Detroit, Mich.

The Henderson Brick and Supply Company, of Henderson, N. C., has been capitalized at \$25,000. W. D. and S. Burwell, J. H. Cheatham and R. S. McCain are the present stockholders.

A charter has been issued to the Harmon Brick Company, of Pendleton, S. C. The officers of the company are T. J. Harmon, president; S. T. Buchanan, vice president, and John A. Hurgens, secretary and treasurer.

The plant of the Fultonham (Ohio) Brick Company has been purchased by the Kirshner Construction Company, of Cincinnati, Ohio. The plant will be continued in full operation and the capacity of same enlarged in the near future.

Edward J. Lehner was killed instantly by an explosion of powder at the clay bank of the Kittanning (Pa.) Brick and Fire Clay Company, located at Nealtown, a short distance from Kittanning. He had been married but a short time.

A number of improvements will be made in the plant of the Marshalltown Sewer Pipe and Tile Company, at Marshalltown, Iowa, with a view of materially increasing the capacity of the works, to enable the company to meet the ever-increasing demand for their products.

The property of the Mattoon (Ill.) Tile Company has been purchased by H. W. Clark, and a new company has been incorporated, with Mr. Clark at the head. The plant will be put in operation within a month, and later on it is proposed to manufacture brick, as well as drain tile.

Arthur O'Donnell, one of the oldest and most prominent citizens of Reynoldsville, Pa., died at his home in that city from blood poisoning. Mr. O'Donnell was eighty-seven years old and had been actively engaged in the management of the Reynoldsville Brick and Tile Company until within a few months of his death. Two sons and a daughter survive.

James G. Fisk, O. W. Roil, Edward Harris and Herbert Doerger, of Cincinnati, Ohio, have purchased the plant of the Madeira Brick Company at Madeira, Ohio. A new company will be incorporated, and the plant, which has a capacity of 100,000 brick per day, will be put in shape for steady operation. The main office of the company will be at Cumminsville, Ohio.

Two artesian wells drilled at the yards of the Manitowoc Clay Company, of Manitowoc, Wis., several years ago, and which failed to deliver water at the surface, as had been expected, began to flow immediately after an explosion recently of a dynamite shed on the Maresch farm, midway between Manitowoc and Manitowoc Rapids. The distance from the wells to the scene of the explosion is over half a mile, and the explosion was across the river from the brick yards. Edward Fricke, manager of the yards, says that when the men returned to their work after the explo-

sion the wells were found to be flowing and are still throwing water three feet above the surface of the ground.

George S. Good, George E. Metzger and George E. Prindible, of Clearfield, Pa., have applied for a charter for the Good Clay and Coal Company.

The plant of the Boonville Brick Company, at Boonville, Mo., was damaged to the extent of \$1,000 by fire recently, which started from an overheated kiln.

The Woodland Clay Company, of Woodland, Ill., has increased its capital stock from \$50,000 to \$100,000. The additional money will be used to improve their plant.

Fire in the brick yards of the Jefferson Brick and Tile Company, at Jefferson, Wis., recently caused considerable damage and threw forty employes out of work for a short while.

W. H. Starbuck has recently been appointed receiver of the Cayuga (Ind.) Brick and Coal Company. He will take charge of the plant and operate it in order to pay off all the indebtedness, paying off the laborers first.

Zigmund Seisler, of South Broad street, and Morris Rudnor, of South Clinton street, Trenton, N. J., are making preparations to organize a company to establish a brickyard and erect a brick manufacturing plant at Burlington, N. J.

The board of directors of the Dennison (Ohio) Company at a meeting recently re-elected to office the officers of the past year. Those re-elected are Theodore Lanning, president; Maurice Moody, vice president; A. R. Lanning, secretary; E. D. Moody, treasurer; P. A. Romig, manager.

R. W. McCreery, of Elgin, Tex., has leased the Lanius Pressed Brick Company's plant at Abilene, Tex., and will at once begin the operation of same. For the last few months this plant has been closed down. The plant is complete and the investment amounts to \$40,000. When properly in running order fifty men are employed.

Joseph Broussard, an old and prominent resident of Cambridge, Mass., died at his home in that city, recently, after an illness of more than a year's duration. He was superintendent of the New England Brick Co.'s plants at Cambridge, Belmont and Medford, Mass., a position he had held for sixteen years. He was born in Nova Scotia fifty-nine years ago, moved to Massachusetts when sixteen years old, and had been engaged in the brick business ever since that time. Mr. Broussard leaves a wife, five daughters and four sons.

The Albany Clay Products Company was incorporated recently with \$800,000 capital stock, consisting of \$400,000 preferred and \$400,000 common stock. Llewellyn Howland, formerly associated with Waldo Bros., brick dealers of Boston, Mass., is president of the new concern, and Francis H. Swift, of Boston, is treasurer. The company owns 350 acres of shale across the Hudson river from Albany, where they will build a plant which will be designed by Hervey Haigh. Later on a selling company will be organized, the stock of which will be owned by the manufacturing company.

The Kansas City (Mo.) Hydraulic Pressed Brick Company reports the Diamond plant again in operation in a limited way, getting shale from its new mine, and just as soon as the mine is developed so a few crews of men can work in it they will be running regularly. The tests of the new shale indicate that it will make a better brick than has ever before been turned out by the plant, and a good deal of their attention will be given to the production of paving bricks. Mr. Yeinne, who has had the management of the Chanute plant, which is now closed down, and on which their lease will expire within a few months, has been transferred to the Kansas City office, and is in charge of the books.

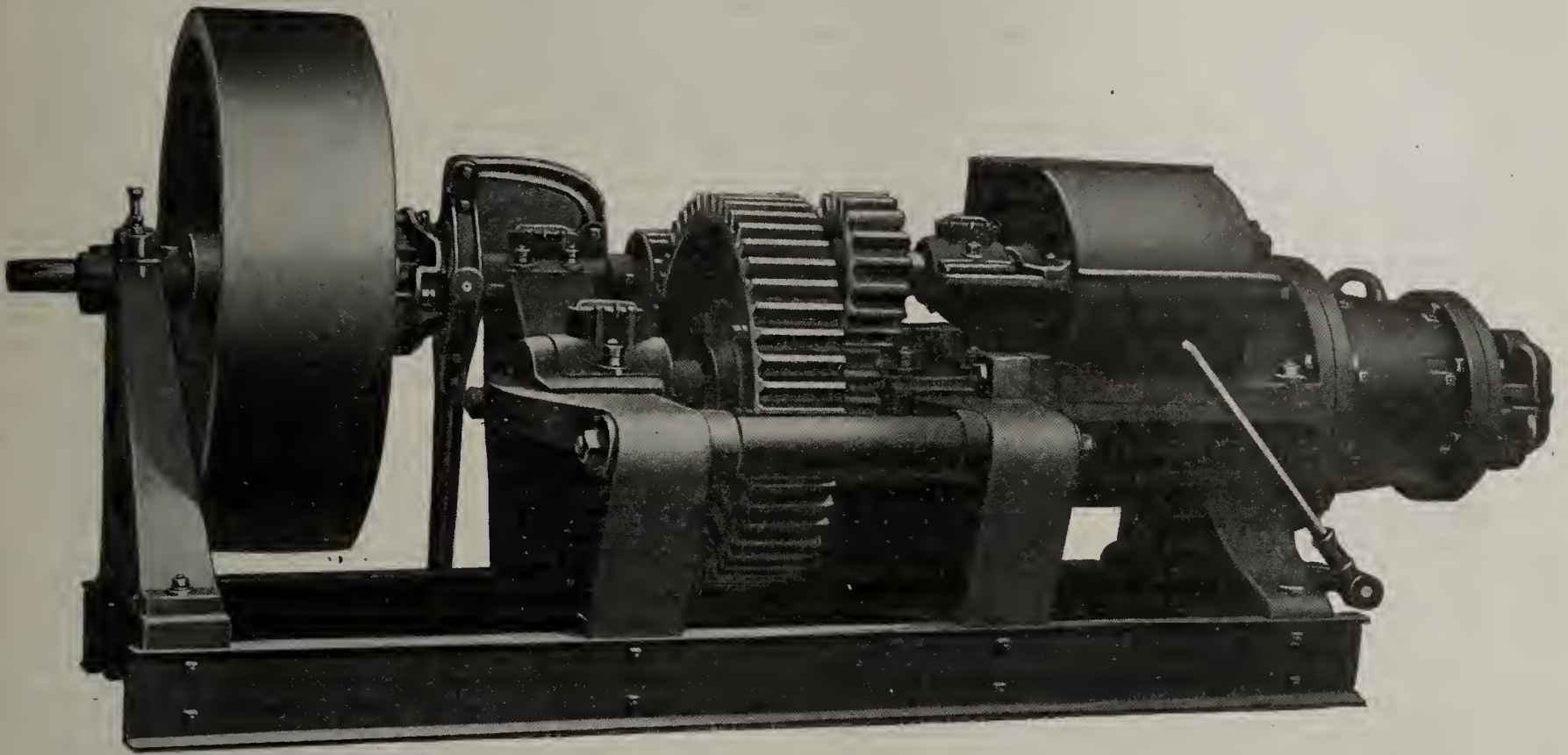
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Goshen, Ind.



Model "G A" Auger Brick Machine

In general design, this machine is similar to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and avoiding the use of high speed gears. The result is less wear and tear on gearing, less noise, less power lost through gear friction and consequently less expense for maintenance. Owing to the slow speed, the operation is unusually smooth and quiet. There is very little vibration to work loose nuts and keys. It is a reasonable conclusion that an almost noiseless machine will require less care and last longer than one which is continually shaking itself to pieces.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled for the foundation bolts, thus providing a very rigid construction. The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

This type of machine is built in several sizes—further particulars on request.

E. M. FREESE & COMPANY, Galion, Ohio

Written for THE CLAY-WORKER.

MILWAUKEE AND WISCONSIN BRICK NEWS.



FOR THE FIRST TIME in several years building operations in Milwaukee are not meeting with a slump during the summer months. Not only is the amount of building which is now going on in excess of that of a year ago, but there are more permits being issued every week than during the same period in 1911. While in one way this is due to the late start last spring, caused by the extensive rains in May and the early part of June, there is no denying the fact that there is considerably more building going on this season.

One of the brightest features of the situation is the fact that a record number of large business and public buildings are going up, which naturally means that more than the usual proportion of clay products is being used. The Northwestern Mutual Life Insurance Company is erecting a \$2,000,000 home office building in Milwaukee, while four banks, the First National, the Marshall & Ilsley, the Merchants' and Manufacturers' and the Second Ward Savings are erecting new homes, all of them palatial buildings. The structure which is being erected by the First National will be sixteen stories high.

With the issuance of a building permit to the First National Bank recently, the building record of Milwaukee passed that of a year ago, the largest in the history of the city, by more than \$1,000,000. Last week there were 97 permits issued in Milwaukee for buildings which will cost \$215,876, while during the corresponding week in 1911 a total of 82 permits were granted for buildings which will aggregate in cost \$211,487. The week before last, according to figures in the office of the Milwaukee building inspector, permits were issued representing an investment of \$1,890,119, while during the corresponding week a year ago permits for buildings which cost \$310,651 were issued. During the month of July the value of buildings for which permits were taken out passed considerably above \$2,000,000, as compared with a total of less than \$700,000 for the same period a year ago.

Considering the activity in the building field, not only in Milwaukee, but all over the State, it goes without saying that brick plants all over Wisconsin are exceptionally busy. Demand for clay products has been so good this season that thus far it has been hard for manufacturers to get any stock ahead for the big fall trade which is practically assured. General business in all lines is picking up, while one of the biggest crops in the history of the northwest is being harvested. Good crops in this section of the northwest always mean widespread prosperity and a boom in the building field. Local jobbers and manufacturers say that collections have improved wonderfully and that the outlook was never better than right at the present time.

More than the usual amount of rain has been received all over Wisconsin this season, and dealers have taken occasion to call attention to drainage work which should be done. This has meant a big increase in the number of orders and inquiries for drainage tile, and the indications are that the late summer business in this field will attain a new high record this year. Wisconsin is fortunate in having a great State university like the University of Wisconsin, which, through its Department of Agriculture, acting in co-operation with the Wisconsin Agricultural Experiment Association, is continually working for crop improvement, the drainage of land and the building up of the soils. Chief among the workers are Prof. Samuel Weidman, of the University of Wisconsin, the able secretary of the Wisconsin Clay Manufacturers' Association, and Prof. Jones, of the Department of Agriculture, at Madison.

Contracts for the paving of more than eight miles of rural highways in Milwaukee county have been awarded this year. The Chicago road, the Kilbourn road, the North Fond du Lac road, the Green Bay road and the Janesville and Loomis roads are coming in for their share of improvements. While

concrete is being used in most instances, the Watertown road will probably be paved with brick. The Pennsylvania Coal and Supply Company, second floor of the Caswell building, Milwaukee, dealers in brick and other building supplies, was awarded a contract to furnish 40,000 barrels of cement for the road improvements, at a cost of \$1.04 per barrel.

The employes of the Grand Rapids Brick Company, at Grand Rapids, Wis., recently turned out 25,000 brick in one day of ten hours. According to William Knuth, manager, the best record previously made at the plant was between 18,000 and 19,000 brick.

Fire, originating from an overheated kiln, burned several sheds and caused considerable other damage at the Craney & Spaulding brick yards at Kenosha, Wis., recently. It is believed that the loss will be less than \$1,000. No insurance was carried. As it is the busy season of the year, steps were taken immediately toward rebuilding the sheds.

The Ladysmith Brick and Tile Company, Ladysmith, Wis., is operating its plant at full capacity, and has turned out 450,000 brick this season, practically all of which have been used in Ladysmith.

The Fond du Lac Pressed Brick Company, of Fond du Lac, Wis., has been reorganized under the name of the Fond du Lac Brick Company, and will henceforth manufacture a stiff-mud or wire-cut brick instead of a pressed brick. The capital stock has been increased from \$50,000 to \$75,000, the majority of the stock having been taken by stockholders of the former company. The company is now turning out from 25,000 to 30,000 brick daily, spending most of its time in filling an order recently placed by the Northwestern Iron Company, of Milwaukee, for 750,000 brick to be used in the erection of thirty ovens at the company's plant at Mayville, Wis. The brick company recently installed a large amount of new equipment in its plant southwest of Fond du Lac, and has increased its capacity, but is still unable to meet its orders. The Northwestern Iron Company plans on erecting forty additional ovens next year, and will need at least 1,000,000 brick.

A. BADGER.

WHAT A MOTOR TRUCK WILL DO.

The Schermerville yards of the Illinois Brick Company were shut down recently at 3 o'clock in the afternoon, on account of a broken shaft. They immediately ordered a new shaft 5½ inches by 25 feet of Messrs. Bliss & Laughlin, at Harvey, Ill., and had the same key-seated to replace the broken one. Messrs. Bliss & Laughlin got this shaft out at 6 o'clock the same day, but the next thing to do was to get the shaft delivered to the Schermerville yards from Harvey, so that the same could be placed and the yards started running the next morning. The Illinois Brick Company called on the Harvey Motor Truck Works to deliver this shaft for them, which they did with one of their 1½-ton trucks, and promptly delivered the shaft at 1 o'clock in the morning. As a result, the Schermerville yards of the Illinois Brick Company were running the next morning. Now this could not have been done by any other means of transportation in this same length of time. Harvey is located fifteen miles south of Chicago and Schermerville is the same distance north of Chicago. Mr. Wm. E. Dee, proprietor of the Harvey Motor Truck Works, being a clayworker, knew how busy these yards were, and being present at the Harvey Motor Truck Works at the time, immediately ordered this truck put into commission to do this stunt, and it was done as desired. This shows how handy these trucks are for this purpose.

F. JULIUS FOHS
Mining Geologist and Engineer
EXAMINATIONS of CLAY PROPERTIES
LEXINGTON, KY.



Barrett's PAVING PITCH



Spring Grove Avenue, Cincinnati, Ohio. Pavement filled with Barrett's Paving Pitch.

As Against Sand, Cement and Asphalt

In choosing a filler for a block pavement you must ask the following questions, and you will get the following answers from the advocates of sand, cement, asphalt and pitch, respectively:

	Sand.	Cement.	Asphalt.	Pitch.
1. Does it provide for expansion?.....	Yes	No	Yes	YES
2. Does it provide for contraction?.....	Yes	No	No	YES
3. Is it absolutely waterproof?.....	No	Yes	No	YES
4. Is it permanent?.....	No	Yes	No	YES
5. Will cracks be avoided?.....	Yes	No	Yes	YES
6. Does it leave sufficient joints for foothold?.....	Yes	No	Yes	YES
7. Is it easy to use correctly?.....	Yes	Yes	No	YES
8. Can the pavement be cut without destroying the blocks?.....	Yes	No	Yes	YES

All except Pitch say "No" on some points, and every point in the list is vital. Barrett's Pitch Filler has all the virtues of all the other fillers and none of the faults. It is used almost everywhere by almost everybody.

Booklet on request.

BARRETT MANUFACTURING COMPANY

New York Chicago Philadelphia Boston St. Louis Cincinnati Cleveland
Pittsburgh Minneapolis Kansas City New Orleans Seattle London, England

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO.



CONDITIONS IN TOLEDO have never been more promising for brick dealers than they are this season. There is more building, both residential and industrial, than for many years past, and the tendency toward the use of brick in residential building is growing much stronger. People are commencing to realize the utility and beauty of brick houses, and the growth in the use of brick for these purposes is steady. All the brick concerns in the city are running full time and full capacity, and at that are having difficulty filling their orders. Local orders are being filled all right, but the out-of-town demand is much heavier than can possibly be taken care of by local brick concerns. Building brick are about 50 cents higher than last year and are bringing \$7 and \$7.50 net, delivered in the city.

Paving brick concerns are also busy, the demand being heavier than a year ago. There has never been more paving done in the smaller cities and on rural roads than right now, and paving brick are extremely popular both for small city streets and for country road building. The price received is about the same as last year, \$12 to \$13.

Snead avenue and Utah street are two Toledo thoroughfares which will have brick pavements. Utah street was recently completed and the brick is laid on about half of Snead avenue.

One of the big contracts in sight for brick dealers is the new \$75,000 car barn to be erected at Dayton, Ohio, of pressed brick and steel. Architects Theis & Theis, of Dayton, are drawing the plans.

The State Normal School, to be erected at Bowling Green, Ohio, will be constructed of brick and reinforced concrete. The structure will be buff color, fire-proof and thoroughly modern, and will cost approximately \$130,000. The structure will be embellished with marble and stone, and the main corridor and floors will be laid in tile. The structure will be three stories in height and the dimensions will be 230x130 feet.

The Weil Rota Company was recently awarded the contract for the improvement of Birchard avenue and Jefferson street at a cost of \$8,348. Bessemer brick block will be used, with sand cushions and tar borders.

A three-story brick building will be erected on Southard avenue, Toledo, at a cost of \$10,000, by Fred L. Seibert, motor truck and carriage manufacturer. The dimensions of the building are 113x75 feet.

Hudson street, Tiffin, Ohio, is being paved with brick, and the job will soon be completed. When finished the street will present a handsome appearance.

A brick contract of some importance will be furnished by the rebuilding of the Huron County Court House, which was recently destroyed by fire. The building was valued at \$70,000, and carried about \$38,000 worth of insurance on the building and contents. The contracts for the new building will soon be let.

A \$10,000 fire damaged the Wash Sand and Gravel Company's plant, on the Springboro road, south of Dayton, recently. The blaze is believed to have originated from a spark in the engine room. The firemen experienced considerable trouble with live electric wires and trouble men from the Power Company had to be summoned. The plant will be rebuilt. The machinery was not much injured.

Pressed brick and terra cotta will be used in the construction of the new bank building to be erected at Broadway and Segur avenue by the Home Building and Loan Company. The building will be 70x70 feet in dimensions and

will be one of the handsomest buildings in the city. Huber & Gamble are the architects.

For the purpose of conducting a general contracting business, the Feight Company, of Dayton, Ohio, was recently incorporated with a capital stock of \$25,000. The incorporators were Alfred C. Feight, Victor H. Weber, Rolla M. Galloway, Alfred Swift, Frank and Earl H. Turner.

A nice brick contract will be furnished by the nine-story building for which plans are now being drawn to be erected corner of Ontario and Washington streets, Toledo, by R. A. Bartley, wholesale grocer. The structure will cost about \$200,000.

Ford Ish, an employe of the National Lime and Stone Company's plant at Carey, Ohio, had a narrow escape from death recently. He was placing a belt on a wheel when his clothing was caught and he was whirled about a shaft. His clothing was torn from his body, but aside from a few bruises Ish escaped without injury.

The Claycraft Brick Company, of Columbus, was awarded the brick contract for the new College Hill school building to be erected at Tiffin, Ohio. The contract calls for 70,000 brick, and the contract price was \$14 per thousand. The brick are of a chocolate color and have a rough surface.

T. O. D.

AMONG THE POTTERS.

STOCKHOLDERS of the newly incorporated McNicol-Corns Pottery Company met in the offices of the concern in East Liverpool, Ohio, on August 1, and elected those who will serve in official capacities. The company is capitalized at \$60,000, and is one of the leading industrial concerns of the Ohio city. Those selected by the stockholders were: Treasurer and manager, A. W. Corns; secretary, D. E. McNicol, Jr.

The Milliken-Schenck China Company, of Pittsburg, will apply to the Governor of the State on August 19 for a charter. The object of the company is to deal in all kinds of household ware and equipment. The incorporators are: F. M. Milliken, F. E. Schenck, F. G. Schenck, Walter R. Demmler and A. W. Schenck.

Attorney James R. Chambers, of New Castle, Pa., proved to be the purchaser of the New Castle pottery plant, which was sold to satisfy creditors. The price paid was \$23,450. The personal property at the works, including furniture, clay and other goods classed as real estate, excepting the machinery, was taken by several persons at about \$3,500. Mr. Chambers refused to state for whom he made the purchase or what the real buyers had in mind. The plant had not been in operation for a long time. It is believed that local capital will improve the works and begin operations again.

Acting for the Sevres China Company, of Canton, Ohio, H. L. Highley, of that city, bid in the Warner-Keffer China Company plant, of East Liverpool, on July 24. He paid \$15,000. The personal property went to S. B. Larkins, of the National China Company, of Salineville, at his offer of \$10,500. This total will give the unsecured creditors about 10 per cent. Only one bid for the plant was received, but several took part in the buying of the personal property. Mr. Highley announced that it was improbable that his company would operate the works.



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costs less to purchase, install and operate than any other type of brickyard pump. They handle gritty water and never need lubrication. Over 26,000 in use for pumping out trenches, caissons, cofferdams, clay banks, sand pits, etc. Write today for our "Pulsometer Handbook. It shows many novel installations and contains data on pumping problems.

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DRYING

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A DRYER THAT WILL DRY BRICK IN TEN HOURS.

Your brick are dried exclusively with the exhaust from the engine that makes the brick. No extra fuel and no extra power required.

A dryer that does not have to be operated at night time.

Requires no expensive dry kiln, and no iron cars.

Cost of drying reduced to less than 4 cents per thousand.

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Write for catalog. ELKHART, IND.



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Do you want to burn hard coal, culm, lignite, slack or screenings? There is just one way to do it, and that is by using air under pressure, which is

The BOSS System of Burning Brick

Burns all kinds of Brick and Clay Wares.

Applies to both Up-draft and Down-draft Kilns and

Will reduce your fuel cost fully 40% over the old way of burning.

Kilns last longer and give better service when equipped with the BOSS SYSTEM. Try it.

Written for THE CLAY-WORKER.

THE BUILDING SITUATION IN ST. LOUIS.

THE REPORT of the St. Louis Building Commissioner for July shows an increase of \$361,599 in estimated cost of buildings authorized in July over the same period in 1911. The total estimated cost of new buildings and alterations for July is \$1,724,665, as compared with \$1,363,066 for July, 1911. There were 594 permits for new buildings issued amounting to \$1,540,261 and 412 permits for alterations amounting to \$184,404.

Alexander Niedringhaus, president of the St. Louis Pressed Brick Company, died July 24 from stomach trouble, after an illness of seven weeks. Mr. Niedringhaus was a son of former Congressman F. G. Niedringhaus. He was educated in the public schools and Washington University. He was born in St. Louis in 1863 and lived here all his life. He began his business career at the rolling mills of the National Stamping and Enameling Company, founded by his father. Mr. Niedringhaus was married in 1889 to a Miss Sharp, who with one son survives him. Five sisters are living. He was a member of the St. Louis, Noonday and Log Cabin Clubs.

Andrew Sproule, 81 years old, a retired capitalist, died unexpectedly at Rehoboth, Del., recently, en route for a five months' European tour. He was a director in the Evens & Howard Fire Brick Company. He was a native of Ireland, and was educated there. He came to America in his youth, and settled in St. Louis in 1855. He is survived by five daughters.

The Hydraulic Press Brick Company, at a stockholders' meeting recently, in the offices of the company, voted in favor of a bond issue of \$1,500,000 to be secured by a mort-

gage on its real estate. The bond issue is to be used in re-funding maturing bonds of \$400,000 and to fix a floating debt of about \$500,000. The bond issue has already been under-written by the Mercantile Trust Company. Only \$1,000,000 worth of the bonds are to be marketed at present, the balance being held in reserve for future needs. The bonds are serial, some of them running for twenty years.

The stockholders of the Calhoun Clay Products Company recently authorized a bond issue of \$75,000 to carry out plans to enlarge the company's plant at Golden Eagle, Calhoun county, Illinois, so it can engage in the plastic brick industry. Another plan for raising new capital by selling more stock may be adopted, in which case the bond issue may be dropped. The company has a capital stock of \$160,000. It is owned partly by St. Louis men and partly by Eastern men. The plant has been in operation for several years, making pressed brick. C. E. Neely is president. The bonds are a first mortgage on the property. Arrangements to sell them at par have been made.

Water that filled the shale pit of the Banner Clay Works at Edwardsville, Ill., in a cloudburst, July 20, has been pumped out and the four big pumps that have been employed night and day since the storm have been removed. The water was more than thirty feet deep in places. The reserve shale was used, permitting the plant to run while the pit was filled with water.

The Board of Local Improvements of East St. Louis has voted to take up the granite blocks on Broadway from the old Rock road at Fifth street to Third street, and replace them with brick. The improvements will cost \$20,000. Because of heavy traffic, the brick will be set on a foundation of concrete which will be eight inches deep, instead of six inches, the usual depth of concrete foundations. August 23 was set for the public hearing.

A. SAINT.

Classified Advertisements

FOR SALE, WANTED, ETC.

Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

FOR SALE

FOR SALE—Eighty single deck cars, 30 inch gauge, 480 capacity, with rack. Address, C. CLOSE, 8 3 cm Matawan, N. J.

FOR SALE—Atlas slide valve engine in good condition. Cylinder 13" by 18", rated 80 H. P.

SPRINGFIELD DRAIN TILE CO., 7 3 c Springfield, Ill.

FOR SALE.

Forty acres of good brick clay land at Riverdale, Illinois. Frontage on Belt railroad and street, 1½ miles from depot. 35 minutes service from Chicago. Price reasonable.

Address Box 7—Brick Clay % Clay-Worker.

FOR SALE.

About 18,000 first class brick pallets. Address J. C. RILEY, 6 3 dm Bloomington, Ill.

FOR SALE.

Sand-lime brick plant, capacity 25,000 brick per day, ten hours. Price very reasonable.

HOLLAND CITY STATE BANK, 6 tf dm Holland, Mich.

FOR SALE.

Two hundred steel brick cars, 20,000 foot pallets, three boilers and stacks, 20 tons of T iron.

GEO. H. GYNN, 3325 Independence Road, 7 tf d Cleveland, O.

FOR SALE—On account of change in system of Brickmaking, we offer at bargain, one 4-mold Model D.3. Dry-Press, 20,000 capacity. One 6-mold Ross-Keller, 30,000 capacity. Both machines are complete, and good running order. Might entertain exchange for stock in properly organized company. Address, Standard Brick Co., Crawfordsville, Ind. 7 2 d

WORTH INVESTIGATION.

On account of death of owner I offer one new Bonnot thirty-thousand capacity brick machine, with pug mill and hand cutting table for less than half the original cost. There is a good opening for the right man to operate this outfit right here, as we have a town of five thousand inhabitants and three railroads. No other brick works in operation here. Address,

E. L. YOUNG, 8 3 cm Aberdeen, Miss.

FOR SALE—A well equipped building brick plant at Delhi, La. The entire equipment, including Chambers machine of 30,000 daily capacity, engine, boiler, etc., is in good condition. Fuel is cheap and there is good demand for brick at prices ranging from \$8.00 to \$10.00 per thousand. Abundance of good clay. A fine opportunity for a practical man to secure a profitable business. Prices and terms reasonable to reliable party who can give satisfactory references. The present owner has business interests that require his undivided attention. Address, NASH COLLINS, 8 1 cm Delhi, La.

Classified Advertisements.

FAN FOR SALE, CHEAP.

One 72-inch double-winged fan in good condition, complete with shaft and pulley, for sale cheap. Address,
BROOKLYN BRICK CO.,
 8 1 d Indianapolis, Ind.

A GOOD INVESTMENT.

We are offering a small amount of stock in a modern brick plant in successful operation. This is your opportunity to secure stock in a paying enterprise. Full particulars on request. Address BOX 699, Oklahoma City, Okla.
 4 4 d

FOR SALE.

Ground fire clay plant in Indiana; forty acres of ground with full equipment; plant now in operation and making money; books open to anyone interested; this is a rare bargain and will stand closest investigation; residence also nearby. **HALL & HILL,**
 8 1 d 147 E. Market St., Indianapolis, Ind.

BRICK DRYER.

Latest style Martin pipe rack dryer, but little used, all complete; will sell on board cars or re-erect and guarantee. Bucyrus dryer outfit with fan, heater, cars, etc. **STEAM SHOVEL**, suitable for brick yard or contractor; used only six months. 5,000 rolled edge gal. **PAL-LETS.** **C. H. HORTON,**
 8 1 c Painesville, O.

FOR SALE.

On account health. Brick plant, together with 200 h. p. water power. Unlimited supply of clay suitable for fine brick and tile. Demand for brick cannot be supplied in nearby markets. Plant situated on two railroads at the edge of a town of 25,000. Rates to Chicago and Gary cheap enough to compete with anybody. Water power worth \$10,000 a year alone, and can be used to operate all machinery at no cost. Address, **W. B. HUTCHINSON,**
 8 1 cm Michigan City, Ind.

NORTH GEORGIA BUSINESS OPPORTUNITY.

Owner of fully equipped brick plant and inexhaustible supply of clay will sell all or half interest to a company or an experienced brickmaker. Present owner is a business man in city of 20,000 and needs competent party to operate the plant and take an interest.

This proposition will bear close investigation, which will show that I have something good. An inquiry from responsible party will bring full particulars. Address, **ATHENS,**
 8 1 cm Care Clay-Worker.

WANTED, ETC.

WANTED.

Small capacity stiff mud machine, side cut. Address, **BOX 8—FRED,**
 8 1 d Care Clay-Worker.

WANTED—Competent man to take charge of one of the most complete plants in the Southwest, capacity 75,000, making paving and vitrified face brick. Good opening for the right man; no others need apply.

BURKE BRICK COMPANY,
 7 2 d Fort Smith, Ark.

WANTED.

Foreman who understands Raymond and Berg machinery, burning of up and down draft kilns and handling of men. Must be temperate. State experience and age. Location West. Address Box 7—**L. B. C. % Clay-Worker.**
 7 2 d

WANTED.

Position as director of glaze department in an art tile, terra cotta or brick plant. Many years experience in the manufacture of art pottery. Best of references. For particulars, address **CHARLES VOLKMAR,**
 8 tf d Metuchen, N. J.

WANTED.

Two first class dry pressed setters for down draft kilns. Must set 16,000 to 18,000 daily with tosser. Wages, \$2.75 to \$3.25 per day; steady work. Also, two Berg press operators; wages, \$2.50 per day.

LA PRAIRIE BRICK CO., LTD.,
 8 1 d La Prairie, Que., Can.

FOR SALE.

One complete down delivery for J. D. Fate Imperial machine, including extra gears, winding reel, and one each 10-inch, 12-inch, 13½-inch, 14-inch, 15-inch, 18-inch, 20-inch, 24-inch, 27-inch dies, core bridges, etc. All in good condition.

HANCOCK BRICK & TILE CO.,
 7 1 d Findlay, Ohio.

WANTED.

A first class man to superintend the manufacturing of high grade building brick and paving brick by the stiff mud process. Must handle men successfully and be thoroughly familiar with keeping up machinery, boilers, engines, etc. Must thoroughly understand drying and burning process. Good pay to the right man. None other need apply. Address
"THE RIGHT MAN,"

8 1 d Care Clay-Worker.

WANTED—Small second-hand pug mill; state price and condition. Address
BOX 8—FOX,
 8 1 cm Care Clay-Worker.

WANTED—A thoroughly competent factory superintendent for sewer pipe, fire brick and hollow tile plant in southwest. Must be good judge of clays and have successful experience in producing sewer pipe and fire brick. A good, permanent position for a thoroughly qualified man. State age, experience and salary required and give references. Address, **BOX 8—A. L. H.,**
 8 1 d Care Clay-Worker.

WANTED—A man of extended and varied experience, at present in charge of a large face and paving brick plant in northwestern Ohio, would like to change; am capable of designing and erecting complete plants and have operated some of the largest in the country; none but those needing the services of a high class man need answer; highest testimonials. Address
BOX 8—OHIO,
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CASH FOR YOUR PLANT OR BUSINESS.

No matter where located. If you want to buy, sell or exchange any kind of real estate or business anywhere, at any price, address

FRANK P. CLEVELAND,
 965 Adams Express Bldg.,
 4 tf d Chicago, Ill.

MR. CLAYWORKER!

How about your clay?

Are you losing money by making a low-grade product from a high-grade clay? Why not get your clay analyzed and find out exactly what the possibilities of your material are?

Here is one of the best equipped laboratories in the United States, especially devoted to the analysis of clay, rock and coal. Absolutely accurate results. Price per analysis, \$15.00.

THE NATIONAL LABORATORY,
 No. 7 Kellogg Bldg., Washington, D. C.

Have you troubles with your BURNING?

If you do not get the best results and 98% of first-class paving brick, write to me and I will get you started right.

C. RICH, Bessemer, Pa.

(Continued on next page.)

Classified Advertisements—Continued.

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REBUILT ENGINES AND BOILERS.

Engines—Corliss.

18x42 Lane & Bodley, 18x36 Ohio Heavy Duty, 16x42 Allis, 14x36 Sioux City, 12x30 Lane & Bodley, 12x30 Hamilton.

Engines—Automatic.

14½x24 Buckeye, 11x16x12 Buffalo compound, 13½x15 Taylor, 13x16 Atlas, 13x12 Harrisburg-Ideal, 13x12 Phoenix, 12x14 Green, 12x12 Armstrong & Sims, 11x16 Atlas, 8x14 Noyes.

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Boilers—Vertical.

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All sizes, open and closed.

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All sizes, single and duplex.

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30 k. w. generator, direct connected to 8x10 Skinner engine; 20 k. w. generator, direct connected to 8x10 Economic engine; 18 k. w. belted generator.

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Saw mills, lath mills, edgers, cut-off saws, resaws, blowers, exhaust fans, tanks, etc. Write for list. Also a full assortment of new machinery. Sole manufacturers of the celebrated "Leader" injectors and jet pumps. Send for circular.

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Books for brickmakers. Inexperienced workmen will find them a source of valuable information. "Brickmakers' Manual," \$3.00; a practical treatise on the every-day details of brick-making. "Clay Glazes and Enamels," \$5.00; tells how to glaze and enamel brick and gives valuable recipes. "Analyses of Clays," \$2.00; a valuable reference book, giving analyses of well-known clays of this and foreign countries. "The Clayworkers' Handbook," \$2.00; a manual for all engaged in the manufacture of articles from clay. "Clays," \$5.00; their occurrences, properties and uses, with special reference to those of the United States. Any or all of these books mailed postage prepaid on receipt of price. Write for list of other valuable books for clayworkers. Address,

T. A. RANDALL & CO.,
Indianapolis, Ind.

See additional ads under Table of Contents.



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Manganese
Steel
Castings.

Edgar Allen American
Manganese Steel Co.
CHICAGO, ILL. NEW CASTLE, DEL.

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Four-mold Fernholtz dry press in first-class condition. For particulars address

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WATSON & BOYDEN

Patent Attorneys

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YOU CAN'T FADE IT
none like them
Cement, etc. Red, Brown, Purple and Black.
for Brick, Mortar,
MILWAUKEE, WIS.

Ricketson's PURE MINERAL COLORS

The "Red Brick" brand. Brilliant in tint; easy to mix, go farther than any other and

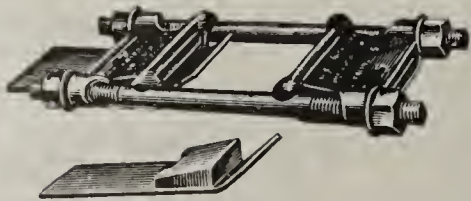


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It Shows the Simple, Effective Door Frame Connection of the

TECKTONIUS LUG

It is "penny wise and pound foolish" to try and adapt someone made, troublesome, unsafe, makeshift for banding your kilns
The Tecktonius Lug is

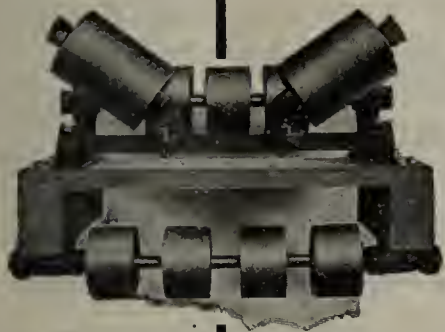


Cheaper, Stronger,
Safer, Neater,
Easier Attached and
Lasts as Long as the Bands

Write for our booklet "Lug Facts"

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Racine Junction, Wis.





Improved Belt Conveyors

For carrying all kinds of material, gritty and otherwise. Gradual, uniform curve of belt secured without complicated parts.

Bearings thoroughly lubricated and *dust-proof*. Economy and satisfaction—nothing to get out of order.

We manufacture Complete Handling Equipments.

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MOUNTAIN OF CLAY FOR SALE.

160 acres of Vitreous and Tile Clay, known as Mt. Collason or White Banks, at Elk Neck, Md., near mouth of North East River. Also near Chesapeake & Delaware Canal. Property is a bluff, 200 feet higher than the river, and has half a mile of water frontage, with a depth of 12 to 20 feet. It is covered with timber, and the water facilities make it easy to ship either the lumber or the almost inexhaustible supply of clay to any desired point. Only 70 miles from Philadelphia; 40 miles from Baltimore. Address

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OF INTEREST TO CLAYWORKERS.

The Land and Industrial Department of the Southern Railway has just issued a booklet on the possibilities for the establishing of various clayworking industries in the Southeastern States of Virginia, North and South Carolina, Georgia, Florida, Alabama, Mississippi, Tennessee and Kentucky.

This booklet tells about the great varieties of clays, their extent and location, the cheap fuel supply, low-priced electric power, transportation facilities, markets, etc., and other information relative to the establishing of clayworking industries.

If you are interested in any way whatsoever in the clayworking industry, you should by all means have a copy of this booklet.

And what's more, do not overlook our willingness to co-operate to any reasonable extent with you in assisting to find a favorable location where production costs are low and market conditions most promising.

Our confidential services at all times are at the command of clayworkers and other manufacturers, and will be given without charge.

A copy of the booklet will be mailed on request. Please mention this paper.

M. V. RICHARDS,

Land and Industrial Agent Southern Railway, Room 700, Washington, D.C.

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"CLAYWORKERS' HANDBOOK," by Author of "Chemistry of Clayworking".....	2.00
"CLAYS," Heinrich Ries	5.00
"VITRIFIED PAVING BRICK," H. A. Wheeler, E. M.....	2.00
"BRICKLAYING," Owen B. Maginnis.....	2.00
"KILN RECORDS," W. D. Richardson.....	1.00
"PRACTICAL FARM DRAINAGE," C. G. Elliott.....	1.50
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Established by the Legislature in 1902 at the

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Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

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for any position or a position in any connection with the Clayworking Trades use the

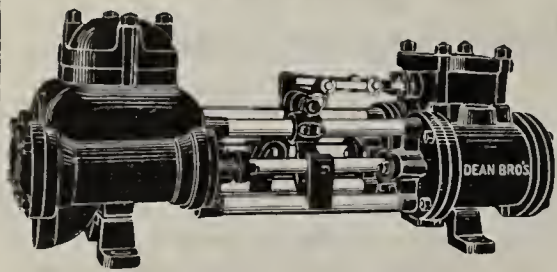
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and Want
Columns
of...**

**The...
Clay-Worker.**

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**The Best, Quickest, Cheapest
Method of Securing Results.**



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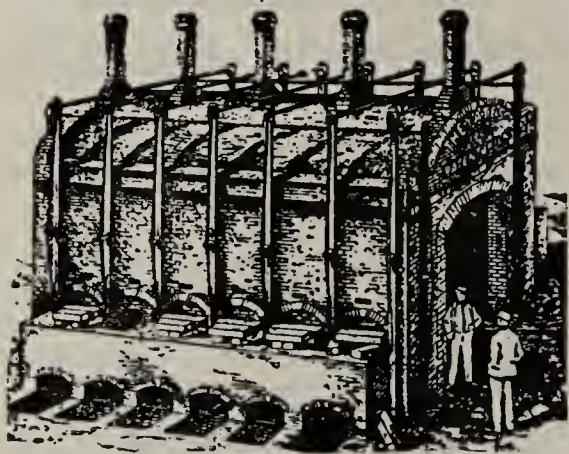
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**The Yates Patent Down-draft Kiln.
Also Continuous.**

If you want to pay dividends, build modern kilns as good burning is the keynote to success. Sixteen of my kilns are in operation at the Shawmut Vitrified Paving Brick Works, Shawmut, Pa. Come and examine results for yourself. Also refer you to D. W. DeRosay, General Manager Corry Brick & Tile Co., Corry, Pa. Other references given if desired.

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Newton Portable Brick Handling System

This system gives you the advantage of three men taking the place of nine, as here shown. Above is a photograph of elevator and staging in operation, saving you six men over old way of passing and tossing brick; same advantage taking brick out of kiln. Send for a regular and special information.

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Pat. Aug. 9, 1909. CRESCENT, N. Y.**

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BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

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I correct faults in burning and change old defective kilns. Twenty-seven years' experience in American practice.

I sell plans and plain details of construction, for my down-draft, 30 ft. Combination Brick, Drain Tile and Sewer-Pipe Kiln. I refer to satisfied Users.

For my special Cheap Brick kiln, I do not sell plans, but will lay it out, you build it and I will oversee the setting and burning, showing you

Satisfactory Results Before You Pay Me.

Both kilns have my Novel, Cheap and Indestructible Removable Grate, making a grateless coal-saving furnace. You can use it on any Down Draft Kiln.

Inquire about my labor-saving, patented Sewer Pipe Turner and Device, increasing capacity of press, making large pipe.

ANTON VOGT, Lewis, Iowa, U. S. A.

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Fire Brick for
Building Kilns**

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'Phone
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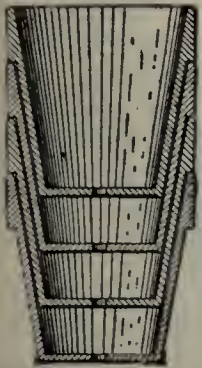
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THE RECOGNIZED STANDARD OVER 50 YEARS.

ANY SIZE **FIRE BRICK** ANY SHAPE

Write Us Now **Evans & Howard Fire Brick Co.**
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\$2.00 THE CLAY-WORKER \$2.00
ONE YEAR (IN ADVANCE)



Make Money

WITH THE ONLY SUCCESSFUL

Flower Pot Machine

(PATENTED.)

No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "

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Dennis Improved System of Double Chamber and Double Arch Down Draft Kilns.

Patented April, 14, 1903 and September, 8, 1903.

THESE KILNS BURN ALL HARD BRICK.

Three of these Double Chamber Kilns will burn as many brick in a year as four single arch kilns the same size, because as soon as one side is unloaded you can set green brick, and so have the kiln half set by the time all the burned brick are unloaded. These kilns burn the brick hardest on the bottom. This feature is something new for Down Draft Kilns.

Burn soft mud, stiff mud or dry pressed brick. In proportion to capacity this is the cheapest and strongest kiln on the market and will give better results than any other known kiln.

Plans for Round Kilns, also Single Arch Down Draft Kilns. Plans for taking the heat from a cooling to a green kiln for drying off or water smoking.

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Double Chamber Down Draft Kiln

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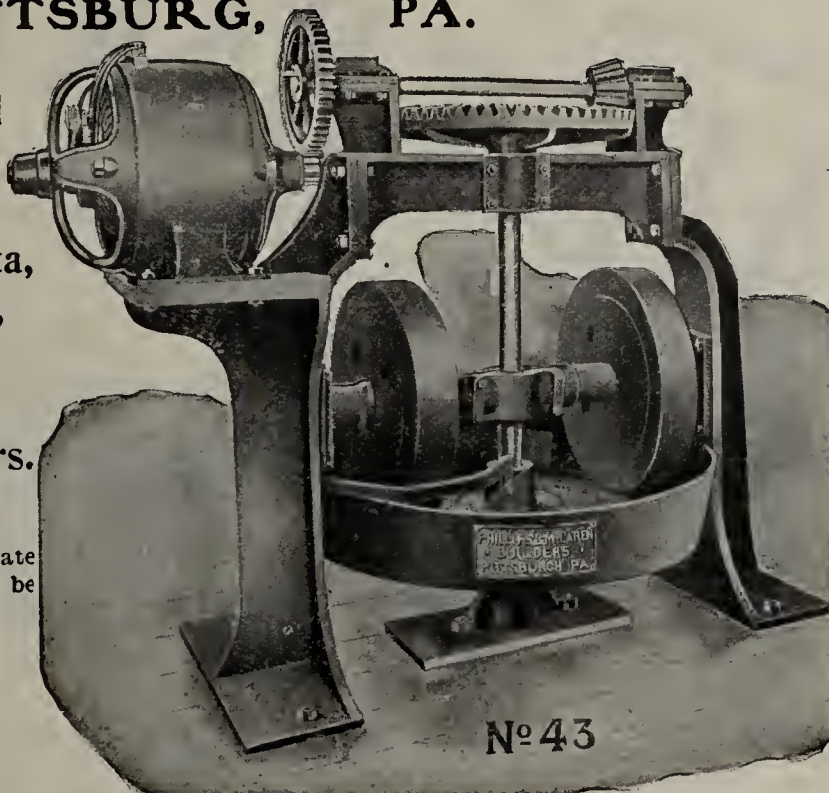
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When writing for Prices state
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Anchor Brand Colors

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Strongest and Most Durable.

Manufactured by

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**Eclipse
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The highest grade of
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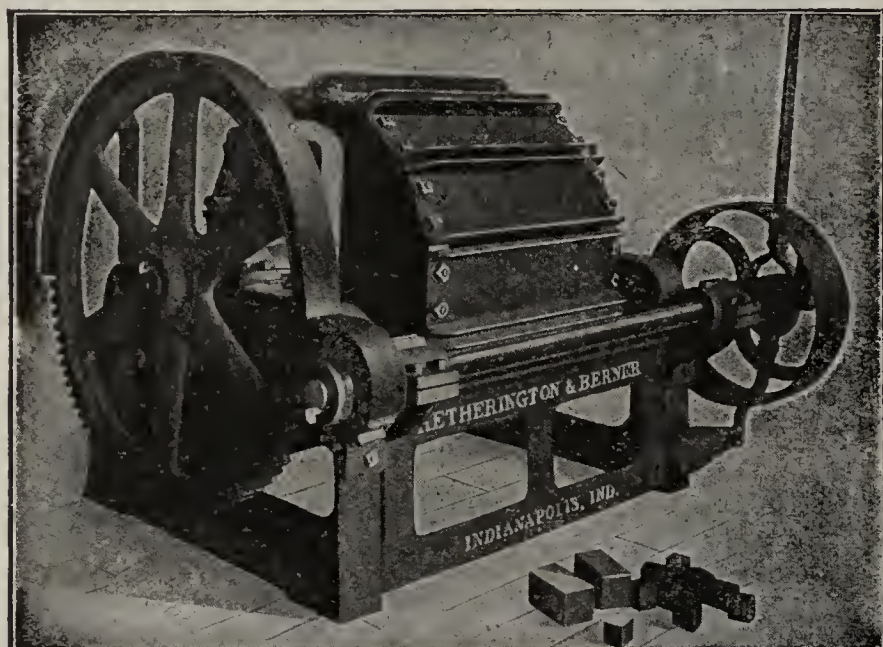
The only preventative for scum and discoloration on Facing Brick and Terra Cotta, neutralizing the Sulphate of Lime in the Clay and Water.

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This Rattler is designed in accordance with the requirements of the National Brick Manufacturers' Association's specifications, and is skilfully constructed of the very best materials for the purpose, insuring the greatest efficiency and durability. It meets every requirement.

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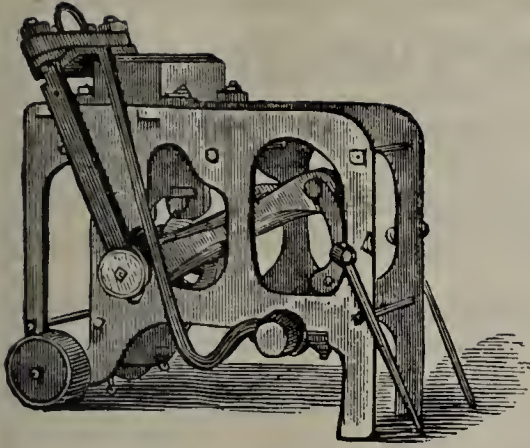
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White Oxide Antimony,
Black Oxide Manganese and
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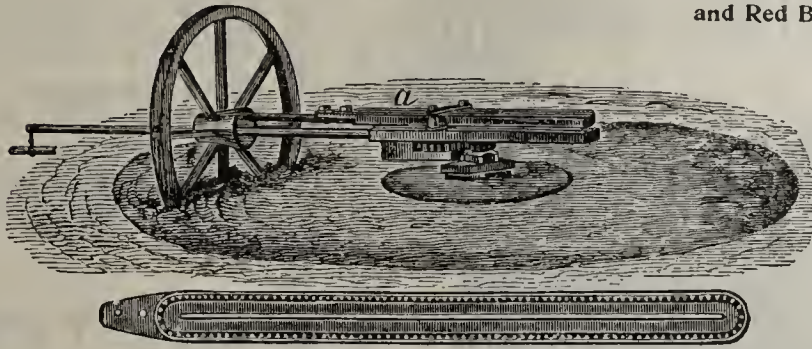


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Fire and Red Brick Presses All Sizes. Machinists and Engineers.

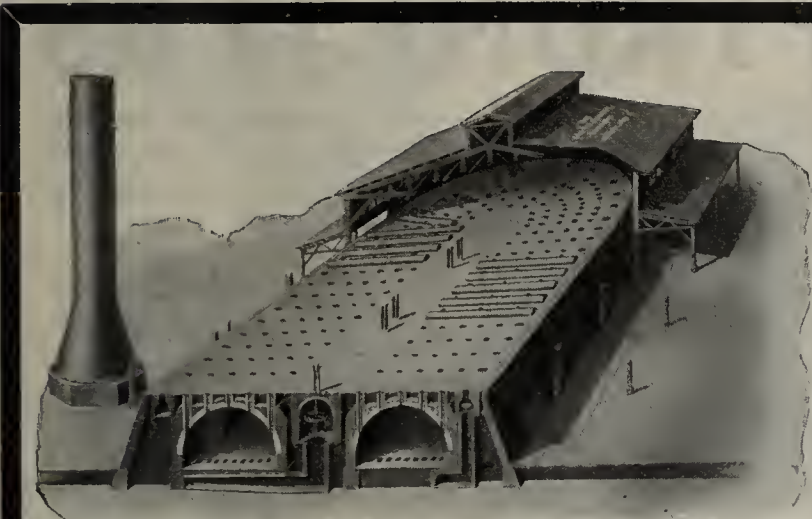
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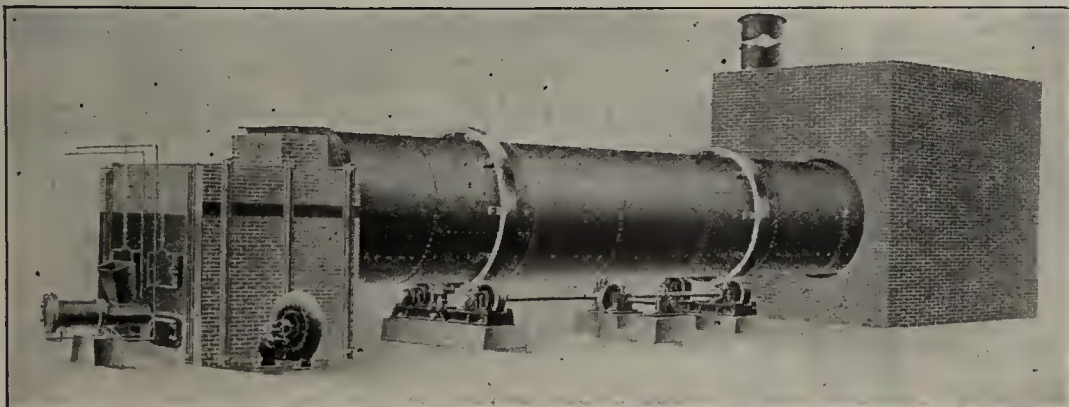
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This book contains valuable information on burning and drying, told in a plain and practical way, and is invaluable to the burner or superintendent. It is very comprehensive and should be in every clayworker's library. Price \$2.00.

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CLAY DRYERS

Increase Capacity of Dry Pan.
Produce Uniform Brick.

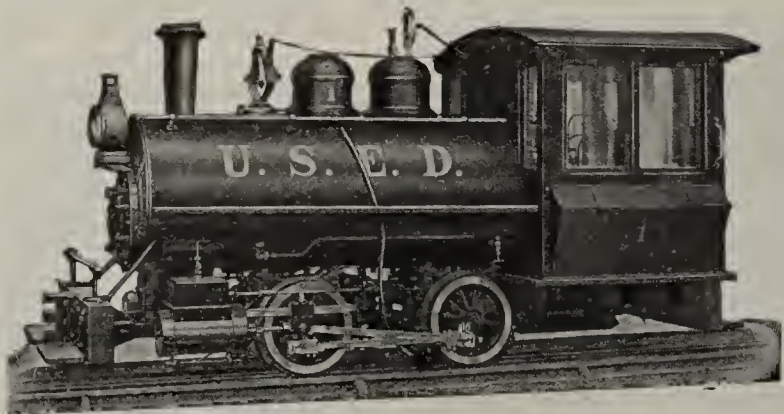
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DAVENPORT INDUSTRIAL LOCOMOTIVE



Small Size—Reasonable Cost—Especially built for use of clay products manufacturers, for hauling clay or shale from pits or mines to plant.

CHEAPER THAN HORSE TRANSPORTATION

and will reduce cost of delivering your material to your plant, thus increasing profits,

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New York, 30 Church St. Seattle, 617 Western Ave.
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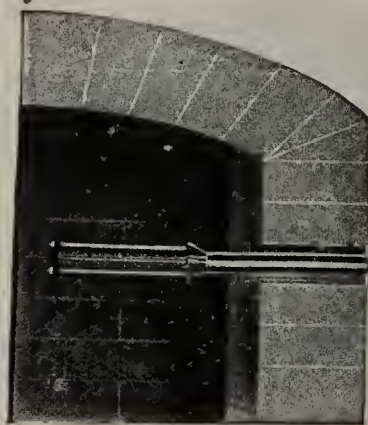
CLAY-WORKER	\$2.00
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Current Literature	3.00
Metropolitan	1.50

\$5.50

Value \$9.00

Address all orders to **T. A. RANDALL & CO., Inc., Indianapolis, Ind.**

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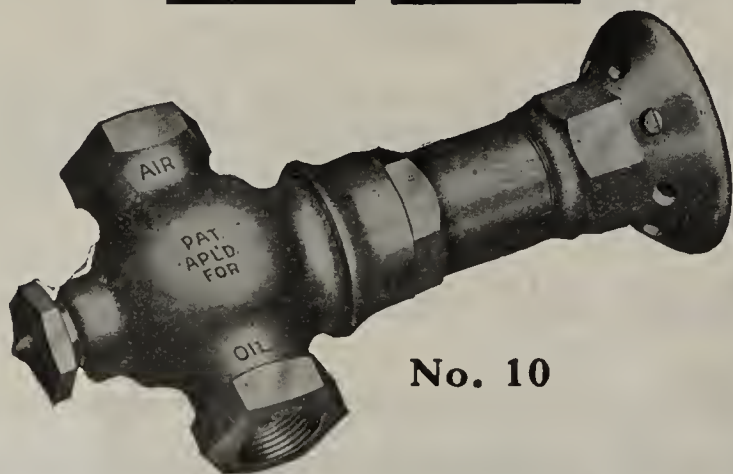
For measuring the temperature of kilns, do away with guess-work. For temperatures to 3000° Fahr.

The Brown
Instrument
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AN OIL BURNER FOR YOU



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THE NEW SCHURS IMPROVED

DOUBLE ATOMIZER

Latest and Most Perfect Water Smoker
and Brick Burner

MOST { EFFICIENT
ECONOMICAL
DURABLE

Send for catalogue.

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FIRST, by actual test, at our expense, **WE PROVE** that we can **SAVE MONEY** for you. **THEN** we license you to use our patented System of **BURNING BY FORCED DRAFT**, charging as royalty a few cents per thousand on your output—a mere **FRACTION** of your **SAVING**. **FINALLY** you apply to us for an exclusive license for your territory (just as the New England Brick Company did) for obvious reasons.

POSITIVE Mechanical **CONTROL OF DRAFT**—Economical to install.

"First come—first served."

Full information upon request.

The Steadman & Robinson Co.,
50 Church St., New York City,

The profits on your investment—your dividends—depend as much, if not more, on the result-producing merits of your kilns as upon your material, your machinery or freight rate.

We have been in the kiln building business for over twenty years; six years ago we perfected and marketed

The Improved Flue System Kiln

and have been busy ever since, winter and summer, building it for progressive BRICK, SEWER PIPE and DRAIN TILE firms.

It has burned every class of clay goods, and has SATISFIED (get that?) every patron.

We will construct new kilns, remodel unprofitable kilns to our plans; or we will sell working plans and specifications on very reasonable terms.

Inquiries solicited, promptly and cheerfully answered.

GEORGE E. SNOWDEN & COMPANY
New Cumberland, West Virginia



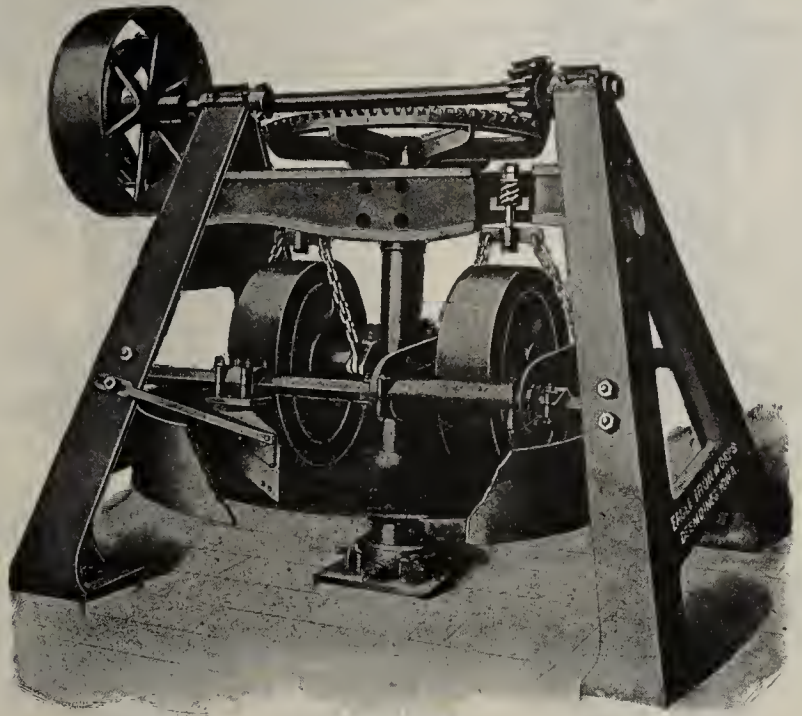
Oil Burners

Kilns, dryers, etc., equipped with our oil burners give a very uniform product due to close regulation and good distribution of the heat. They save labor and cut down cleaning and repairs to kilns.

Write for catalogs.

Tate-Jones & Co., Inc., Pittsburgh, Pa.

Independent and Suspended Mullers the distinguishing feature of our **DRY PANS**



Other valuable features which our catalogue fully describes.

EAGLE IRON WORKS,
Des Moines, Iowa.

NEW MODEL OF THE **ROYAL** STANDARD TYPEWRITER

The LATEST Model of ANY Typewriter on the Market.



HAS TWO-COLOR RIBBON, BACK-SPACER, TABULATOR and many new and valuable patented features that other typewriters do not have.

PRICE, \$75

Send for "The Royal Book," 32 pages of typewriter information—the finest typewriter catalog ever issued. Yours for a postal card.

ROYAL TYPEWRITER CO.

Royal Typewriter Building, - - - New York
502 American Central Life Building, Indianapolis, Ind.

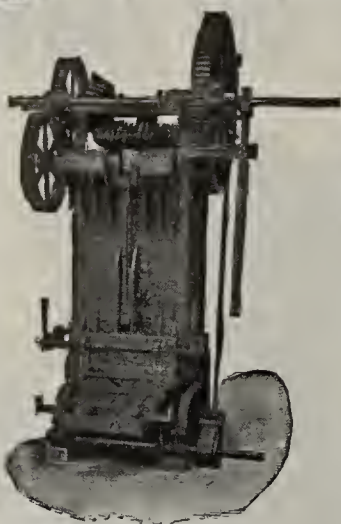
Single
Double
and
Triple
Deck
Dryer
Cars
Transfer
and
Dump
Cars
Turn-
tables
Switches
and
Trackage



With Chase Flexible and Reversible
Bearing and Folding Deck

The Chase Foundry & Mfg. Co., Columbus, O.

MODERN CLAY- WORKING ENGINEERS



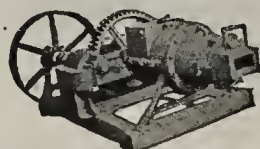
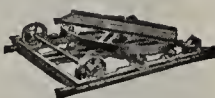
And Builders
of Complete

BRICK MAK- ING PLANTS

For Either
Soft or Stiff-Mud
Processes.

Steam Power
50 Thousand
Animal Power
20 Thousand

We Build the
Most Complete
Line of Yard
Supplies and
CRUSHERS



THE HENRY MARTIN BRICK MACHINE MFG. CO.
LANCASTER, PA., U. S. A.

Get Our Big Catalog.

Mentz Moulds Are the Best

What One Who Knows Has to Say.

GREEN BAY BRICK CO.

Manufacturers of

Sand Mould Brick.

Green Bay, Wis., Mar. 22, 1912.
G. B. Mentz Co., Wallkill, N. Y.:

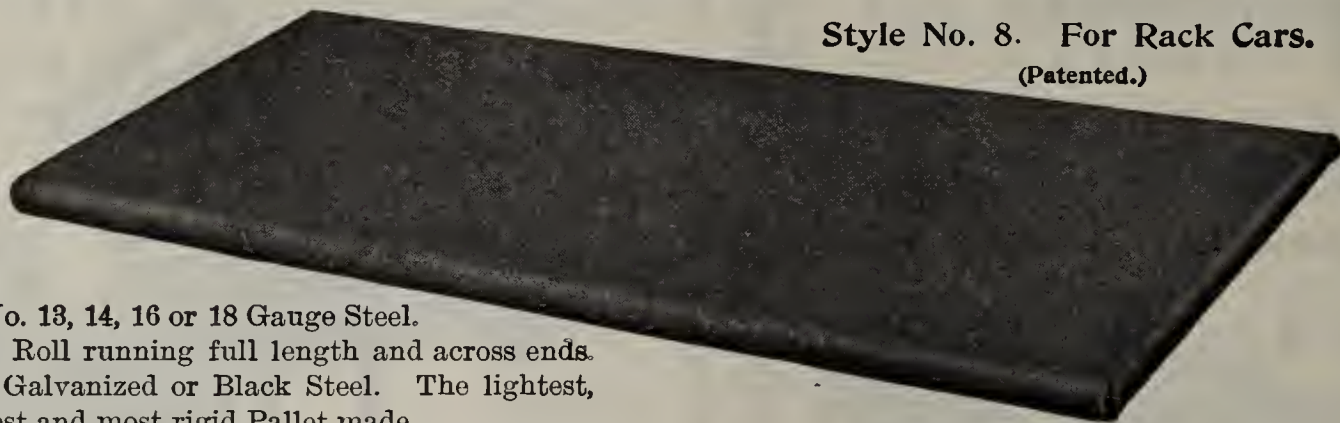
Gentlemen—Your favor of the 20th is at hand. You may make us 24 of your best moulds of sizes as follows: 5 brick $8\frac{3}{4}$ in. x $4\frac{1}{4}$ in. x $2\frac{7}{16}$ in.; $\frac{5}{8}$ in. partitions. We want them of the best, at the price you name, \$2.25 each. We can buy moulds for \$1.50. but we buy yours because they are the best. We would like to have the moulds here by May 1st.

Yours truly,
J. W. HINKLEY, Sec'y.

The G. B. Mentz Co.
Wallkill, N. Y.

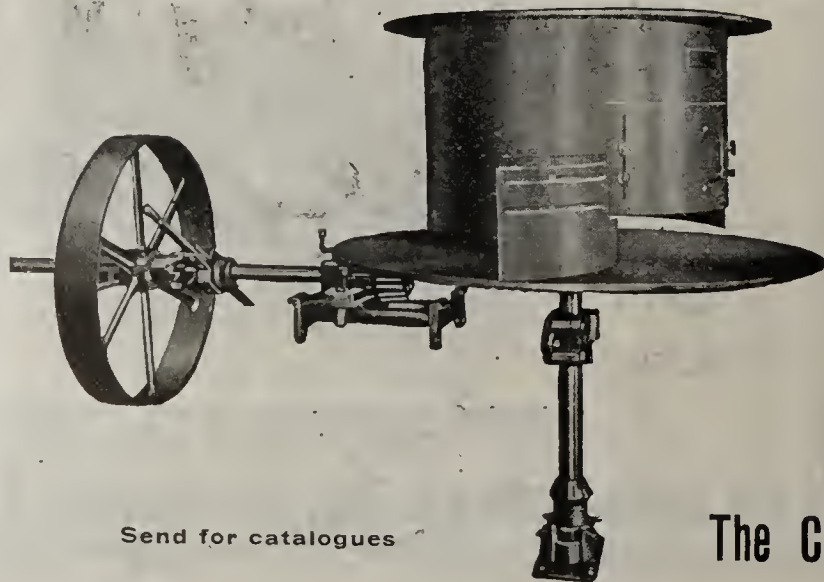
"OHIO" ROLLED EDGE STEEL BRICK PALLET.

Style No. 8. For Rack Cars.
(Patented.)



Made from No. 13, 14, 16 or 18 Gauge Steel.
 $\frac{5}{8}$ -inch Roll running full length and across ends.
Either Galvanized or Black Steel. The lightest,
strongest and most rigid Pallet made.

THE OHIO GALVANIZING AND MANUFACTURING COMPANY, Niles, Ohio.



Send for catalogues

COLUMBUS AUTOMATIC FEEDER

INCREASES CAPACITY—IMPROVES PRODUCT

Let us explain!

PIANO WIRE SCREENS

Improved Elevating & Conveying Machinery
For Clay Industries

The Ceramic Supply & Construction Co., Columbus, O.

Subscribe to the "MONTHLY"

The only publication in the world devoted to the interests of the Mantel, Tile, Grate and kindred goods industries.

\$2.00 PER YEAR.

Full of interesting trade news. Address

THE MANTEL, TILE AND GRATE MONTHLY

Suite 407 Arcade Bldg., Utica, N. Y.

Advertise in the "MONTHLY"

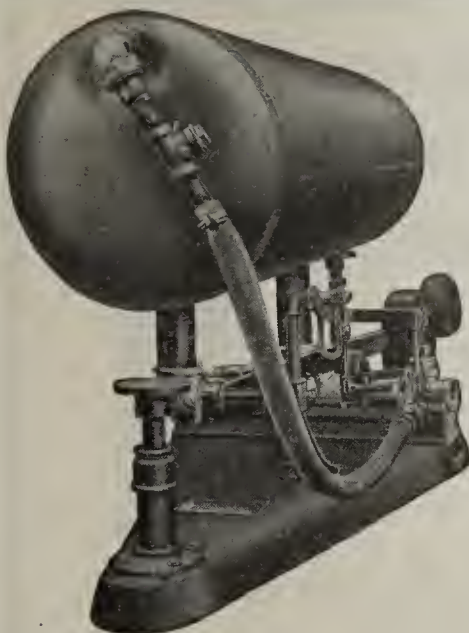
It's the best trade paper in the world to reach the dealers in Mantels, Tiles, Grates and kindred goods, as well as Architects, Contractors, Builders, etc.

For advertising rates address

THE BRAMWOOD COMPANY

47-49 Virginia Ave.

INDIANAPOLIS, IND.



The
**Morehead
Condenser
Trap makes
its own
Vacuum**

and PULLS the accumulated water and air out of your steam lines, insuring rapid circulation. Enables you to cut down your boiler

pressure on direct heating systems.

Particularly adapted for use in connection with reduced pressure and Exhaust Steam Heating Systems, Dry Kilns, Dryers, Fan Stacks, Etc.

Write for Particulars and Trial Trap.

Morehead Mfg. Co.

Dept. 10

Detroit, Mich.

STOCKS CARRIED IN

New York	Philadelphia	Chicago	San Francisco	Los Angeles
Wichita, Kan.	Memphis, Tenn.	New Orleans, La.	Chatham, Ala.	
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A Complete Line of Clayworking Machinery

INCLUDING

STEAM SHOVELS AND DREDGES.

Ask for our latest Catalog, and write us or wire us for anything you need on any kind of Brick or Tile Plants.

Scott-Madden Iron Works Co., 404 S. Fourth, Keokuk, Ia.

IN DRYING CLAY
WARES WE HAVE
HAD THE LARGEST
AND MOST VARIED
EXPERIENCE OF
ANYONE IN
AMERICA.

OUR DRYERS
GET RESULTS.

**TRAUTWEIN DRYER
AND
ENGINEERING CO.**



WE MANUFACTURE
COMPLETE, EVERY-
THING NEEDED
FOR DRYER
INSTALLATIONS.

WE ARE ENGINEERS
FOR CLAYWORKING
PLANTS.

**417 So. Dearborn St.
CHICAGO.**

The Richardson=Lovejoy Engineering Company

Columbus, Ohio

CERAMIC ENGINEERS FACTORY ARCHITECTS.

Geological Examinations of Properties.
Clay Testing.
Investigations of Manufacturing Propositions.
Plants designed.
Construction superintended.
Operations directed.
Plans for Dryers, Furnaces, Kilns.
Especial attention given to problems in Fuel Economy.
Old plants remodeled and put on an Economic Basis.
New Lines of Products developed.

Pamphlet "CERAMIC ENGINEERING" Free.

JUST PUBLISHED.

BRICKLAYING SYSTEM

By FRANK B. GILBRETH.

Ancient as the art of bricklaying is, there has never been a real book on the subject before. Indeed, astonishingly little has ever been written about brick masonry, and, so far as the economics of the subject is concerned, nothing has heretofore appeared in book form. It is a large subject, and one of growing importance in spite of the advent of concrete. In fact, scores of concrete buildings are faced with brick, or have brick curtain walls.

Gilbreth's "Bricklaying System" is a book whose 330 pages are filled with rules and hints for his foremen and bricklayers, designed to increase the output of the workmen and to enable men of moderate skill to do difficult work in the best manner. There are 73 charts showing different bonds, ornamental and plain, some of which would be exceedingly hard to execute were it not for the methods explained in the text. To the architect, 73 ornamental charts alone will prove of great value, for practically none of them can be found in any other book, and no other book has more than 8 different bonds.

Among the many labor-saving devices and methods in this book, none is more worthy of comment than what Mr. Gilbreth calls his "packet system" of handling bricks. The bricks are piled on small wooden trays or "packets," loaded on to wagons, hauled to the work and delivered to the bricklayers. This handling in units has worked a remarkable reduction in cost on Mr. Gilbreth's own work. Incidentally, by keeping tab on the number of empty "packets," the exact output of each bricklayer is recorded, which itself is a stimulus that works wonders in the output of the men.

The "fountain trowel" is another money-saving device. Space prohibits mention of more.

The book is now off the press, and ready for distribution. Its size is 6x9in., 330 pages, 167 illustrations and 73 bond charts. The price is \$3.00 net, postpaid.

T. A. RANDALL & CO., Publishers,
211 Hudson St., Indianapolis.

ECONOMY

True economy is the sure road to wealth today, just as it has ever been. This is generally conceded, but it is not always certain what constitutes true economy. In the clay line it is oftentimes real economy to replace small capacity machinery with larger in order to meet the demands of a rapidly growing trade. Really it is false economy not to do so, for one must spend money to make money. He is wise who recognizes this truth and promptly replaces outgrown machinery with that equal to his needs. Then, after you have done the wise thing in enlarging and refitting your plant, don't let the outgrown machinery go to the scrap pile. It may prove a boon to some manufacturer starting a small capacity plant for which it will be ample. There are many such and they may be reached through an ad in the For Sale columns of The Clay-Worker. Be wise, not wasteful, and instead of letting your outgrown machinery rust out, advertise it in The Clay-Worker (see forms of ads under heading "For Sale, Wanted, Etc.," in this issue) and convert it into

CASH

To insure insertion in current issue, copy should be furnished early in the month.

Address

THE CLAY-WORKER,
Indianapolis.

1896

1912

14 Years of Constant Satisfactory Service In Many Clay Plants

Is the Record of the PERFECT CLAY SCREEN

Why continue with your old clay screen from which today the product is entirely too coarse, tomorrow too fine, next day scarcely anything, and always requiring constant attention.

FIGURE up the cost and let us quote you on a PERFECT CLAY SCREEN that will give you ABSOLUTE CONTROL OF YOUR CLAY. The same fineness every day in the year and you get every pound of clay that is fine enough for your product.

Just think what it costs to have a man cleaning and breaking up your screen, and then not get capacity or proper fineness. THE PERFECT CLAY SCREEN is automatic, self cleaning, and the plates last many times as long as do plates on an ordinary screen. Increased and improved output at less cost, is our GUARANTEE. Let us try, if we don't do it IT WON'T COST YOU ONE CENT.

DUNLAP MFG. CO.

Bloomington, = Illinois

"We have been using your belting to elevate clay to a brick machine for ten years and have found it entirely satisfactory"

This proves how very successful

THE GANDY BELT

is for the hard service in

BRICKYARDS.

Acquiring the GANDY habit will save you money. It will cut your belting expenses in half, and you will get just as good results, if not better. This sounds good, and it's true.

Booklets, samples and lowest prices cheerfully furnished.

Write us today.

GANDY BELTING CO.

749 W. Pratt St.
BALTIMORE, MD.

Three identifying marks:

- 1st. The Trade Mark.
- 2nd. The Green Edge.
- 3rd. The Brand—"The Gandy Belt."



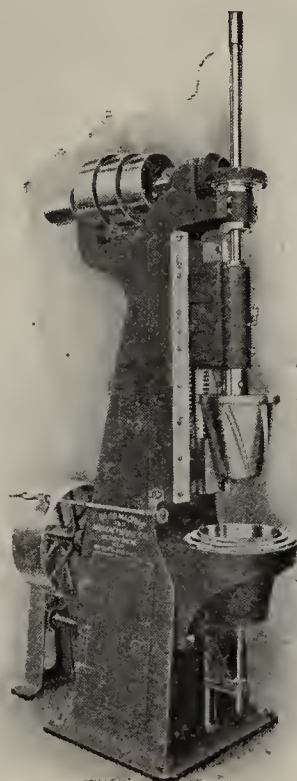
Baird

**AUTOMATIC
POTTERY
MOLDER**



Will make
Flower Pots,
Cooking Ware,
Stoneware, etc.

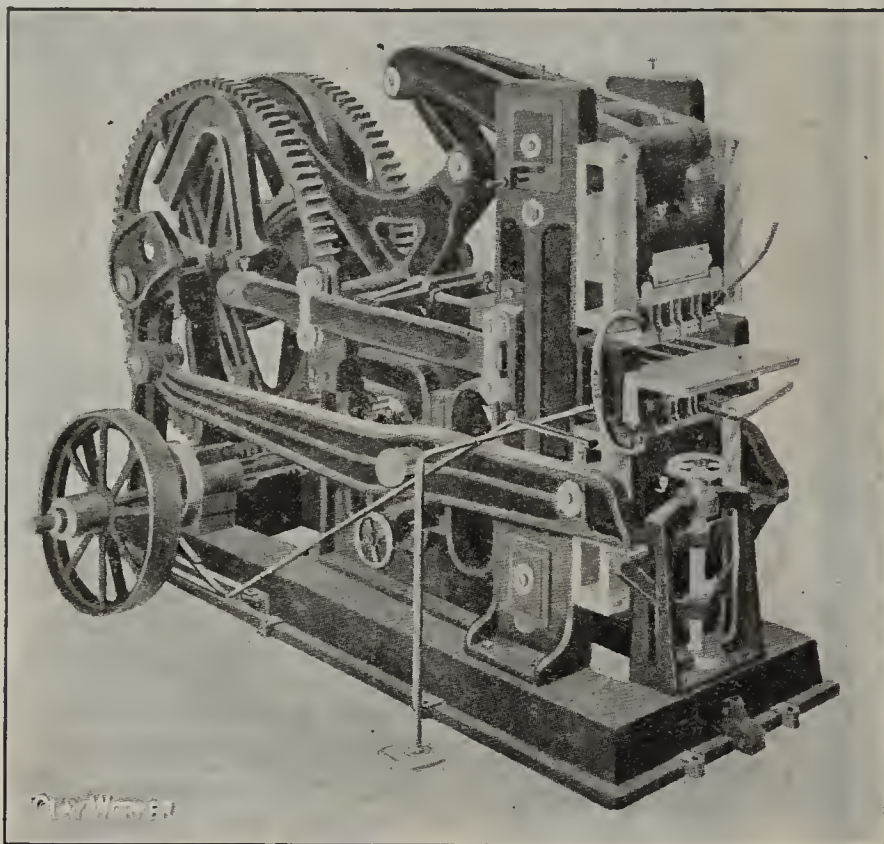
We guarantee more
and better ware than
can be made on any
other machine.



With this machine you can
turn failure
into success.

If you expect to stay
in the pottery business you need this
wonderful machine.

BAIRD MACHINE & MFG. CO. DETROIT MICH.



Special Mold Box In The Fernholtz Brick Press

The Mold is the heart of a brick machine and our press is fitted with a specially designed mold box which produces bricks with sharp, straight edges and corners. The Mold Box being assembled before placing it in the machine makes it possible to change molds in the shortest possible time.

Our press has many other special features which are fully explained in our catalog which we want to send to interested parties.

The Fernholtz Brick Machinery Co.

Boyle and Vandeventer Aves.

ST. LOUIS, MO.

WALTER E. HILTON'S IMPROVED MOLD SANDER

(PATENT PENDING.)



No Chains, Belts or Gears.

No Shifting Lever.

No Extra Moulds.

Mould always ready to be taken out at the proper time.

Impossible to break a Mould.

Light running, almost balanced in all positions.

For circulars and prices explaining it more thoroughly, write

Hilton Sanding Machine Co.

DUNKIRK, N. Y.

The Claycrafter

Supplement

A FEW FIGURES

Have You Your Pencil Handy?

WE'LL say you are making 50,000 brick per day— $1\frac{1}{4}$ Millions per month—15 Millions per year.

Your present fuel requirements are $\frac{1}{2}$ Ton of coal, costing \$2.00 per Ton, making \$1.00 per M brick for this item.

It's easy to see that \$15,000.00 will have to be "dug up" from some source to satisfy the coal man.

What if the coal man should turn around and rebate you the cold sum of \$9,000.00? "Heart disease," did we hear you say?

We don't know how you **stand on rebates**, but will venture that your hand would be out to receive that "juicy" check—ours would—and you'd say, "just like finding it!" or, "like getting money from home."

Now **there's** where we come in. We're **not coal men**. But, we have the **wherewith** to "**beat the coal game**."

The only difference—**you keep the money**—it don't have to pass the hazard of the "Providence appointed" coal baron's fingers.

His sense of philanthropy might fail him at the psychological moment, and you'd be "**holding the sack**," as you are today.

We can cite you to a lot of people who are thus **rebating** themselves nowadays. Some larger plants, some smaller.

They are the happy possessors of a **Raymond, Producer Gas Fired, Continuous Kiln** and a **smile that won't come off**.

They are using about $\frac{1}{3}$ of their former fuel, means $\frac{1}{3}$ as much coal to handle (and pay for), and $\frac{1}{3}$ as much ash; also $\frac{1}{3}$ as much firing expense, and a great labor saving in loading and discharging kilns; also a great reduction in kiln repairs and turning out all hard, clean, rich colored ware from crown to floor; also no smoke, no dirt—cleanliness, control, system, all of which spells **success on any yard**.

Never have you made an investment that would **begin to compare with this one**.

Remember, **you don't buy this kiln**; it **pays for itself times over**, leaving you in a **commanding position** in the trade, an **established power** in your chosen line.

Hundreds are seeking information today, why not you? Whether in shape to consider the matter now or later the wide-awake thing is to keep posted.

Now for that pencil. Without obligating yourself in any way, the fullest information can be secured by addressing The C.W. Raymond Co., Dayton, Ohio, U. S. A.



PATENTS APPLIED FOR.

A Few Points for Keen People

60% More Capacity

Or, Finer Grinding.

All parts renewable.

Frame of White Iron.

Ribs of Semi-Steel.

Slats of Rail Steel.

(Government Analysis.)

Will Greatly Outwear

Ordinary Cast Plates. — WRITE TODAY. —



If You're 'Shy' on Capacity
Or your Ware is 'Rough,'
This is the Screen that was
Designed for YOU.

**60 % More
Screening
Capacity**

Than any other screen
in the World.

Built for ANY DRY PAN

Always —

A Step in Advance THE RAYMOND LOW FRAME DRY PAN

Is in a class by itself.

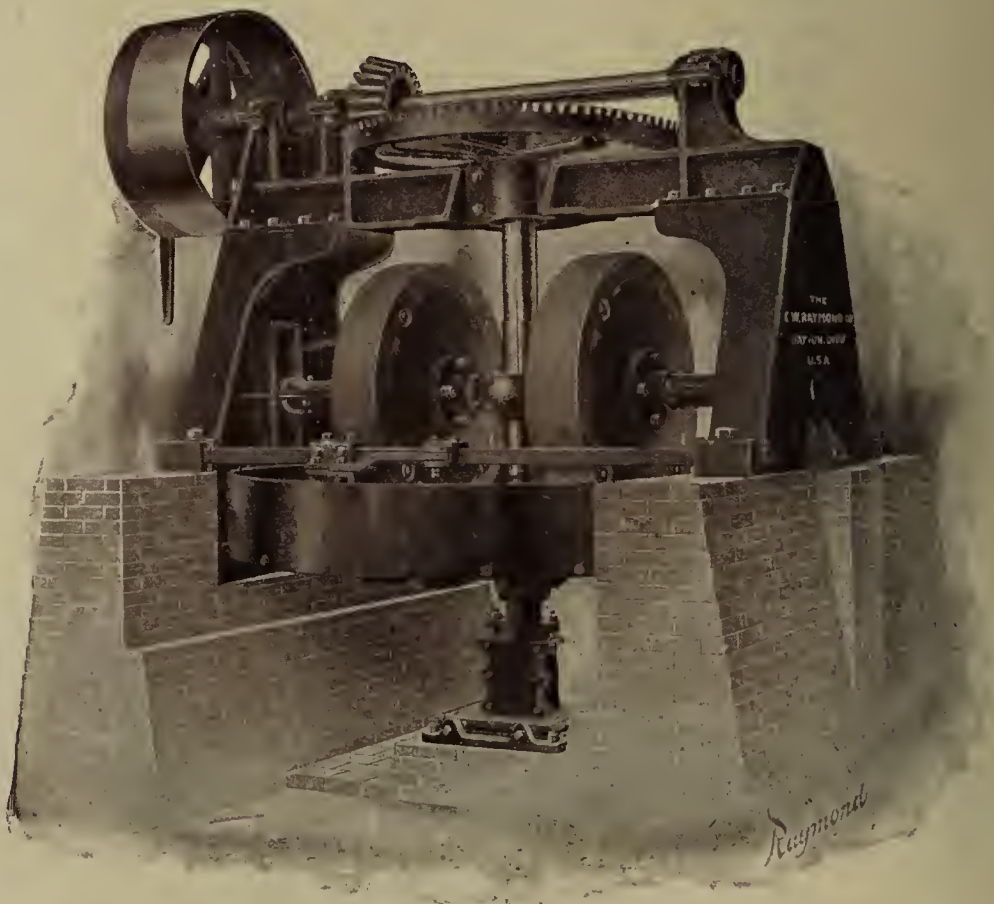
Unrivalled in
Weight, Rigidity, Strength
and Grinding Capacity.

For full particulars—screen or pan—
Write today to

The C. W. RAYMOND CO.

The Strongest Power in the World
of Clayworking Machinery,

DAYTON, OHIO, U. S. A.



Mention THE CLAY-WORKER.

Why Continue to turn out that Punky Product?

Those **ragged corners** and **edges** and **granulated centers** are cutting you out of **thousands a year in reduced prices.**

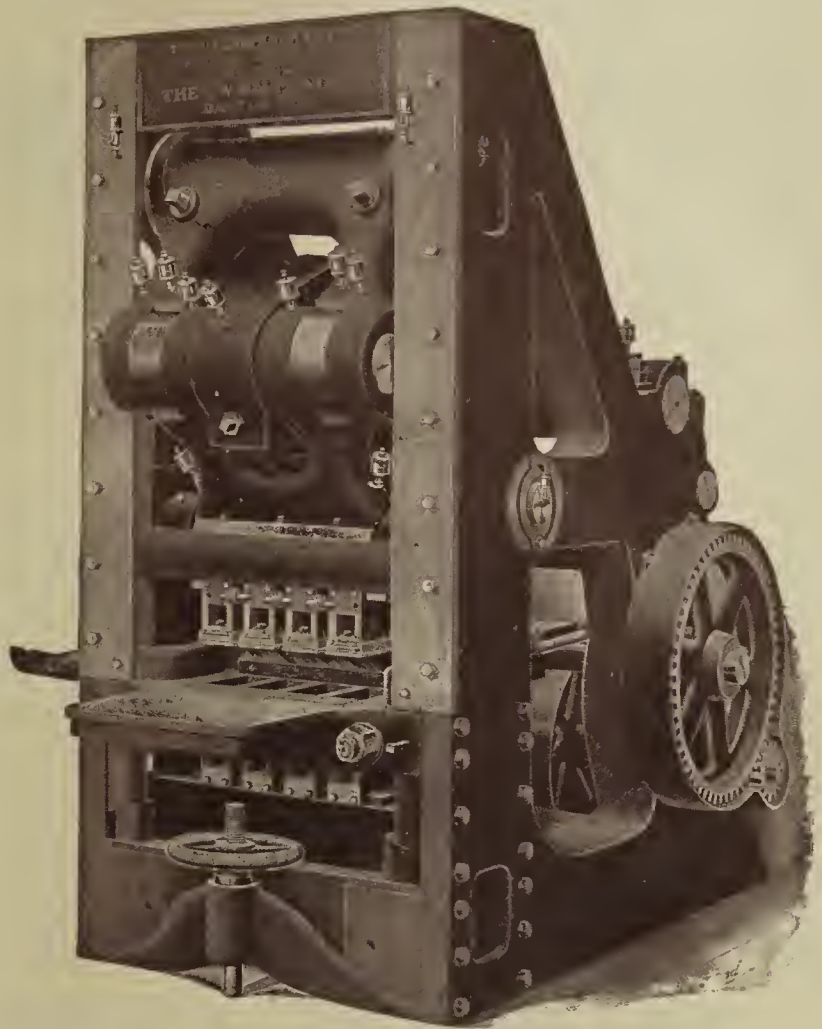
Besides lowering the standard of your Business until it may be "easy picking" for the undertaker, Mr. Receiver.

There's only **One Way** to get
TOP PRICES,
DELIVER THE GOODS.

Your Short Cut to this Delivery is
by way of the

BERG DRY PRESS.

A Favorite with Leading Clayworkers
throughout the world. Write us.



The Raymond Metallic Radiation Dryer.

GUARANTEED to dry any material that will make brick,
by either the Stiff Mud or Soft Mud Process.

IRON, conceded to be the most efficient, practical medium of radiation, affords here the highest Efficiency and Fuel Economy of any Dryer in use.

Perfect Control of both **Heat** and **Circulation**, enables it to dry successfully the **hardiest** or the most **tender** of **clays**, in **any type of ware.**

Many Satisfied Users--Hear Them.

Write
today
to

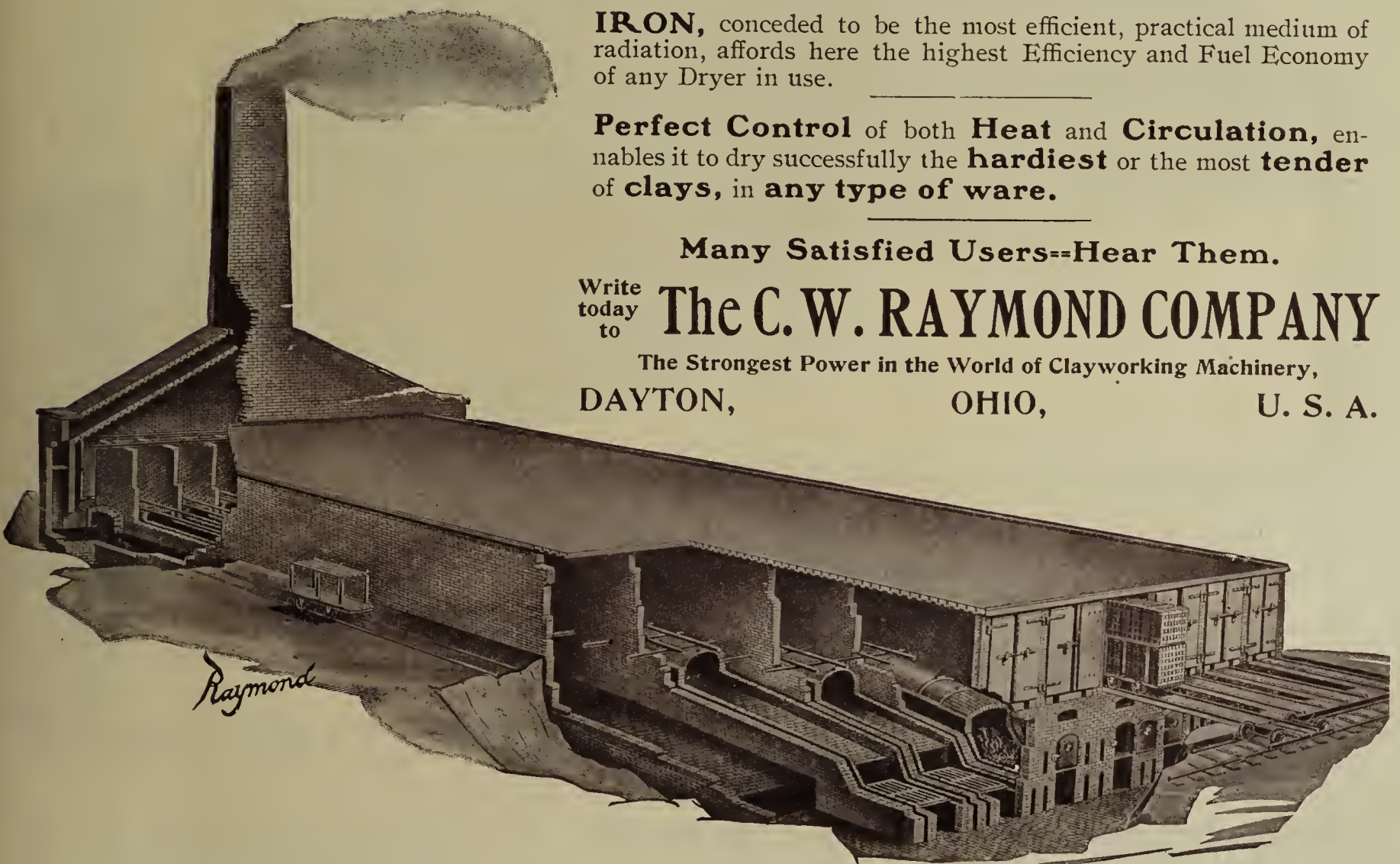
The C.W. RAYMOND COMPANY

The Strongest Power in the World of Clayworking Machinery,

DAYTON,

OHIO,

U. S. A.



Mention THE CLAY-WORKER.

Your Eye,

—Did it ever occur to you,—

is the only thing we can appeal through at this distance?

IF WE WERE CLOSER,

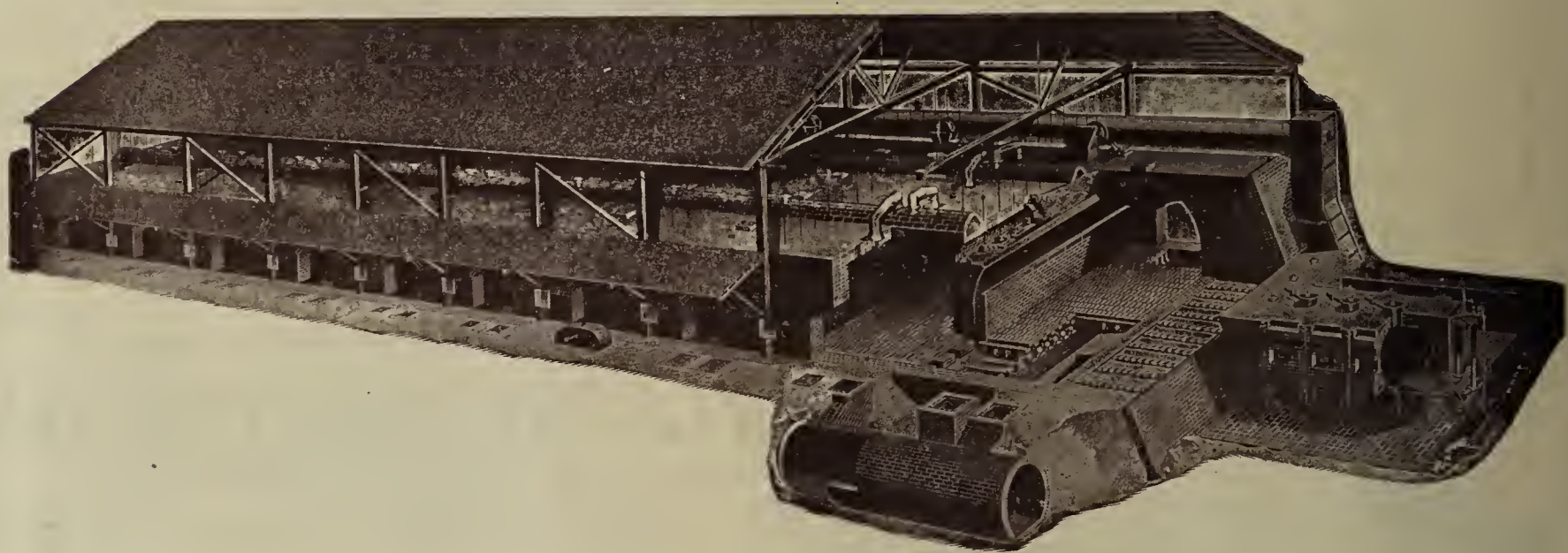
(and we sincerely wish we were)—you might possibly SCENT us, very likely FEEL the good cheer of our presence and TASTE its accompaniments, certainly HEAR, with interest, of some of the GOOD THINGS that we would talk to you about.

For Instance, How would you like to be “salting away” each month “hard cash” amounting to 60% of your fuel bills?

Wouldn't care for it, eh?

Then don't read any further—for this has to do with

THE GREATEST CLAYWORKS INVENTION OF THE AGE,



THE RAYMOND PRODUCER GAS FIRED CONTINUOUS KILN,

And **Progressive Clayworkers** who are looking for higher percentages of Better Ware—in **Color** and **Quality**, and **Uniformity**, and **Regularity** and **Certainty**,
With less than $\frac{1}{2}$ their present fuel requirements.

FIGURE IT OUT..THINK IT OVER..AND WRITE FOR FULL PARTICULARS TO

THE C. W. RAYMOND COMPANY

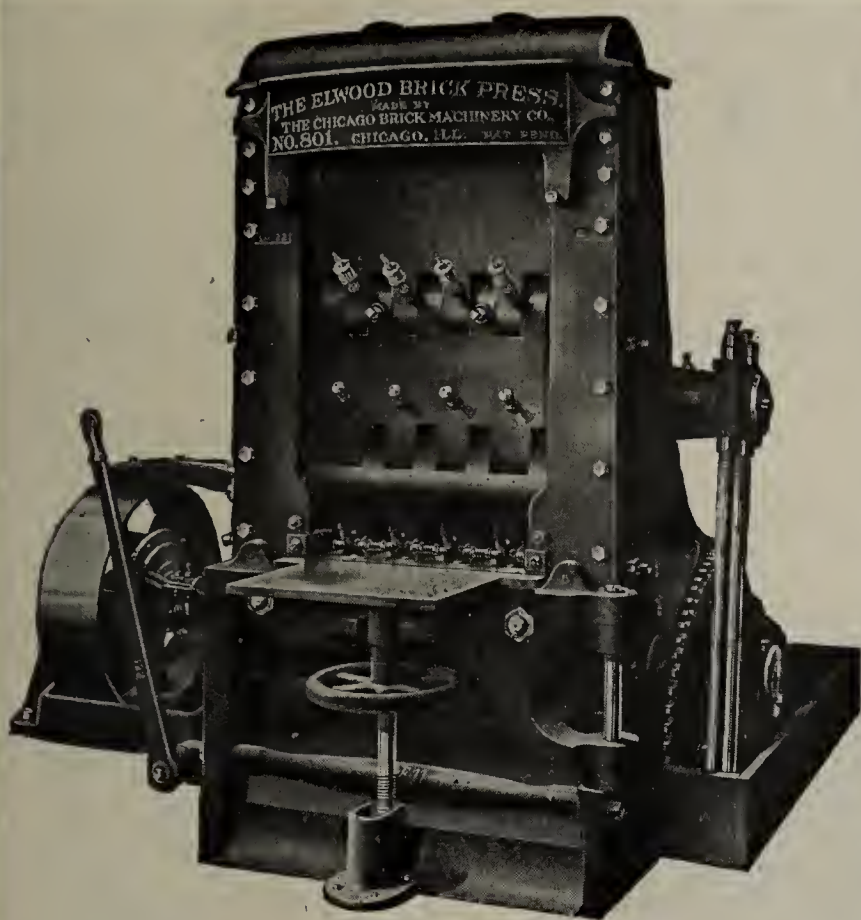
The Strongest Power in the World of Clayworking Machinery

DAYTON,

OHIO,

U. S. A.

Mention THE CLAY-WORKER.



ELWOOD PRESS

**BUILT FOR HEAVY DUTY.
ALWAYS MAKES GOOD.**

**WE ALSO HANDLE EVERYTHING
USED ON A BRICKYARD.**

CHICAGO BRICK MACHINERY CO.

Sold Also by
MANUFACTURERS EQUIPMENT CO.
Dayton, Ohio.

20 W. Jackson Blvd., Chicago

**THE GAS-FIRED
FIRE-BRICK**

HOFFMANN KILN

Burns 1,000 Fire-Bricks
With 5 Cwt. of Slack

and also largest Blocks.



50%

**LABOUR
SAVING
GUARANTEED**

**HAS IT EVER OCCURRED TO YOU
THAT ALL WORKS POSSESSING GENUINE
HOFFMANN KILNS PAY HANDSOME DIVIDENDS?**

The same applies to Hoffmann Continuous Tile, Pottery, Lime
and Cement Kilns.

HOFFMANN

CONSTRUCTION CO.,

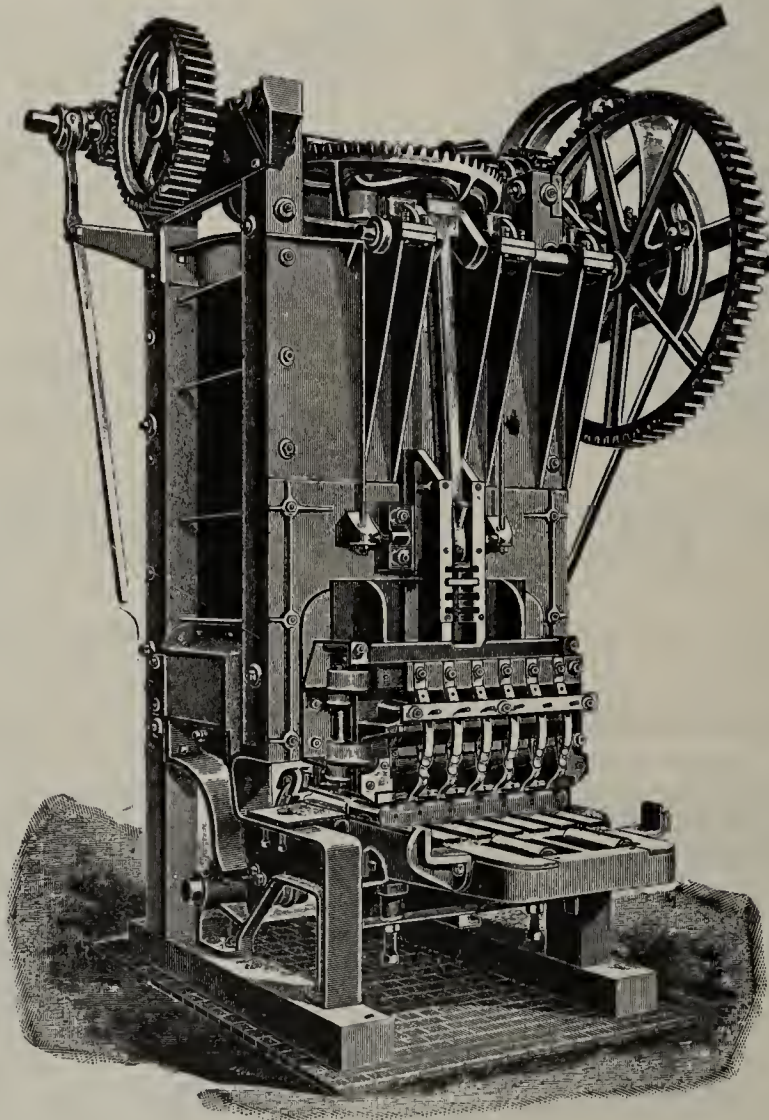
**FINSBURY PAVEMENT HOUSE,
LONDON, E. C., ENGLAND**

Mention THE CLAY-WORKER.

DO YOU KNOW

that more than eighty-five per cent of all the brick made in New England today are made on the New Haven Brick Machines made at New Haven, Conn.?

Catalogue
and a good
Line of
Testimonial
Letters for
the Asking.



We will be
Glad to Tell
You all
About Our
Horizontal
"New Haven."

"NEW HAVEN" VERTICAL BRICK MACHINE.

We have made a good reputation for our New Haven Soft Mud Machines, and the machines live up to that reputation, turning out Good brick day in and day out, week in and week out, year in and year out, without breaking down. Repair bills reduced to a minimum. Brickmakers who buy of us get their money's worth.

The EASTERN MACHINERY CO.

 **NEW HAVEN, CONN.**

YOU CAN SAVE MONEY

Time and Trouble

By making your choice of magazines for coming year and ordering them all at once through THE CLAY-WORKER.

Knowledge is Power

The best way for clayworkers to get trade knowledge is through the columns of the best clay journal, THE CLAY-WORKER. The up-to-date, successful manufacturer usually keeps posted on current events through the current magazines. The home should be provided, and usually is, with journals devoted to domestic interests and to the welfare and pleasure of the women and children. All of these, whether literary or technical, we offer at prices that will net a saving of 25 to 50 per cent on your magazine purchases for the ensuing year.

(These prices are good only in the United States. Special prices will be quoted to points beyond the United States covering additional postage required.)

The Clay-Worker Clubbing Offers:

	OUR PRICE
CLAY-WORKER	\$2.00
Mantel, Tile & Grate Magazine....	1.00
American Magazine	1.50
Value.....	\$4.50
CLAY-WORKER	\$2.00
Good Housekeeping	1.50
McClure's	1.50
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Saturday Evening Post	1.50
Value.....	\$6.50
CLAY-WORKER	\$2.00
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Current Literature	3.00
Value.....	\$6.50
CLAY-WORKER	\$2.00
Irrigation Age	1.00
Cosmopolitan	1.50
Value.....	\$4.50
CLAY-WORKER	\$2.00
Pearson's	1.50
Brickbuilder	5.00
Value.....	\$8.50
CLAY-WORKER	\$2.00
Cosmopolitan	1.50
Physical Culture	1.50
World's Work	3.00
Value.....	\$8.00

	OUR PRICE
CLAY-WORKER	\$2.00
Motor	3.00
Suburban Life	3.00
Pearson's	1.50
Value.....	\$9.50
CLAY-WORKER	\$2.00
Concrete	1.00
Everybody's	1.50
Ladies' World	.50
Value.....	\$5.00
CLAY-WORKER	\$2.00
Munsey	1.50
Collier's	5.50
Value.....	\$9.00
CLAY-WORKER	\$2.00
Metropolitan	1.50
Good Housekeeping	1.50
Value.....	\$5.00
CLAY-WORKER	\$2.00
Brickbuilder	5.00
Cosmopolitan	1.50
Value.....	\$8.50
CLAY-WORKER	\$2.00
Concrete	1.00
Woman's Home Companion	1.50
Value.....	\$4.50
CLAY-WORKER	\$2.00
Woman's Home Companion	1.50
Delineator	1.50
Value.....	\$5.00

If none of the foregoing combinations is just what you want, write us for special prices on any magazines or papers desired and we will quote you equally low prices.

Send all orders to THE CLAY-WORKER.

T. A. Randall & Co., Publishers Clay-Worker, Indianapolis:

You will please send THE CLAY-WORKER and the other magazines named below to me for the ensuing year beginning with the next current issue of each for which

I enclose \$.....

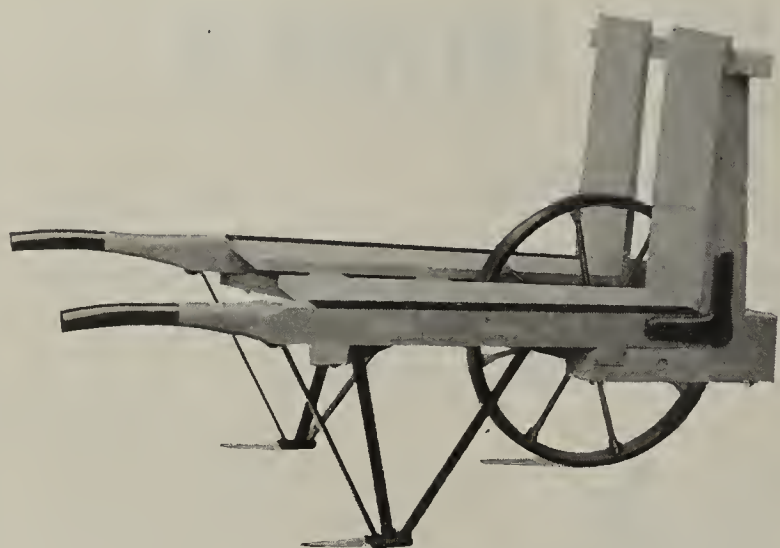
Name.....

Postoffice.....

Street and No.....State.....

Names of magazines desired.....

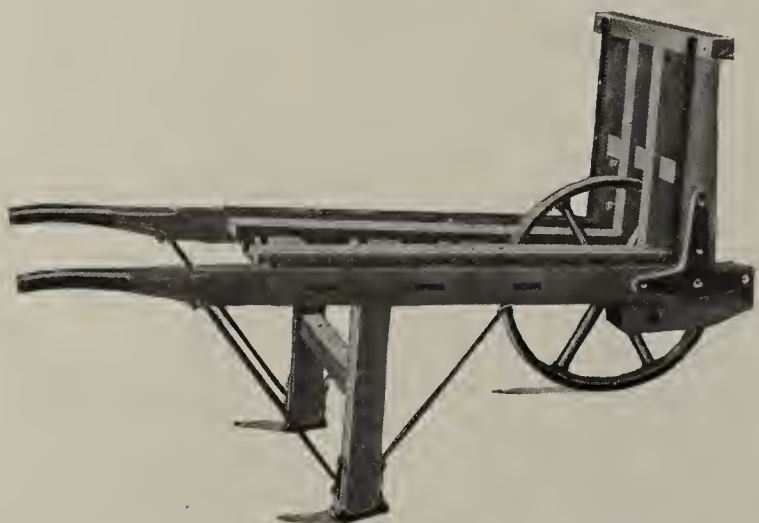
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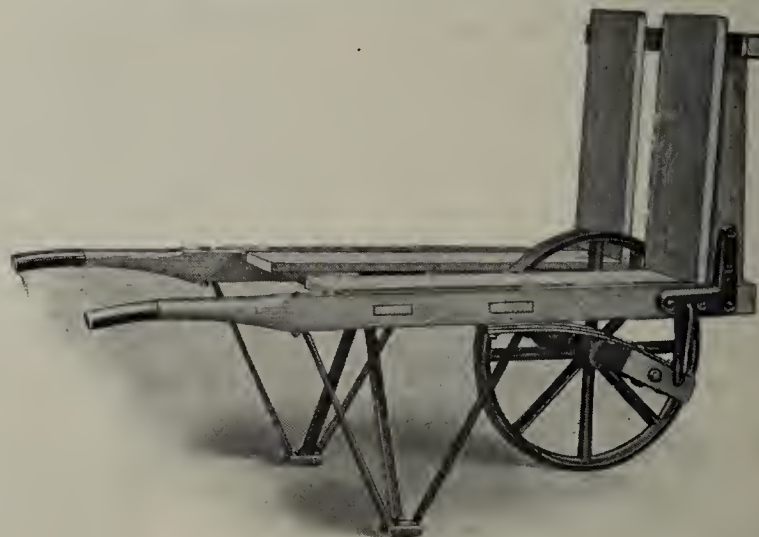
Regular Brick Barrow
Price \$6.50



Regular Barrow
Showing Solid Construction and Braces



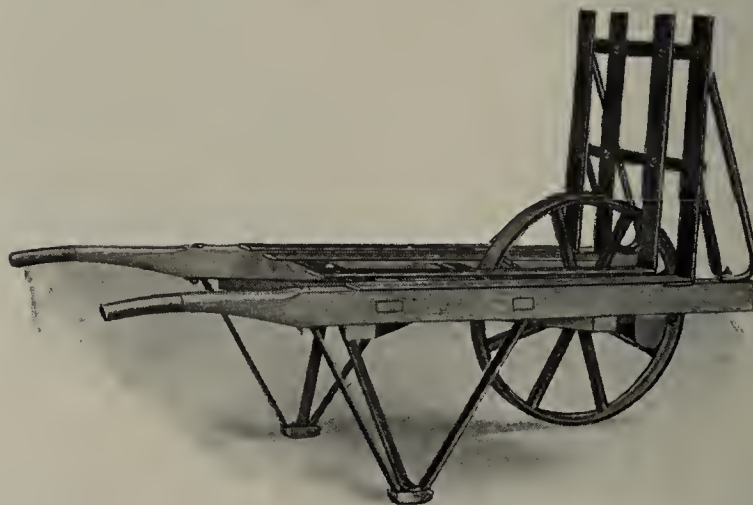
Extra Heavy Burnt Brick Barrow
Price \$7.50



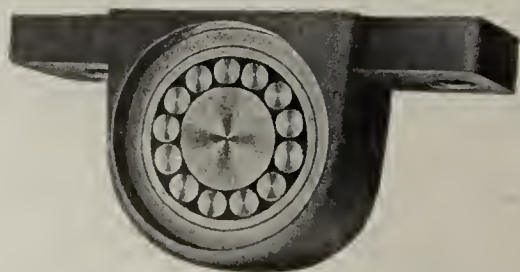
Spring Brick Barrow
Price \$7.50 and \$8.50
Regular and Roller Bearing



Roller Bearing Brick Barrow
Price \$7.50



Steel Slat Barrow
Price \$9.00



The best Barrow Roller Bearing on the market today.
Used exclusively by

THE WELLINGTON MACHINE CO., Wellington, Ohio

Sand Mould Brick Machinery and Equipment

IS OUR SPECIALTY

We make no machinery for other processes. Having made a special study of the one process, adapted ourselves to it, as well as all of our manufacturing facilities, having but one object in view, *i. e.*, to make the very best machines of this class on the market.

That we have been successful in making a machine that does give

RESULTS

without the usual expense and delays attached to other machines of this class because of poor construction and design is proven beyond a doubt by the large number of machines in use at

- 12** Mechanicsville, N. Y., and vicinity.
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- 2** Menomonie, Wis.
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with over 200 single machine plants scattered.

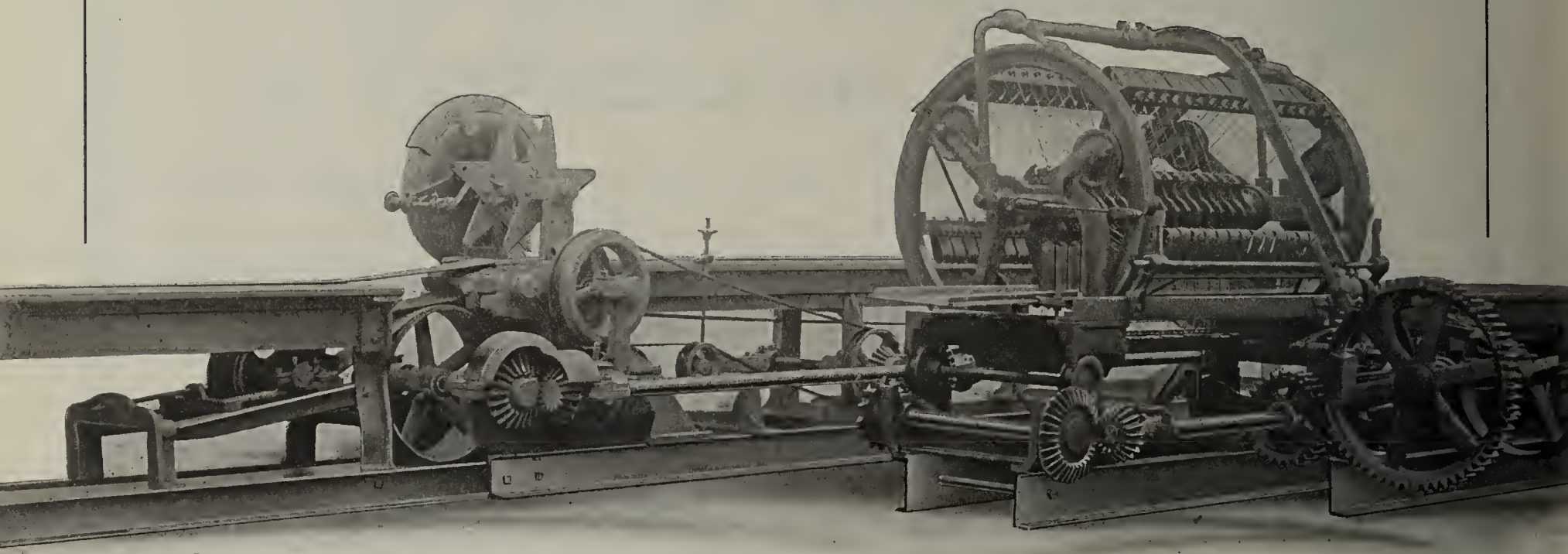
We manufacture everything, so are responsible for results.

Horizontal Brick Machines, Disintegrators, Mould Sanders, Pug Mills, Granulators, Hoisting Drums, Cars, Trucks, Barrows and Moulds.

Don't fail to get our prices and references.

C. & A. Potts & Co.
INDIANAPOLIS, IND.

BRICK CUTTERS



Examine These Cutters

THEY are so simple and direct in their movements that they are easily understood and kept in good shape, and show minimum wear after long service. They are the result of 20 years' effort and continual improvements.

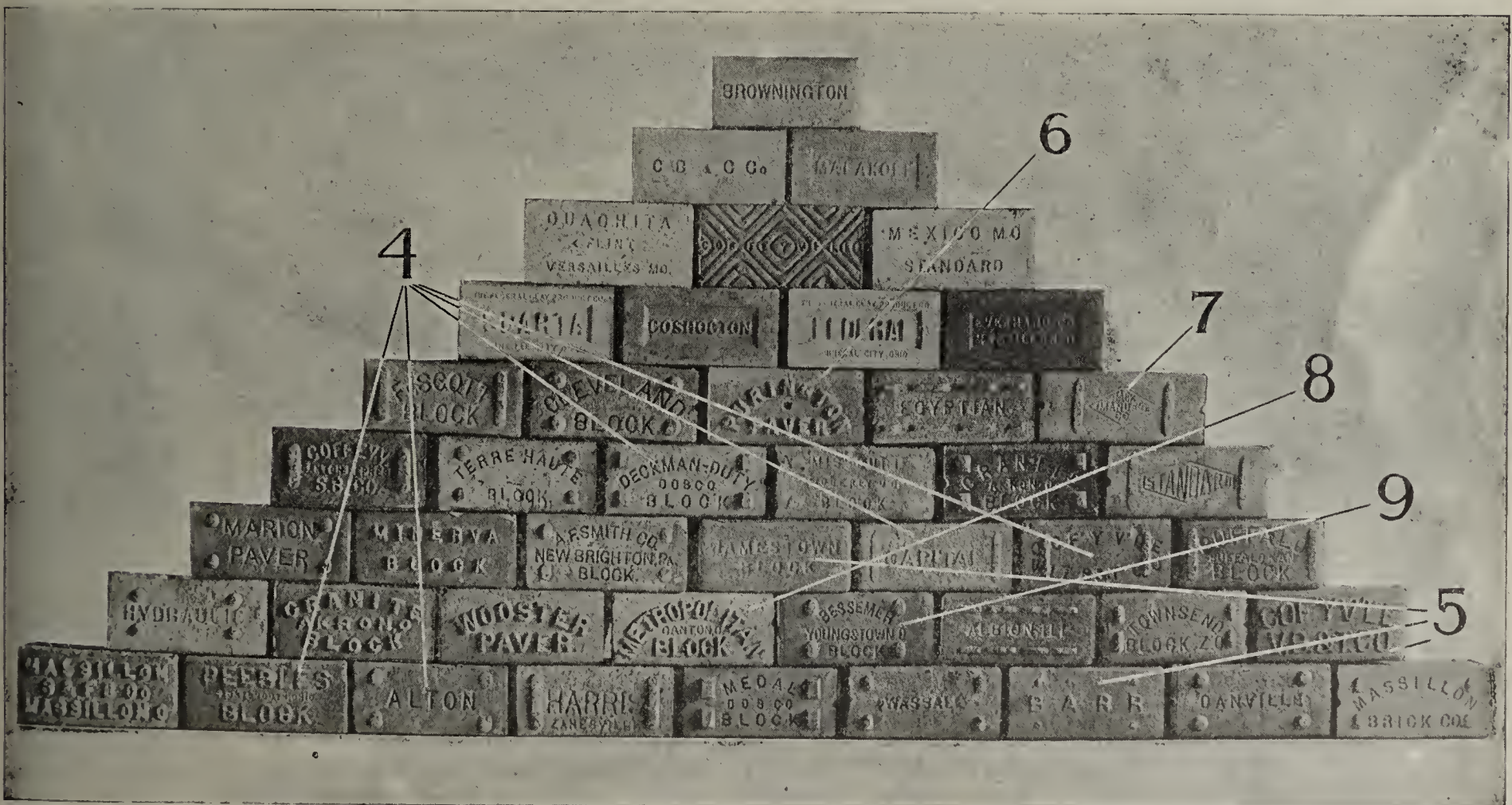
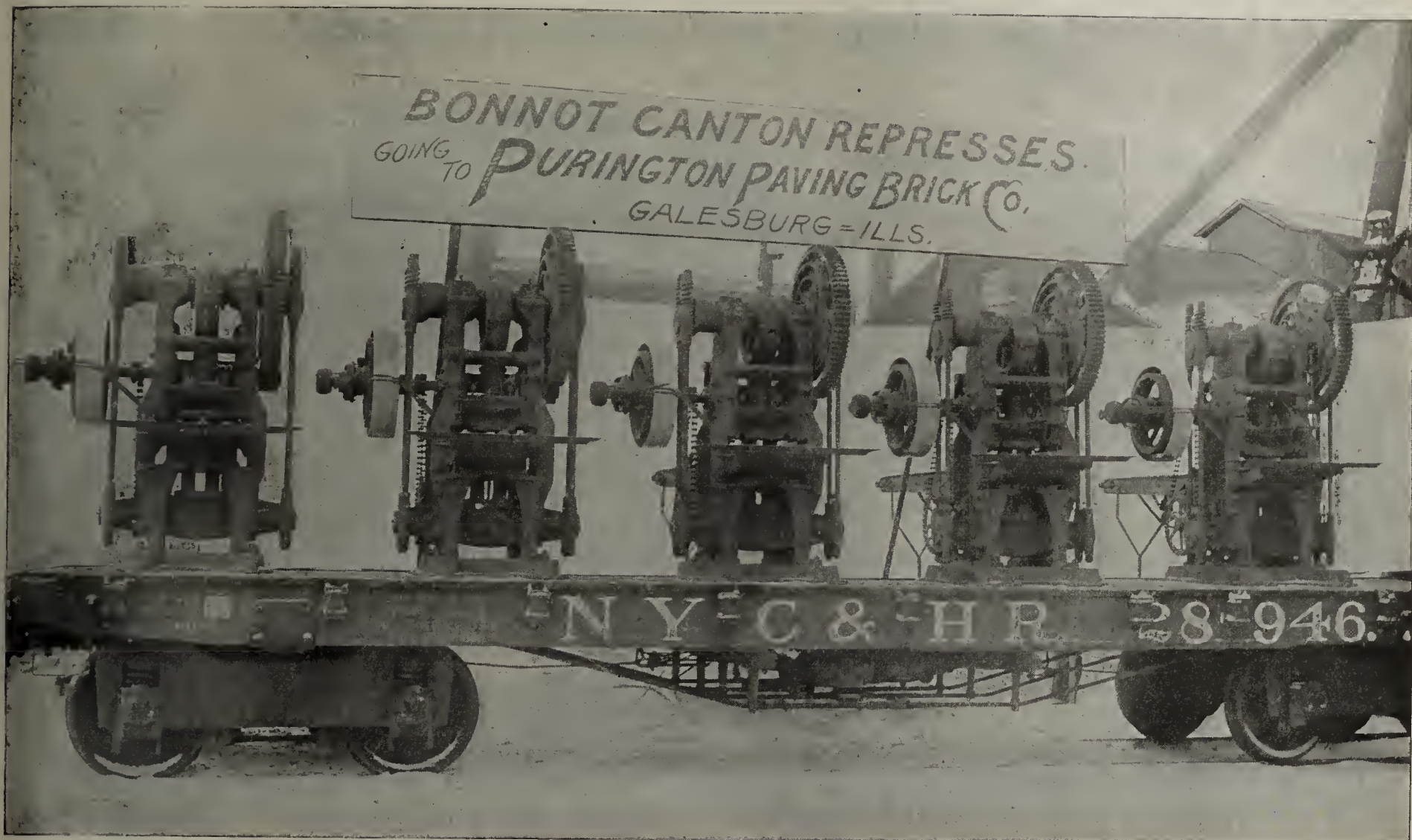
Our End Cutters will cut up to 30,000 per hour, either flat or on edge. One of these cutters has cut 42,000,000 brick with no perceptible wear on the irregular gears which control the cut.

They are especially adapted to Wire Cut Face Brick as they cut perfectly straight.

Come to our plant and see them in operation.

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Bonnot Repress has been Adopted by Purington Paving Brick Co.



A study of this cut will show the class of brickmakers who use BONNOT REPRESSES and the number of machines some of them are using.

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THE BONNOT COMPANY, Canton, Ohio

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BOOKS FOR CLAYWORKERS.

These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

The Brickmakers' Manual, by R. B. Morrison and J. A. Reep. Price \$3.00.

An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryers, kilns, etc.

The Clayworkers' Handbook, by the Author of "The Chemistry of Clayworking." Price \$2.00.

A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport, Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting or Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

Modern Brickmaking, by Alfred B. Searle. Price \$5.00.

It contains well-written chapters on the nature and selection of clays and other materials used, general brickmaking, the different processes, machinery, kilns, setting and burning, various products and uses, and sources of difficulty and loss.

Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

Clays: Their Occurrence, Properties and Uses, by Heinrich Ries. Price \$5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

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This book contains extensive explanations of the most improved modern methods of bricklaying, and is the current practice and experience of the best authorities, making an invaluable work of reference for architects, engineers, contractors, builders and mechanics.

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A review of present practice of the manufacture, testing and uses of vitrified paving brick.

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Including analyses of chemically pure clays, well-known common and pressed brick clays, paving brick clays, fire clays, shales, etc., both in this country and abroad. A valuable book for those desiring to compare their clays with well-known and standard clays.

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Engineering for Land Drainage, by C. G. Elliott. Price \$2.00.

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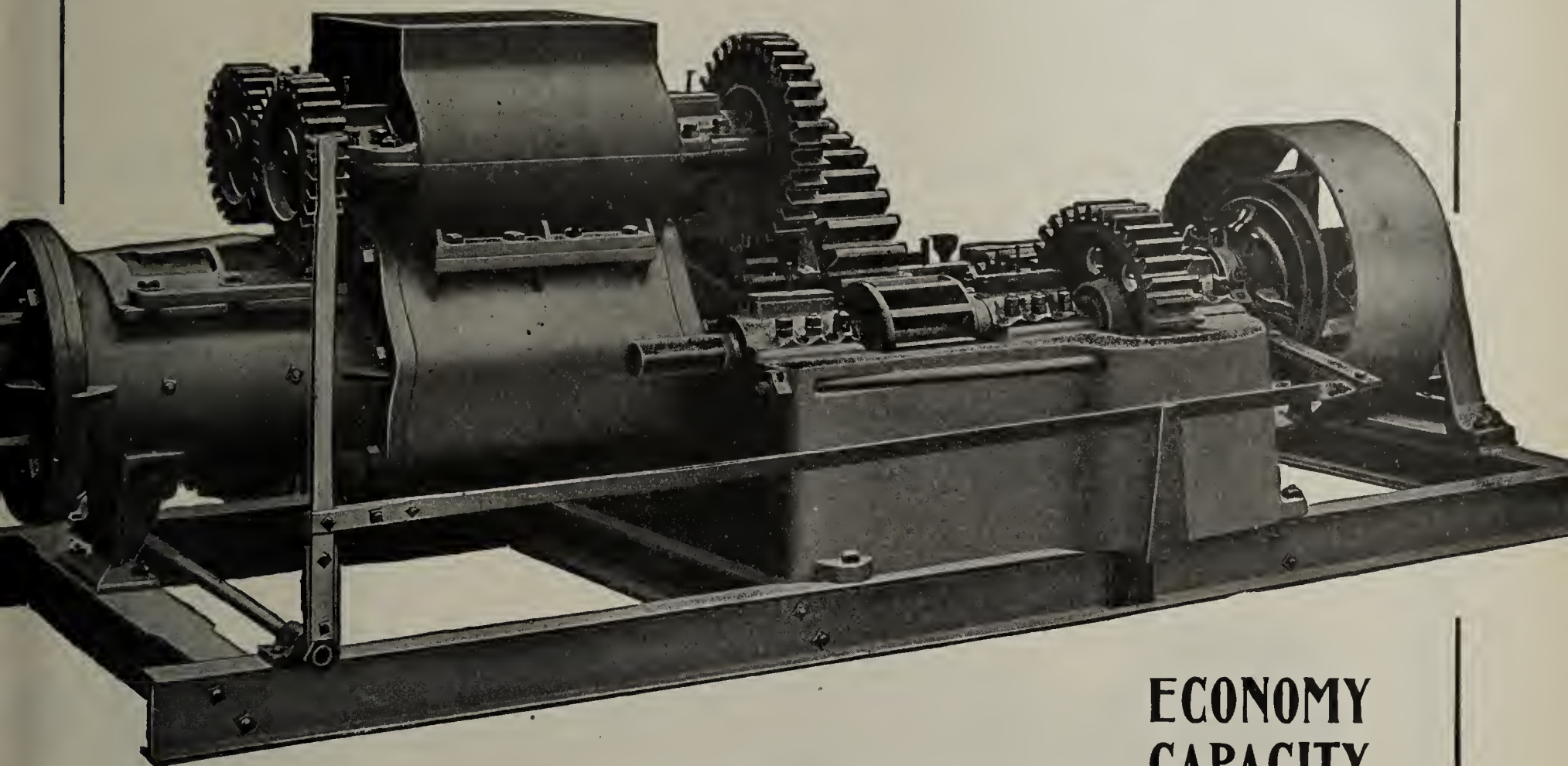
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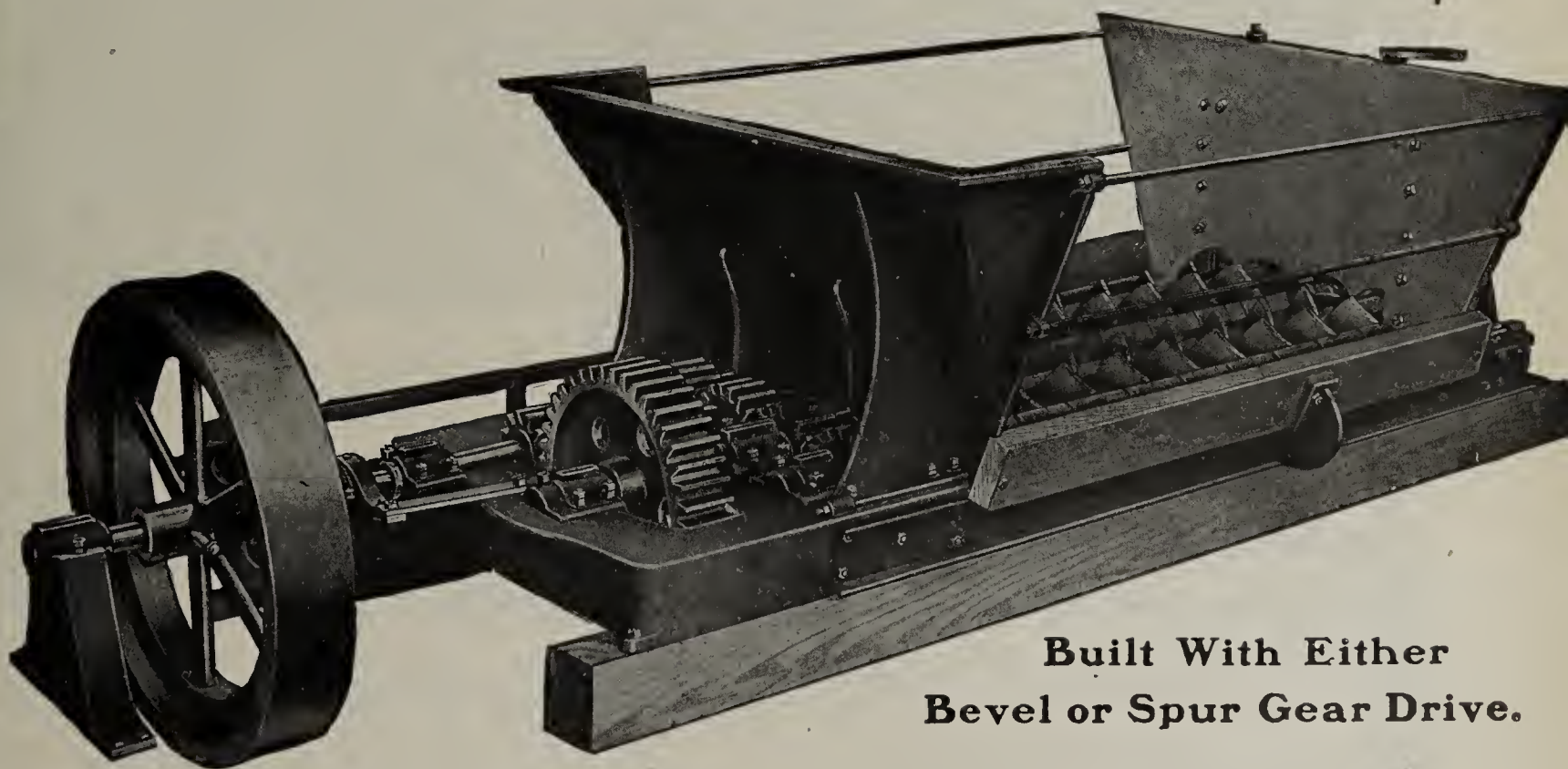
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We can equip your entire plant with crushers, disintegrators, FEEDERS, Dump Tables, Elevators or any machinery used in Clay-working Plants.



**Built With Either
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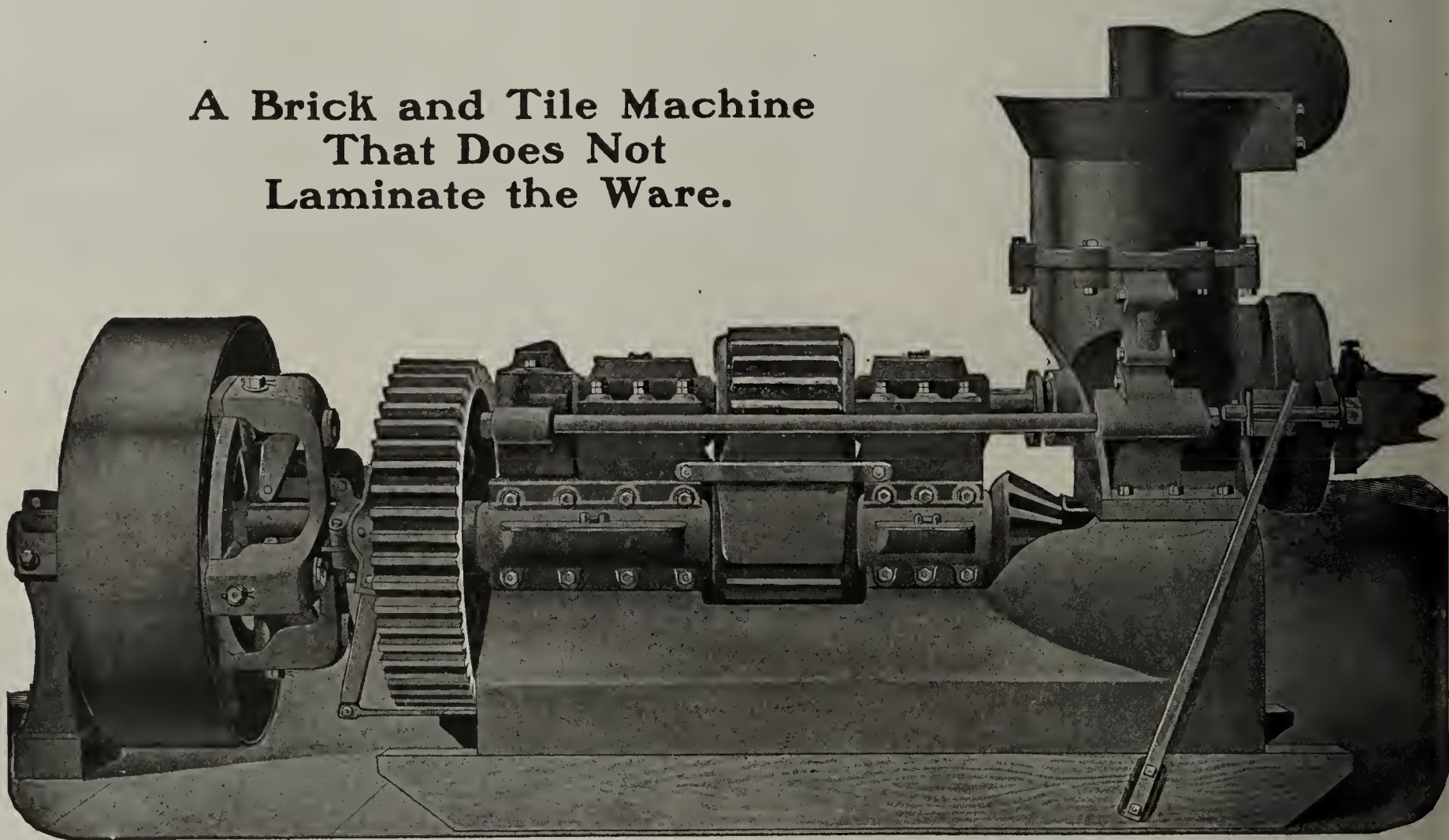
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A Brick and Tile Machine
That Does Not
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The Big Wonder Brick and Tile Machine.

We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans, Disintegrators, Pug Mills, Granulators and Corrugated and Smooth Roll Crushers.

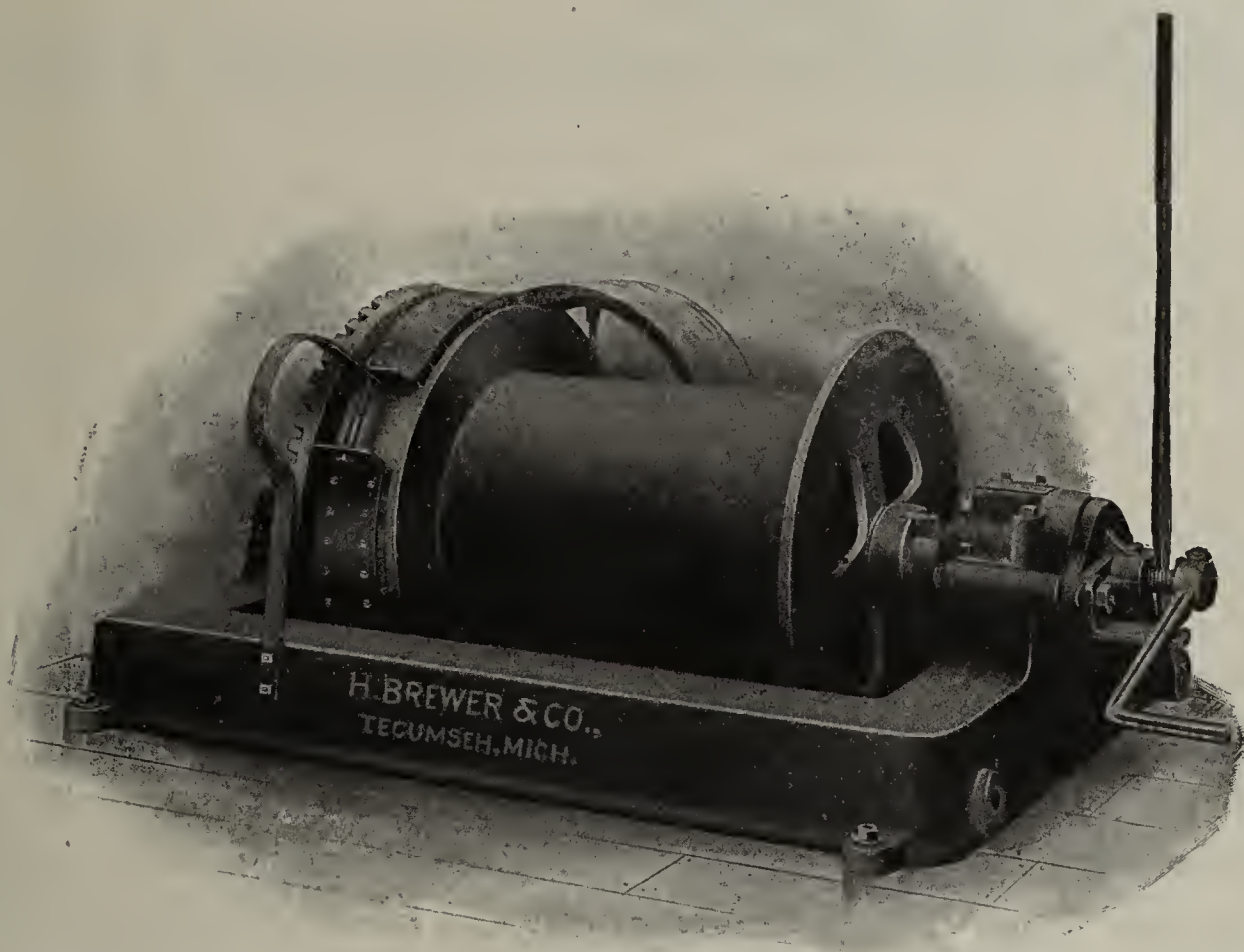
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You can buy a Brewer Hoist without buying trouble with it. It will keep on hoisting without any coaxing. We have spur-gearred hoists, bevel-gearred hoists, spur-friction hoists and bevel-friction hoists. Large ones and small ones and all of them good.

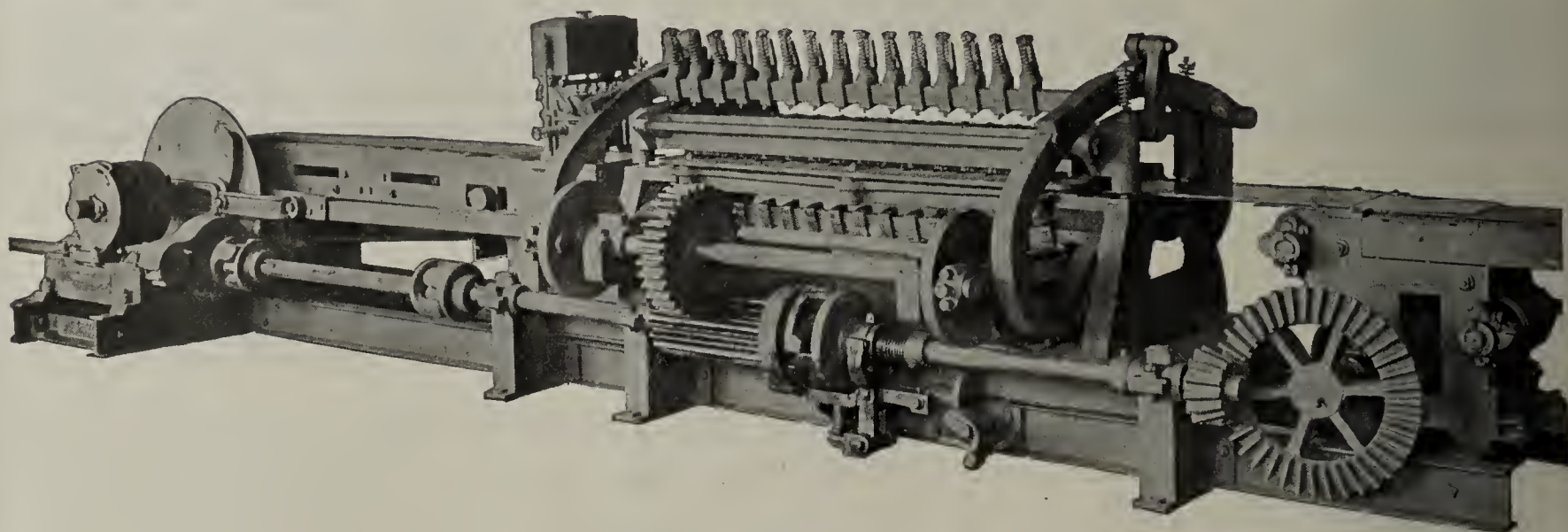


This is a Heavy Bevel-Gearred Pattern

It is No. 28. It weighs 3,000 pounds. The drum is 20 in. diameter, 28 in. between flanges and the flanges are 30 in. diameter. The journals are self-oiling, the gears 4 in. face, the brake band 5 in. wide. Can be made right or left hand. Illustration above is left hand. It is enough of a hoist for the biggest plants, and we have smaller ones for the others.

If you ask for our catalog you will get it

H. BREWER & COMPANY, Tecumseh, Mich.



Model T 60 Reciprocating Automatic Cutter

This cutter, which is of the reciprocating type, is built in two Models "T 50" and "T 60" for capacities up to 12,500 brick per hour or more. The design is extremely simple and substantial. It embodies many of the well tried features of our Rotating Automatic Cutters.

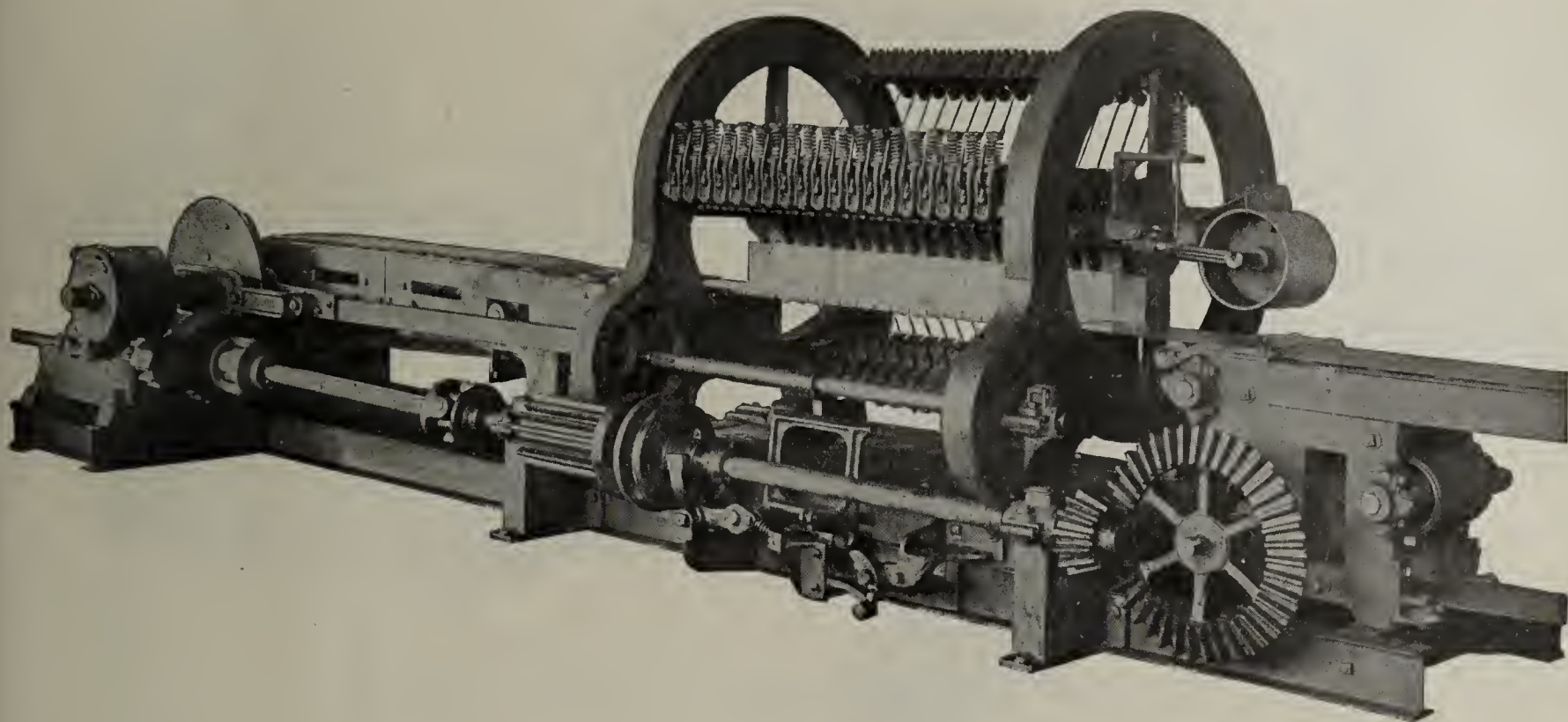
The cutting frame carries only one set of cutting wires and has a swinging movement, avoiding the wear and play common to sliding parts. It is actuated by cranks, driven by a single gear and pinion, giving a smooth, quiet starting and stopping of the cutting stroke. The frame remains stationary between cuts, affording ample time to renew broken wires.

The platens are very easily removed and replaced when the thickness of cut is to be changed. Four bolts hold the platen in place. When these are removed it can be lifted straight up, between the end castings. Only a few minutes required to make the change.

An upper platen (Dunn Patent) can be furnished to insure smooth upper edges on the brick. This is automatically raised to clear the clay column after the cut is completed and is returned to position in time for the next cut, avoiding any tendency for the column to become wedged. Solves the problem of making smooth edge brick on a reciprocating cutter.

Either Model is made to suit a variety of work. The "T 60" is built special to accommodate the largest sizes of fireproofing, etc. These cutters can also be especially arranged for cutting the Dunn Wire-Cut-Lug Paving Blocks.

E. M. FREESE & COMPANY, Galion, Ohio



Model C 20 Rotating Automatic Cutter

We build rotating automatic cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for hollow ware, fireproofing, radial chimney blocks, etc., up to $13\frac{1}{2}$ in. by $7\frac{1}{2}$ in.

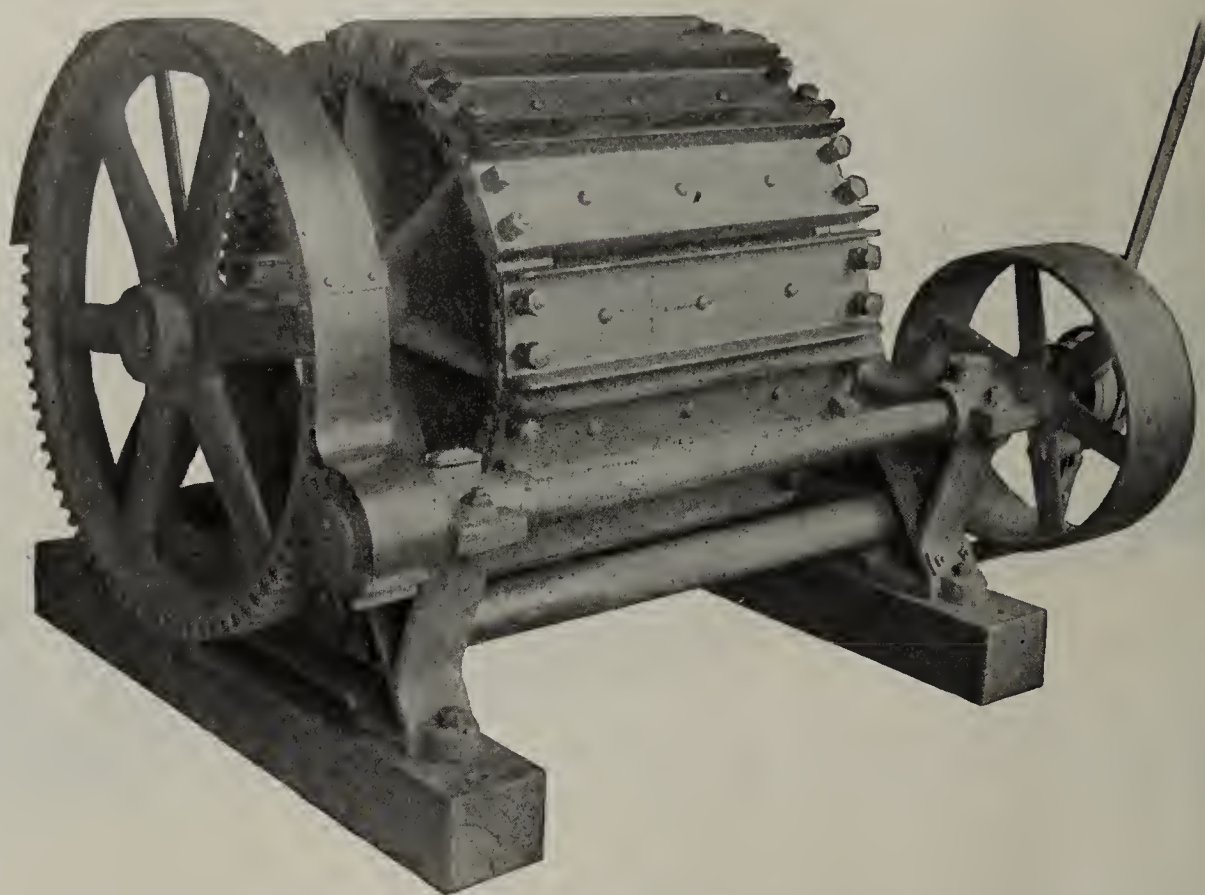
The above illustration shows the Model C 20 Cutter, which is an improved model of our well-known Size 16. It is intended for capacities up to 7,500 standard size brick per hour—18 brick are cut at each cut. At this speed the cutting reel makes only a little over two revolutions per minute, remaining stationary between cutting strokes. It is not necessary to stop the brick machine to renew broken wires, as this gives ample time.

The cutting apparatus, including drive for separating belt, is entirely self-contained, being mounted upon one set of I-beam sills, assuring permanent alignment of all parts. The measuring and separating tables are built with iron or steel sides.

Cutting reel and carriage are carried on rollers requiring little or no oiling. Carriage is positively moved with the clay by an accurate cam. Clutch mechanism is the simplest possible. Wearing surfaces have renewable steel plates.

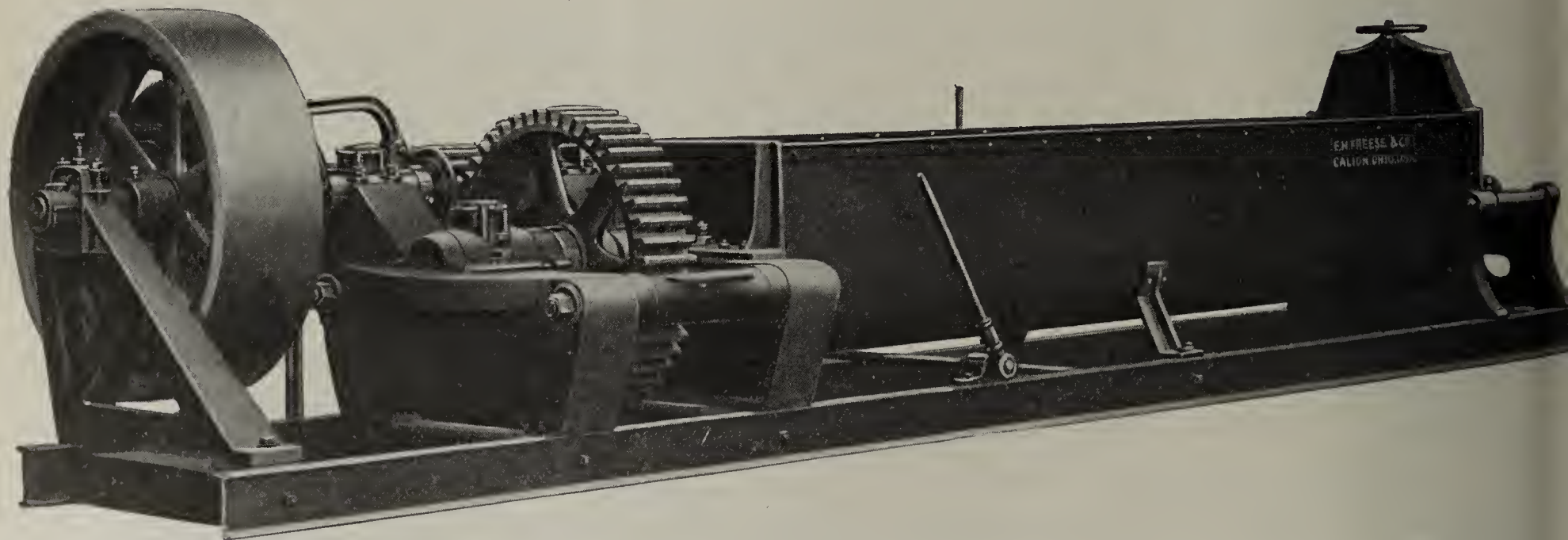
Particular attention is called to the platen construction. The platen is cast in one piece of tubular cross section and is very rigid. Surfaces covered with renewable steel plates, insuring fine slots. The angle of the cutting wires has been changed to give perfect edges on the brick. Built to give long service without skilled attention. Complete description will be furnished on request.

E. M. FREESE & COMPANY, Galion, Ohio



STANDARD RATTLER FOR PAVING BRICK

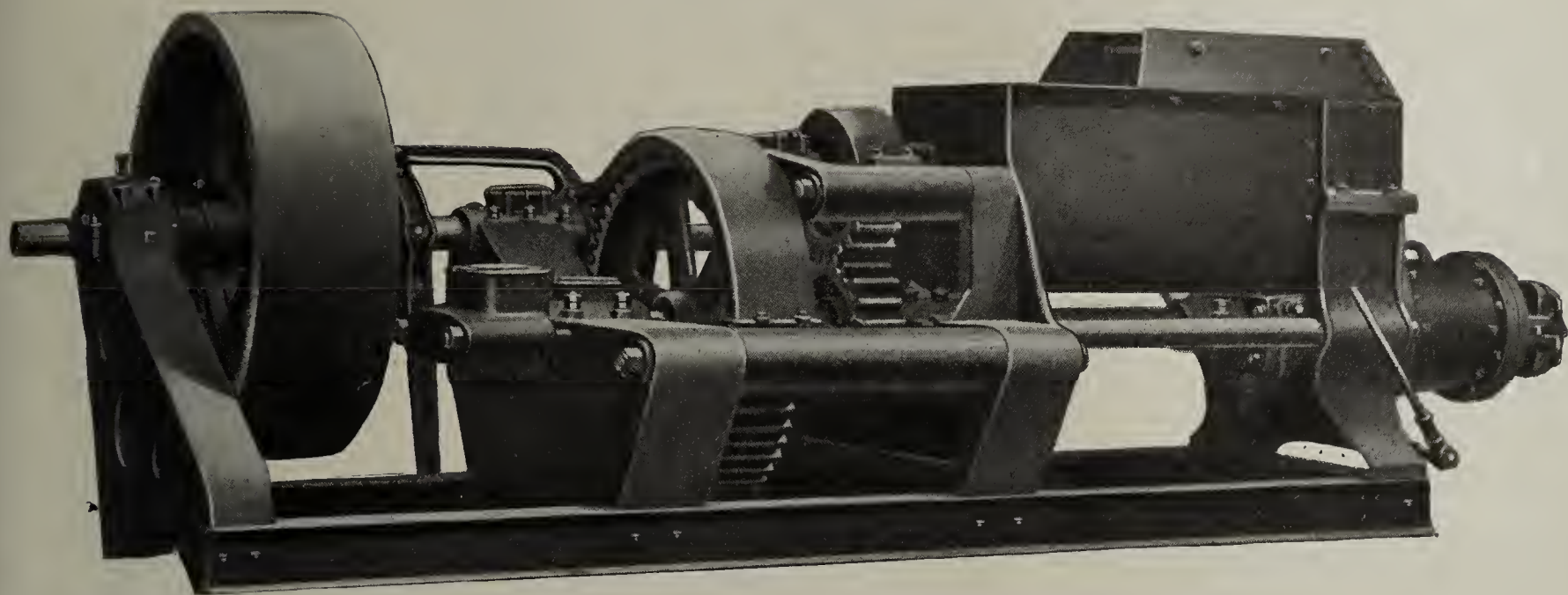
Built to fully comply with the new specifications adopted by the National Paving Brick Manufacturers' Association. Write for detailed information.



We are building Pug Mills in great variety—more than forty patterns and sizes. We have both spur and bevel geared Pug Mills of all sizes, arranged to discharge at either end as may be specified. The above is an example of a heavy, direct geared machine of large capacity, designed for most exacting requirements.

Let us send particulars.

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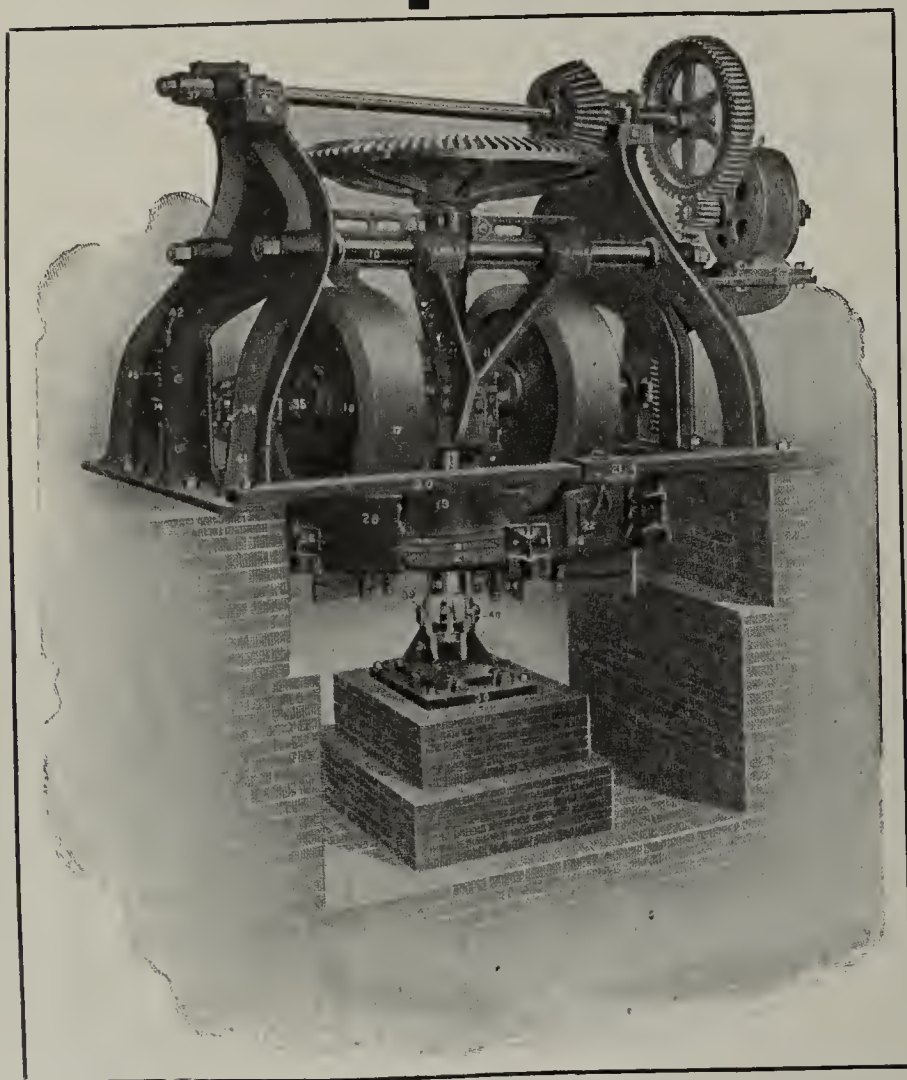
Model "KC" Auger Brick Machine

This machine has several features of merit. The construction is simple. The parts conveniently accessible. Each of its three shafts has three journal bearings, insuring substantial support for the gearing and more permanent alignment. The feeding chamber is open its entire length and the auger chamber is kept positively and uniformly supplied with clay. The gearing is designed for smooth and quiet operation. All the shafts are of large diameter and the proportions throughout are extremely heavy. The workmanship and material are of the best.

Intended for first-class product and economical operation.

E. M. FREESE & COMPANY, Galion, Ohio

Stevenson Grinding and Mixing Pans are correct to the uttermost detail



Stevenson Grinding Pans, Tempering Pans, Grinding and Mixing Pans, etc., are supplied in various styles and sizes to meet all requirements. They will stand up under the severest conditions and are equipped with the latest improvements known.

The more a man knows about all clayworking machinery the more he appreciates the STEVENSON line. As an illustration:

The Pittsburgh and Ohio Valley districts represent the center of the American clay industry. And it's right here that Stevenson Pans and other equipment represent from fifty to seventy-five per cent of all clay working machinery used. That's one incident.

Another is the universal use of Stevenson Pans and Presses. Clayworkers throughout the world, from Chili to China, from Mexico to Jamaica, the whole length and breadth of the American continent, all contribute their testimonies to the efficiency and practicability of Stevenson Machinery.

Stevenson equipment means getting the last dollar's worth of value from your in-

vestment. Its money-making qualities are beyond question.

Write us today for estimates; there's no obligation, and you'll learn how the biggest profits in the clayworking industry are made.

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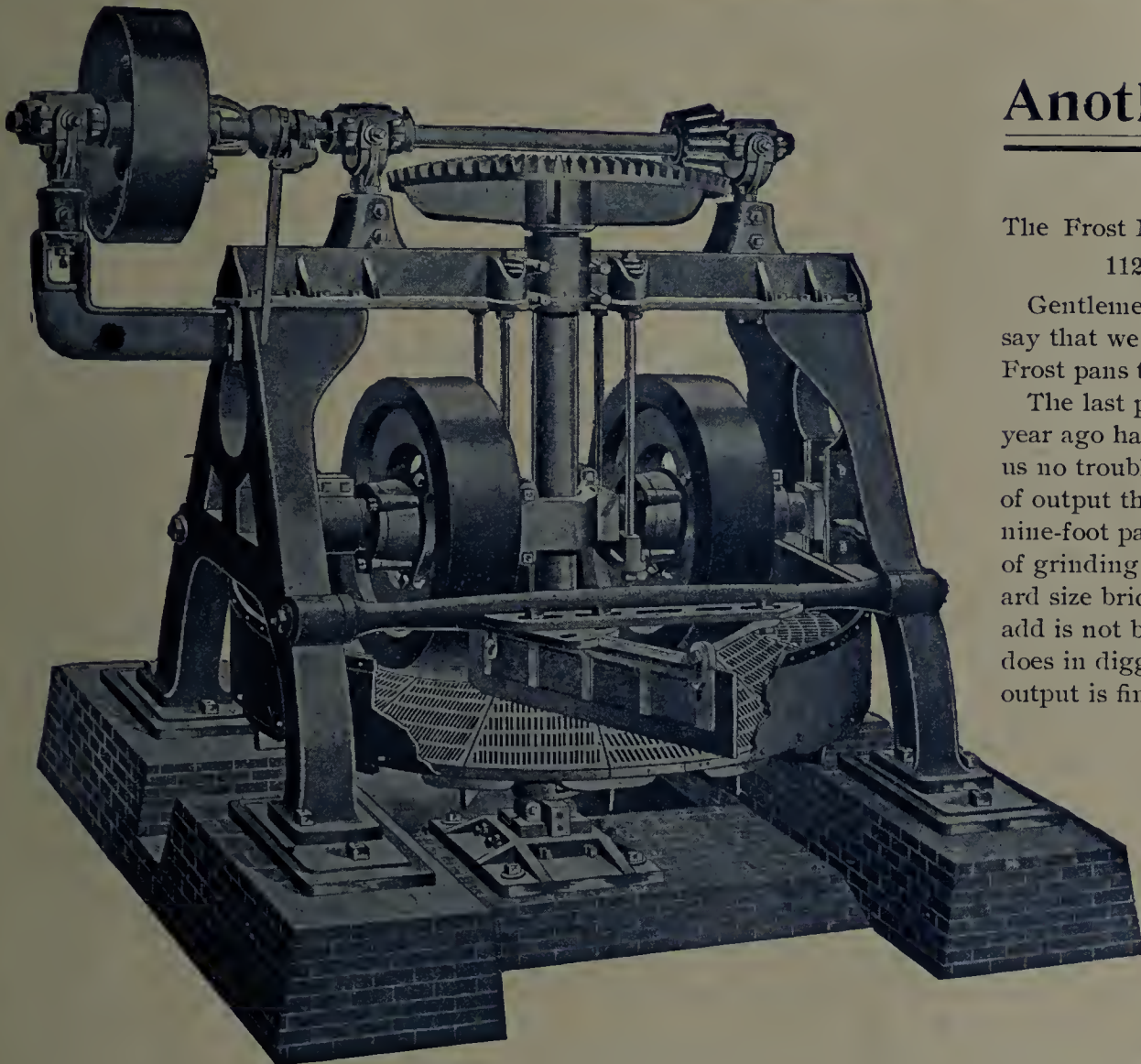
Wellsville,

Ohio.

For Sixty
Years
The Name

Frost

Has stood for all
that is best in
Power Plant
Equipment, Clay
Crushing and
Mixing Machinery



Another Satisfied User.

Streator, Ill., July 25, 1912.

The Frost Manufacturing Co.,

112 W. Adams St., Chicago, Ill.:

Gentlemen—In reply to your letter of the 23rd, will say that we have always enjoyed good service from all Frost pans that we have ever owned.

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Acknowledging the very satisfactory and pleasant business relations that have always existed between us, we are,

Very truly yours,

STREATOR PAVING BRICK CO.

E. F. Plumb,
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We are manufacturers of Complete Power Plant Equipment
as well as a full line of Dry and Wet Pans.

Write us for descriptive matter.

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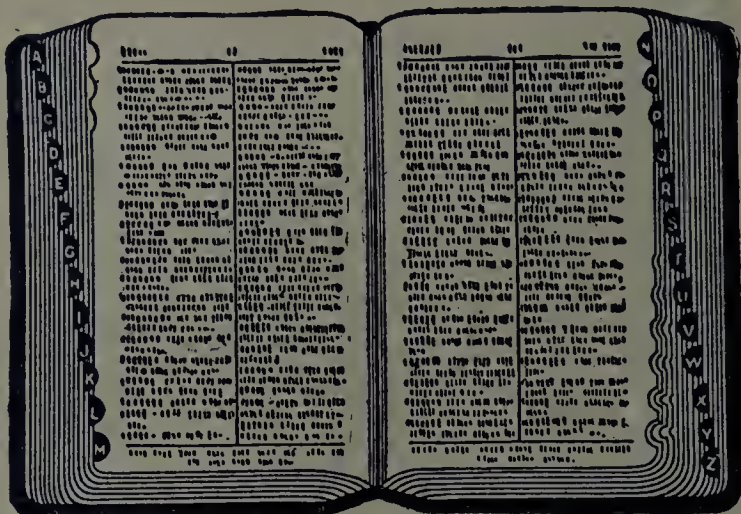
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In the Office It tells you how to divide each word into syllables; how to pronounce it, whether it begins with a capital letter or a small letter; gives abbreviations; legal and commercial terms, and names of persons and places. It will be found indispensable to employer, stenographer or clerk.

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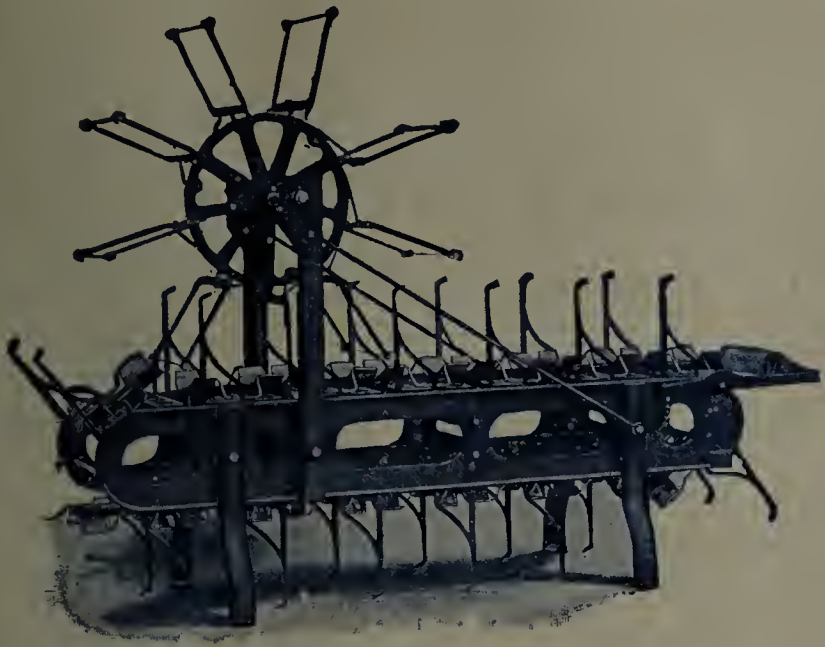


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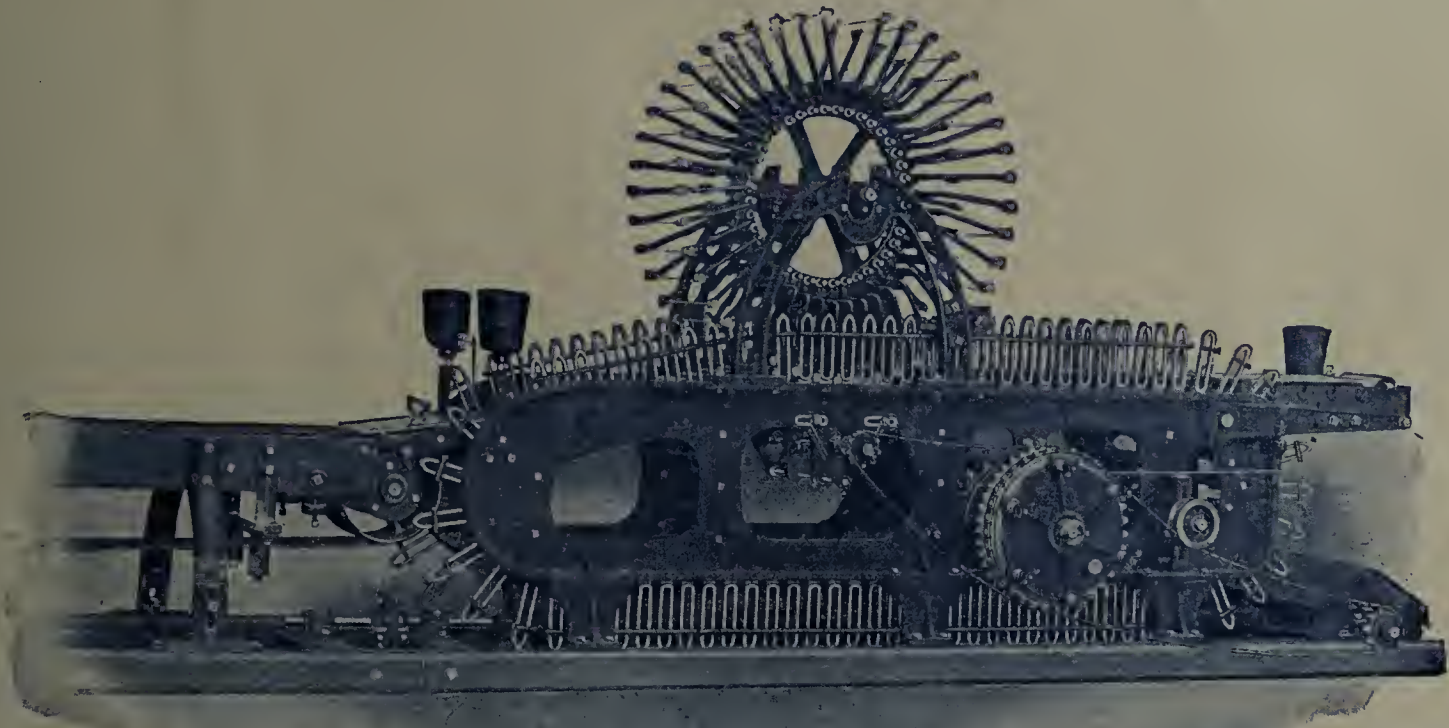


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Automatic Cutting Tables

Are much more satisfactory and cheaper to operate than any hand table made. We can furnish them for cutting most any ware used—solid and hollow brick, paving brick, face brick and tapestry brick, drain tile, large and small, silo blocks, fireproofing, Denison tile, roofing tile and floor tile. They will save their cost in a few weeks. Write us for more complete information.



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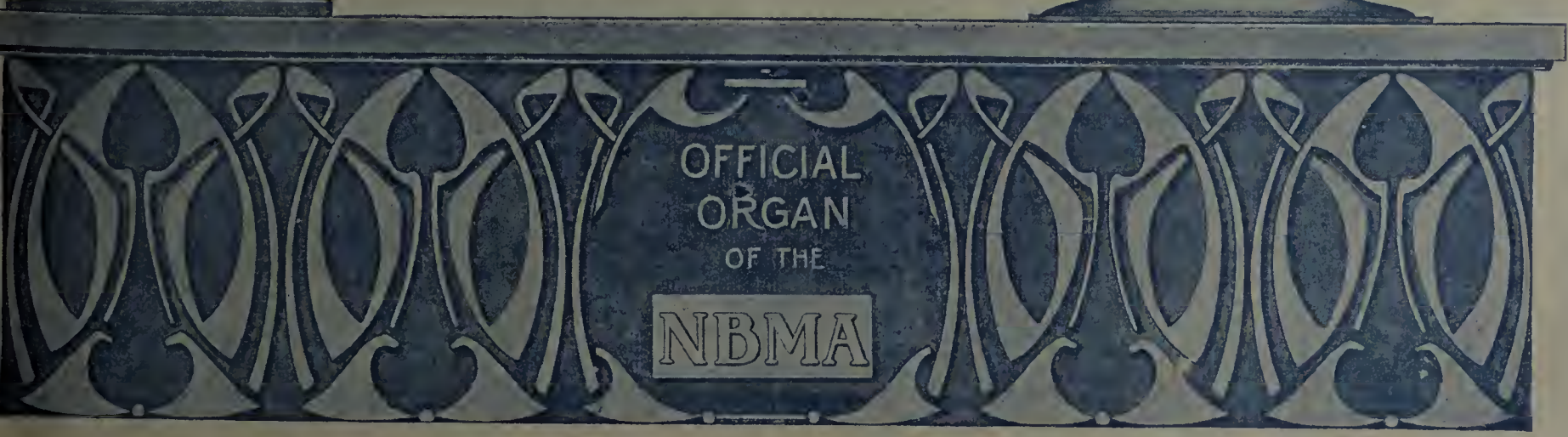
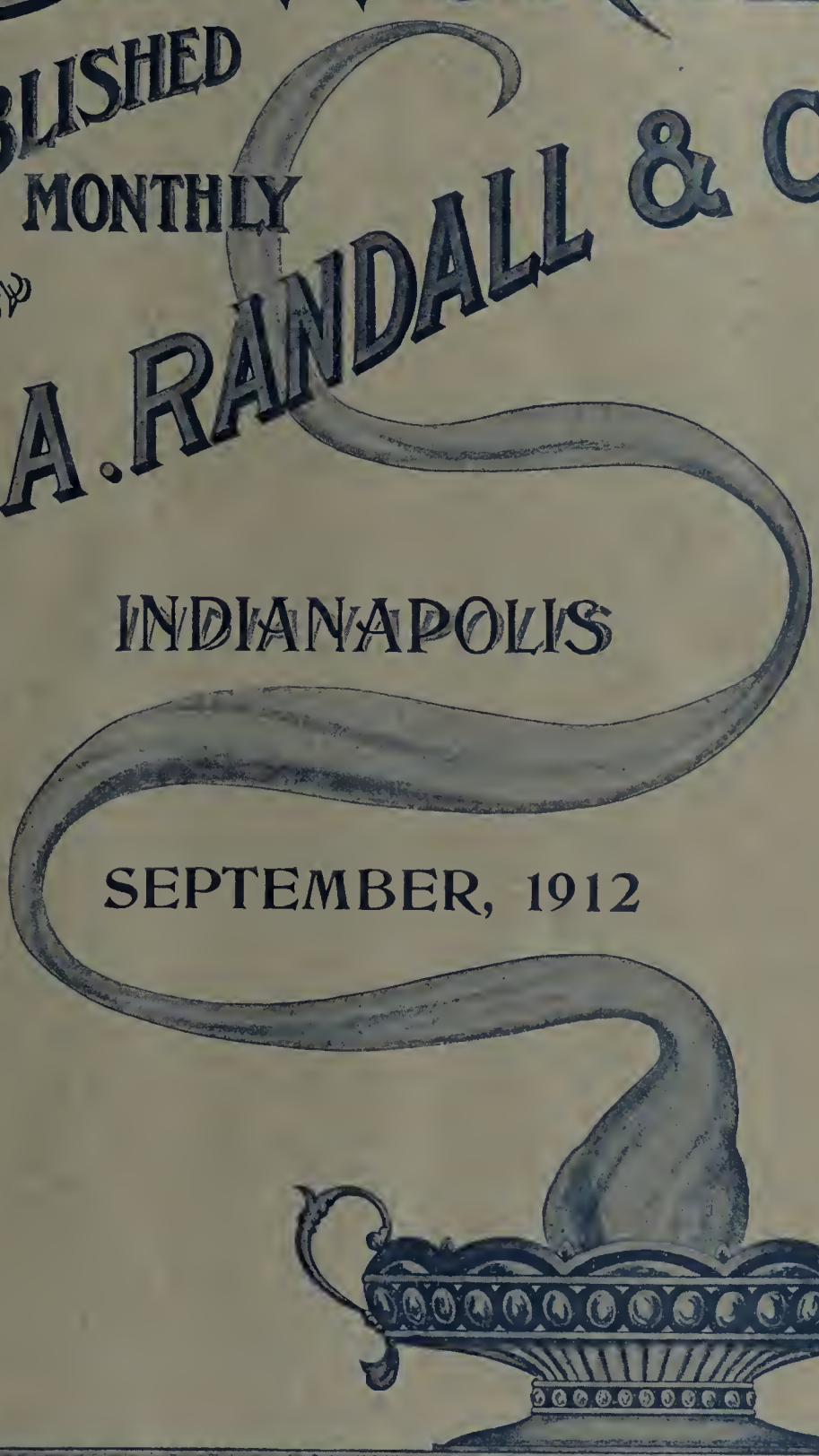


THE CLAY-WORKER

PUBLISHED
MONTHLY
BY
T. A. RANDALL & CO.

INDIANAPOLIS

SEPTEMBER, 1912



OFFICIAL
ORGAN
OF THE
NBMA



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Bearing used on "Sirocco" Waste Heat Fans of the larger sizes. Built in place of water-jacketed types.

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catch the heat from the cooling brick that generally is allowed to escape to the atmosphere and harness it up to a system that dries the new brick. Outside the conservative price of the system the rest is clear gain. No cost for the heat—merely the expense of applying it.

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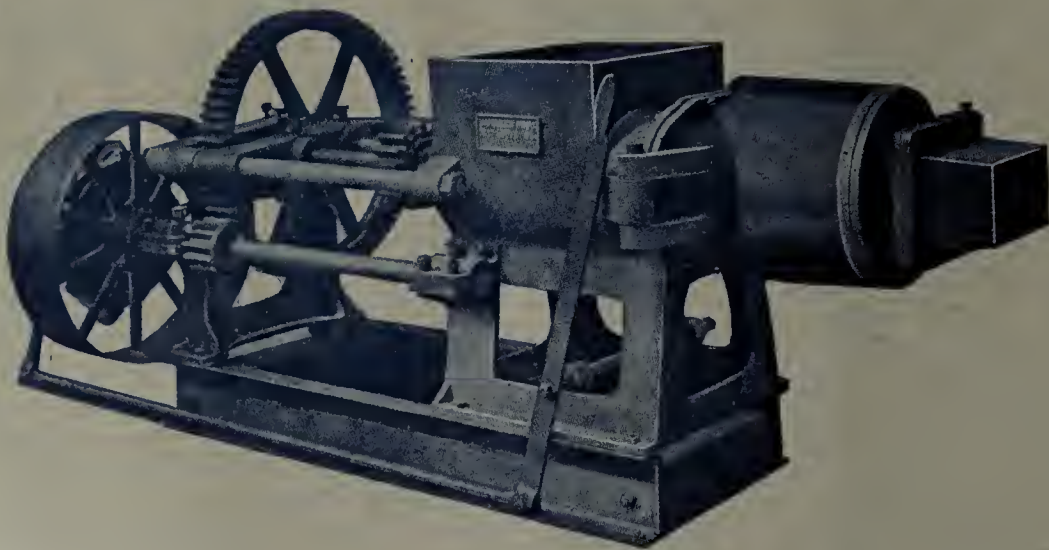
Consult our Brick Department Engineers on a "Sirocco" Waste Heat System for your plant.

Read "Sirocco" Catalog No. 340-C.W. Yours upon request.

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A separate feeding shaft prevents all clogging and intensifies mixing.

The hinged front parts of cylinder, easy to swing open, permit quick access to all augers and knives.

The new Auger System develops a positive, irresistible driving force, prevents idle turning of clay in cylinder and therefore lamination.

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We equip complete plants of any size with all necessary machinery for the manufacture of any known type of roofing tiles.

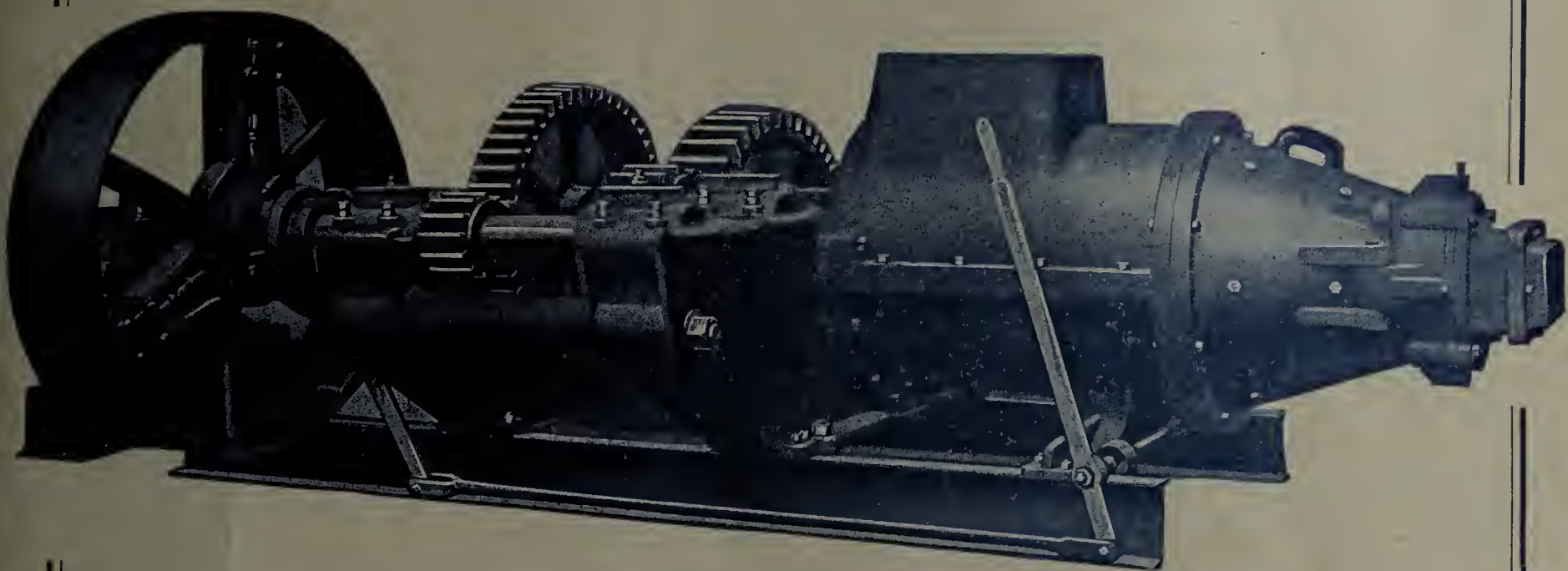
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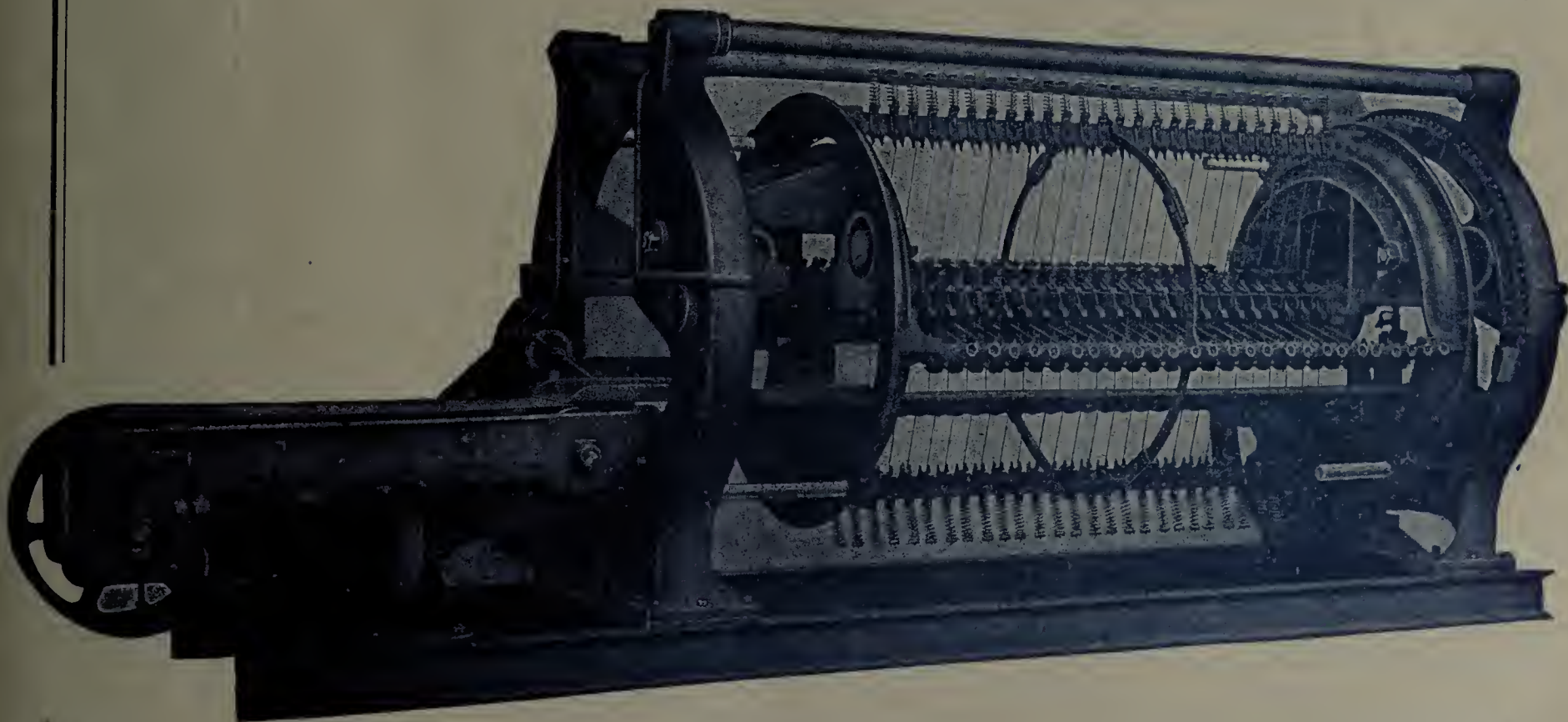
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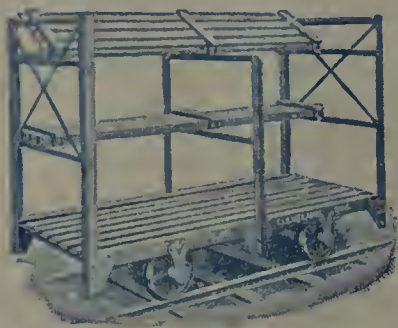
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Los Angeles, Cal.

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Mention THE CLAY-WORKER.



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No. 6425
Electric Locomotive.

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Ohio Clay Co., Cleveland, Ohio.
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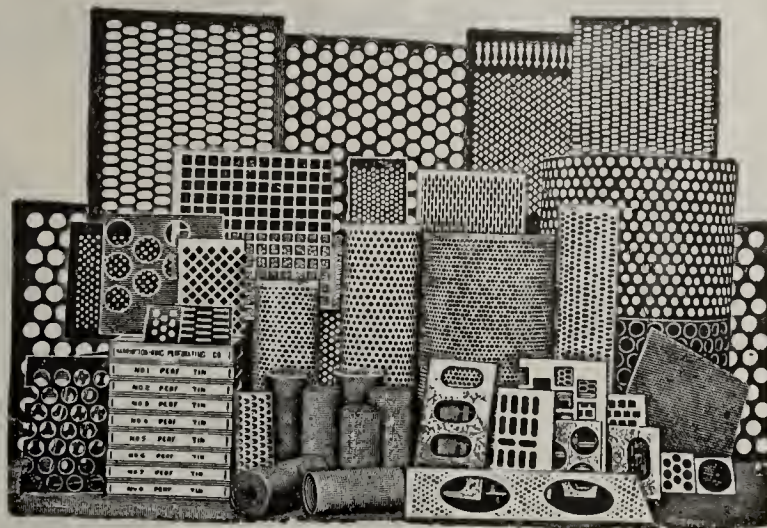
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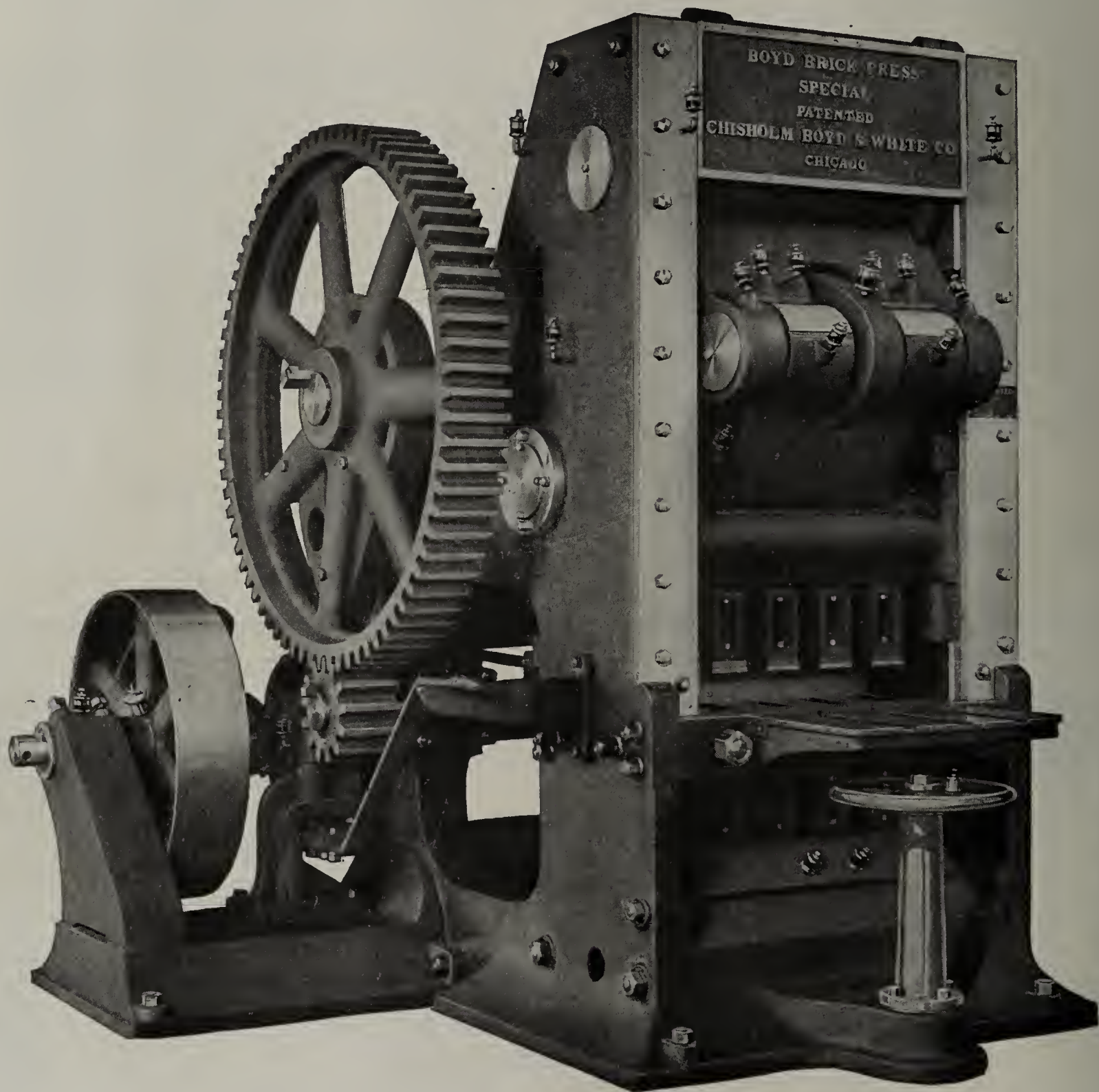
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PRESSING TIME FACTOR—long duration, 50% of the cycle.

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TOP and BOTTOM of brick equal hardness—**NO** granulated surfaces.

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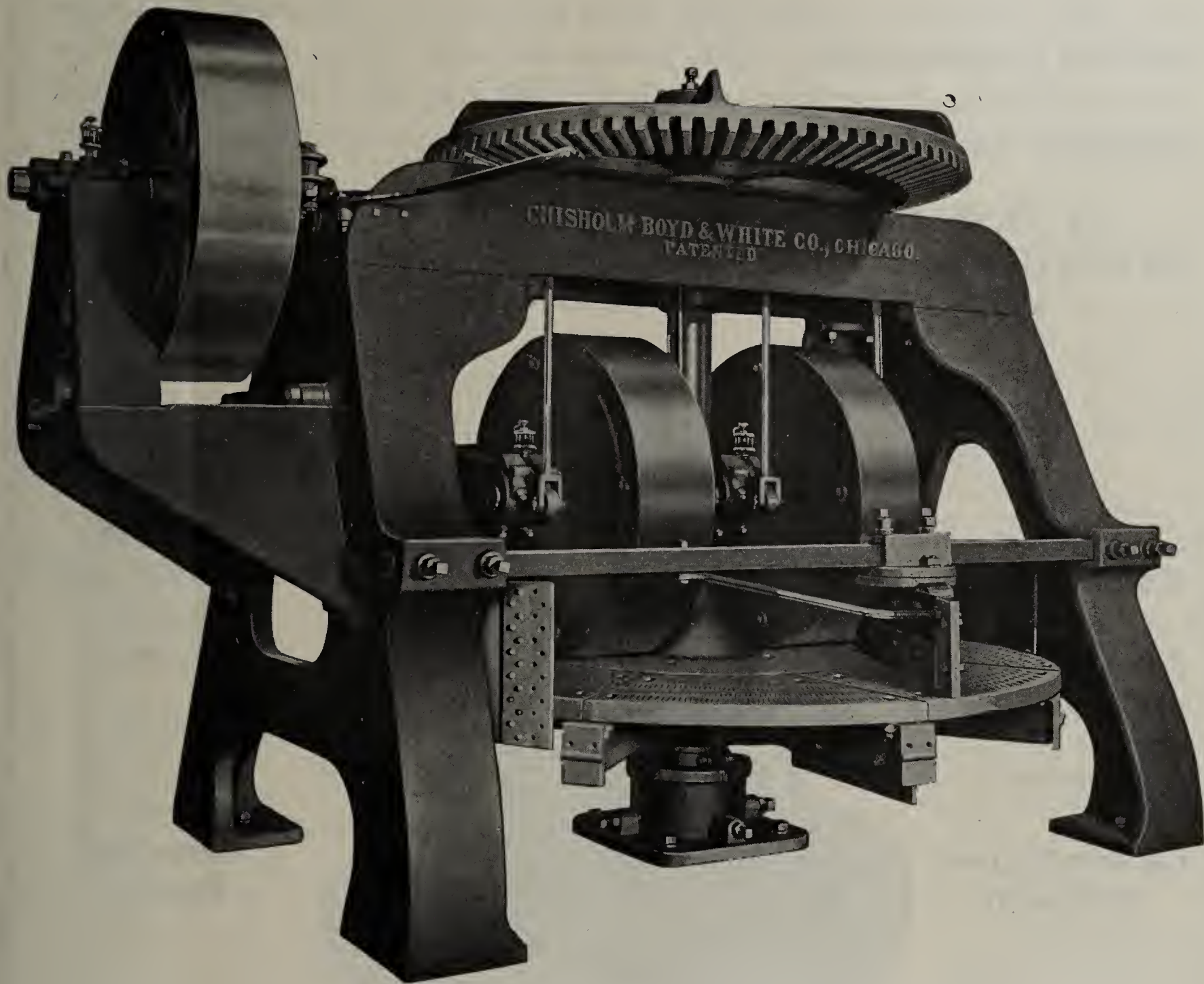
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Give
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To Find Any Particular Firm or Advertisement See "Index to Ads" as Cited on Front Cover Page.

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Analysts and Chemists.

Ceramic Supply & Con. Co.
N. J. State University.
Ohio State University.
Richardson-Lovejoy Engr Co.

Automatic Clay Bin Emptier.

Raymond Co., The C. W.

Automatic Cutting Tables.

(See Cutting Tables.)

Barrows and Trucks.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
H. Brewer & Co.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
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Manufacturers Equipment Co.
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Potts & Co., C. & A.
Raymond Co., The C. W.
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Steele & Sons, J. C.
Stevenson Co., The
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Wallace Mfg. Co.
Wellington Machine Co.

Barytes, Carbonate of

Gabriel & Schall.
Roessler-Hasslacher Chem. Co.

Bearings, Roller.

(See Supplies.)

Belting.

Gandy Belting Co.
Sawyer Belting Co.

Belt Conveyors.

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
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Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.

Blowers

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American Clay Machinery Co.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

Boilers.

American Clay Machinery Co.
Arbuckle & Co.
Frost Mfg. Co.
Morehead Mfg. Co.

Brick (Building).

Bloomfield Clay Co.
Bolivar Face Brick Co.
Flske & Co., Inc.
Kushequa Brick Co.
Marlon Brick Works.
Purinton Paving Brick Co.

Brick (Fire).

Chicago Retort & Fire Brick Co.
Evans & Howard Fire Brick Co.

Brick (Paving).

Alton Brick Co.
Barr Clay Co., The
Bessemer Limestone Co.
Clinton Paving Brick Co.
Danville Brick Co., The
Hocking Valley Fire Clay Co.
Marion Brick Works.
Metropolitan Paving Brick Co.
Natl. Pav. Brick Mfgs. Assn.
Purinton Paving Brick Co.
Terre Haute Vit. Brick Co.
Thurber Brick Co.
Shawmut Vit. Pav. Brick Wks.
Wabash Clay Co.

Brick Conveyors.

American Clay Machinery Co.
Mathews Gravity Carrier Co.

Brick and Tile Machinery.

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Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
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Chambers Bros. Co.
Chicago Brick Machy. Co.
Chisholm, Boyd & White Co.
Dunn Wire Cut Lug Brick Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Fernholtz Brick Machy. Co.
Freese & Co., E. M.
Hensley, J. W.
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Ohio Ceramic Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Brick Machines (Soft Mud).

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Anderson Fdy. & Mch. Works.
Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Wellington Machine Co.

Brick Machines (Stiff Mud).

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Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Brick Machines (Dry Press).

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Anderson Fdy. & Mach. Works.
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Chicago Brick Machinery Co.
Fernholtz Brick Machinery Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Mueller Bros.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.

Brick Recutter.

Raymond Co., The C. W.

Brick Setting Machinery.

American Clay Machinery Co.

Brickyard Engineering.

Callaway Eng. Co., Ed. H.

Buffing Machinery.

American Clay Machinery Co.

Burning and Drying Systems.

Boss, John C.
Buhner, Jacob
Dennis, F. W.
Gas Machinery Co.
Hoffmann Construction Co.
Illinois Supply & Con. Co.
Koch, J. J.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Rodgers Engineering Co., L. E.
Snowden & Co., Geo. E.
Standard Dry Kiln Co.
Tate, Jones & Co.
Trautwein Drying & Engr. Co.
Vogt, Anton.
Yates, Alfred.

Cars.

(See Dryer and Dumping Cars.)

Castings.

Arbuckle & Co.
Caldwell & Sons Co., H. W.
Chambers Bros. Co.
Edgar Allen Am. Mang. Steel Co.
Taplin, Rice-Clerkin Co.

Ceramic Engineers.

Fohs, F. Julius
Hoehne, Richard B.
Koch, J. J.
Richardson-Lovejoy Engr. Co.

Clay Crushers and Pulverizers.

American Pulverizer Co.
American Road Machine Co.
Arbuckle & Co.
Brewer Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Phillips & McLaren Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Clay Dryers.

American Process Co.

Clay Feeders and Mixers.

American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Raymond Co., The C. W.
Taplin, Rice-Clerkin Co.
Scott-Madden Iron Works Co.
Stevenson Co., The.

Clay Gatherers.

(See Scrapers.)

Clay Steamers.

American Clay Machinery Co.
Raymond Co., The C. W.

Clay Technologists.

Koch, J. J.
Richardson-Lovejoy Engr. Co.

Clutches.

(See Supplies.)

Coloring Materials.

Chattanooga Paint Co.
Clinton Metallic Paint Co.
National Paint & Manganese Co.
Ricketson Mineral Paint Co.
Roessler-Hasslacher Chem. Co.
Williams & Co., C. K.

Cones.

Orton, Edward, Jr.

Conveying Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.

Caldwell & Sons Co., H. W.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Mathews Gravity Carrier Co.
Mueller Bros.
Newton, A. C.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.

Continuous Kilns.

Gas Machinery Co.

Contracting Engineers.

Dennis, F. W.
King, E. A.
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Vogt, Anton.

Couplings.

(See Supplies.)

Cutting Tables (Brick and Tile).

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Dunn Wire Cut Lug Brick Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.

Cutting Wires.

Arbuckle & Co.
Brewer & Co., H.
Ceramic Supply & Con. Co.
Freese & Co., E. M.
Manufacturers Equipment Co.
Raymond Co., The C. W.

Dampers.

(See Supplies.)

Dies.

(See Supplies.)

Disintegrators.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Drain Tile.

Evans & Howard Fire Brick Co.

Drain Tile Machinery.

(See Brick & Tile Machinery.)

Drums, Hoisting and Winding.

(See Supplies.)

Dryers.

American Blower Co.
American Clay Machinery Co.
American Process Co.
Chambers Bros. Co.

(Continued on next page.)

Buyers Ready Reference List—Continued.

Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Ohio Ceramic Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Rodgers Engr. Co., The L. E.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Trautwein Dryer & Engr. Co.

Dryer Cars.

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Freese & Co., E. M.
Fate Co., The J. D.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.
Scott-Madden Iron Works Co.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Taplin, Rice-Clerkin Co.
Trautwein Dryer & Engr. Co.
Wellington Machine Co.

Dry and Wet Pans.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Crossley Machine Co.
Eagle Iron Works.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Illinois Supply & Con. Co.
Phillips & McLaren Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Stevenson Co., The
Taplin, Rice-Clerkin Co.

Dump and Clay Cars.

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Eastern Brick Machinery Co.
Freese & Co., E. M.
Hensley, J. W.
Ohio Ceramic Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.
Wellington Machine Co.

Electric Shovels.

Thew Automatic Shovel Co.

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Richardson-Lovejoy Engr. Co.

Electric Instruments.

Brown Instrument Co., The

Electrical Locomotives.

Atlas Car & Mfg. Co.

Electrical Supplies.

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Raymond Co., The C. W.

Elevating Equipment.

(See Conveyors.)

Engines.

American Clay Machinery Co.
Chambers Bros. Co.
Frost Mfg. Co.

Engineers

Callaway Eng. Co., Ed H.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

Fans.

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American Clay Machinery Co.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

Feed Water Heaters.

American Blower Co.
American Clay Machinery Co.
Frost Mfg. Co.
Morehead Mfg. Co.
Standard Dry Kiln Co.

Filler (Paving).

Barrett Mfg. Co.

Filter Presses.

American Clay Machinery Co.
Raymond Co., The C. W.
Stevenson Co., The
Taplin, Rice-Clerkin Co.

Fire Brick and Fire Clay.

Bloomfield Clay Co.
Chicago Ret. & Fire Clay Co.
Evans & Howard Fire Brick Co.

Fire Clay.

Evans & Howard Fire Brick Co.

Fire Proofing.

Evans & Howard Fire Brick Co.

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Chicago Ret. & Fire Brick Co.
Evans & Howard Fire Brick Co.

Flower Pot Machinery.

Baird Machine & Mfg. Co.
Rockwood Mfg. Co., The
Taplin, Rice-Clerkin Co.

Friction Clutch Pulleys.

(See Supplies.)

Furnaces.

Brown Instrument Co., The
Illinois Supply & Con. Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Tate, Jones & Co.

Gas Fire Continuous Kilns.

Raymond Co., The C. W.

Gears.

(See Supplies.)

Granulators.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Gravity Carriers.

Mathews Gravity Carrier Co.
Taplin, Rice-Clerkin Co.

Gravity Haulage.

American Clay Machinery Co.

Hand-Power Presses.

American Clay Machinery Co.
Carnell, Geo.
Illinois Supply & Con. Co.
Mueller Bros.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Stevenson & Co.

Hand Winch.

(See Supplies.)

Hangers.

(See Supplies.)

Hoists.

(See Supplies.)

Hollow Block Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Freese & Co., E. M.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.

Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.

Hollow Partition Tile.

Evans & Howard Fire Brick Co.

Jacks.

(See Supplies.)

Kilns.

American Clay Machinery Co.
Boss, J. C.
Buhner, Jacob.
Chisholm, Boyd & White Co.
Dennis, F. W.
Gas Machinery Co.
Hoffmann Construction Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Snowden & Co., G. E.
Shumaker, J. H.
Vogt, Anton.
Yates, Alfred.

Kiln Bands.

Tecktonius Mfg. Co., E. C.

Kiln Doors, Castings and**Frames.**

(See Supplies.)

Kiln Floor Tile.

Chicago Ret. & Fire Brick Co.
Evans & Howard Fire Brick Co.

Kiln Irons.

Tecktonius Mfg. Co., E. C.

Kiln Furnaces.

Illinois Supply & Con. Co.

Kiln Lugs.

Tecktonius Mfg. Co., E. C.

Knives.

(See Supplies.)

Locomotives.

Davenport Locomotive Works.

Manganese.

(See Coloring Materials.)

Manganese Steel.

Edgar Allen Am. Mang. Steel Co.

Mechanical Draft.

American Blower Co.
Boss, J. C.
Rodgers Engr. Co., The L. E.

Mineral Paint.

(See Coloring Materials.)

Molds (Brick).

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Mentz, George B.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wellington Machine Co.

Mold Sanders.

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Hilton Sanding Machine Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wallace Mfg. Co.
Wellington Machine Co.

Mortar Colors.

(See Coloring Materials.)

Oil Burners.

Illinois Supply & Con. Co.
Schurs Oil Burner Co.
Tate, Jones & Co.

Packing Hay.

Interstate Hay Co.

Paints.

(See Coloring Materials.)

Pallets.

Ohio Ceramic Engineering Co.
Ohio Galvanizing & Mfg. Co.

Fans (Dry and Wet.)

(See Dry and Wet Pans.)

Patents.

Scientific American.
Watson & Boyden.

Faving Brick or Block.

(See Brick.)

Perforated Sheet Metal.

Caldwell & Sons Co., H. W.
Harrington & King Perf. Co.

Pitch (Paving).

Barrett Mfg. Co.

Flows.

(See Scrapers.)

Portable Track.

Atlas Car & Mfg. Co.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.

Pottery Machinery.

American Clay Machinery Co.
Baird Machine & Mfg. Co.
Crossley Machine Co.
Raymond Co., The C. W.
Rockwood Mfg. Co.
Stevenson Co., The
Taplin, Rice-Clerkin Co.

Power Plant Equipment.

Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

Presses.

(See Brick Machines, also Sewer Pipe Machinery, also Roofing Tile Machinery.)

Pug Mills.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Mueller Bros.
Raymond Co., The C. W.
Steele & Sons, J. C.
Scott-Madden Iron Works Co.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Pulleys.

(See Supplies.)

Pulverizers.

Bradley Pulverizer Co.
Illinois Supply & Con. Co.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.

Pumps.

Dean Bros. Steam Pump Wks.
Pulsometer Steam Pump Co.

Pyrometers.

Brown Instrument Co.
Ceramic Supply & Constr. Co.
Rodgers Engr. Co., The L. E.

Rails and Railway Equipment.

Atlas Car and Mfg. Co.
Arbuckle & Co.
Davenport Locomotive Works.
Ohio Ceramic Engineering Co.
Scott Madden Iron Works Co.

Rattlers (Paving Brick).

Ceramic Supply & Constr. Co.
Freese & Co., E. M.
Hetherington & Berner.
Phillips & McLaren Co.

Recording Gauges.

Brown Instrument Co.
Ceramic Supply & Constr. Co.

Represses.

American Clay Machinery Co.
Bonnot Co., The
Chambers Bros. Co.
Fate Co., The J. D.

(Continued on Page 252.)

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That the use of the Mathews Gravity Brick Conveyer will save more time and labor than any other investment made for standard brick manufacturing equipment of equal cost. The following letter is simply a sample of many repeat orders received by us every month:

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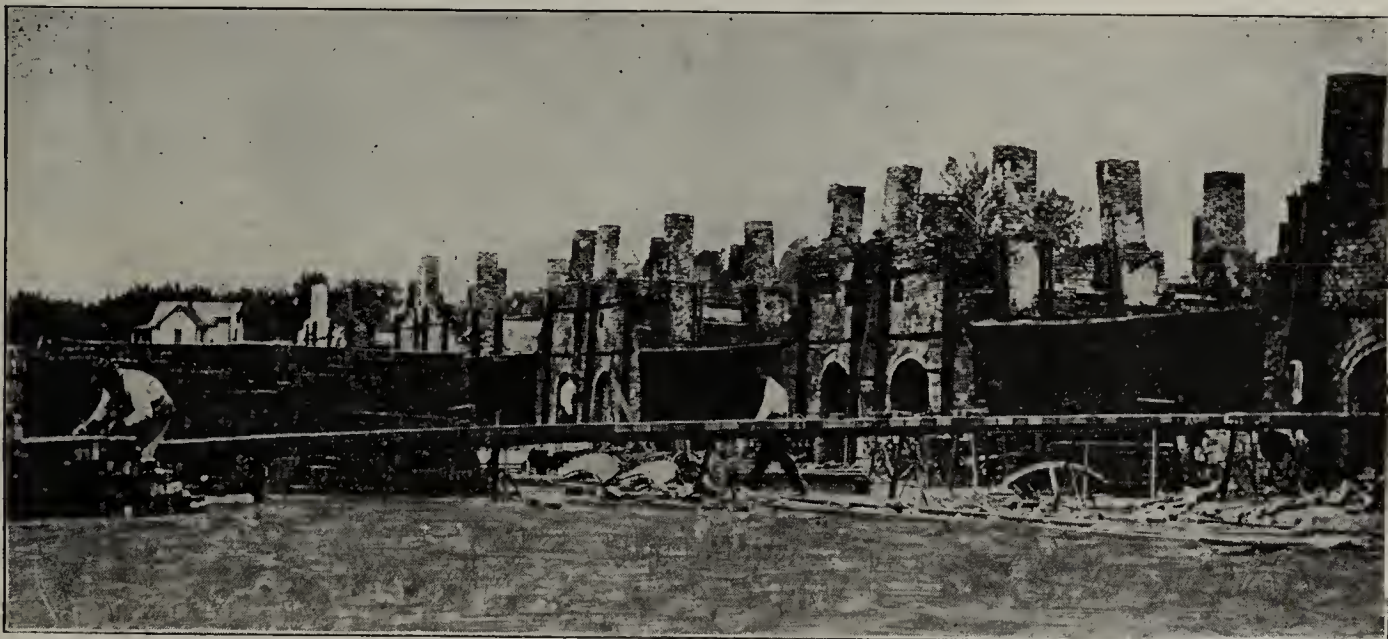
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By N. L. Cardin.



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San Francisco: Hicks, Nell & Marks, 604 Mission St.



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Illinois Supply & Con. Co.
Mueller Bros.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Taplin, Rice, Clerkin Co.
Stevenson Co., The

Revolution Indicators.

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Thew Automatic Shovel Co.

Rock Crushers.

American Pulverizer Co.
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Mueller Bros.
Raymond Co., The C. W.
Taplin, Rice-Clerkin Co.

Rope.

(See Supplies.)

Rotary Dryers.

American Clay Machinery Co.

Sand Dryers.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Fate Co., The J. D.
Hensley, J. W.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wellington Machine Co.

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Eagle Iron Works.
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Brewer & Co., H.
Bonnot Co., The
Ceramic Supply & Constr. Co.
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Dunlap Mfg. Co.
Edgar Allen Am. Mang. Steel Co.
Freese & Co., E. M.
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Mueller Bros.
Ohio Ceramic Engineering Co.
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Taplin-Rice-Clerkin Co.
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Stevenson Co., The

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(See Supplies.)

Steam Shovels.

Scott-Madden Iron Works Co.
Thew Auto. Steam Shovel Co.

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Dean Bros. Steam Pump Wks.
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Supplies.

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Caldwell & Sons Co., H. W.
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Fate Co., the J. D.
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Martin Brick Mach. Mfg. Co., H.
Newton, A. C.
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Atlas Car & Mfg. Co.
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(See Rails.)

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Voltmeters.

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(See Supplies.)

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(See Barrows.)

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(See Pans.)

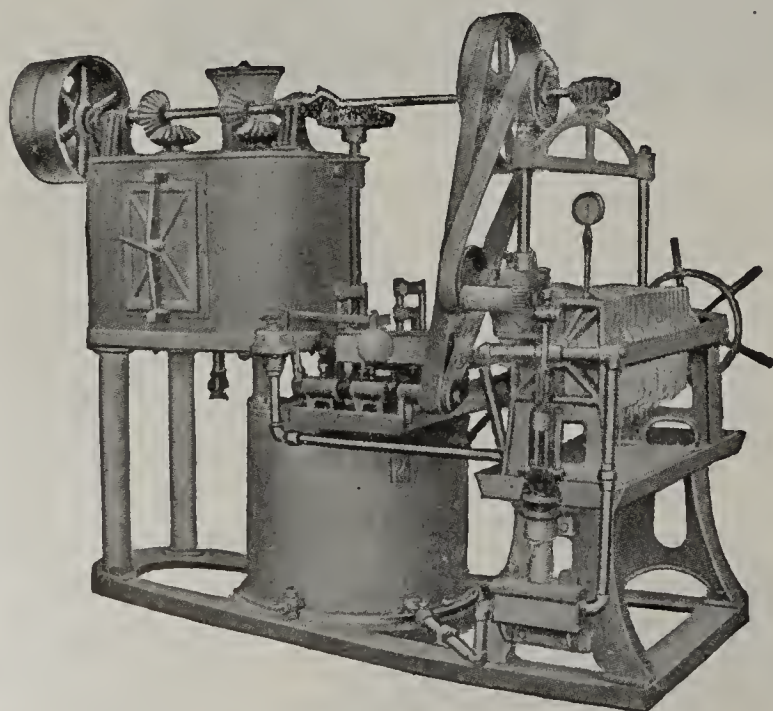
Wire.

(See Cutting Wire.)

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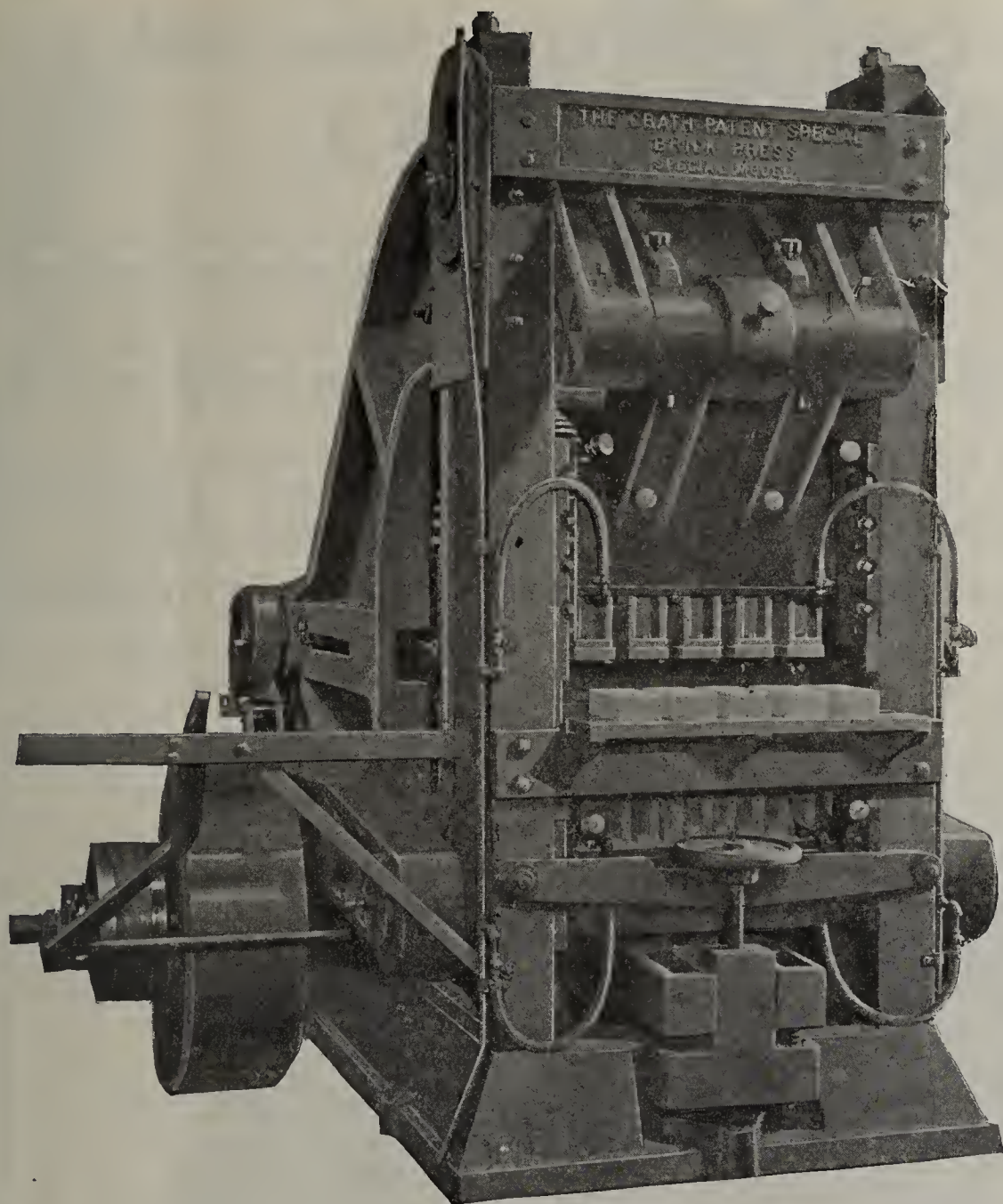
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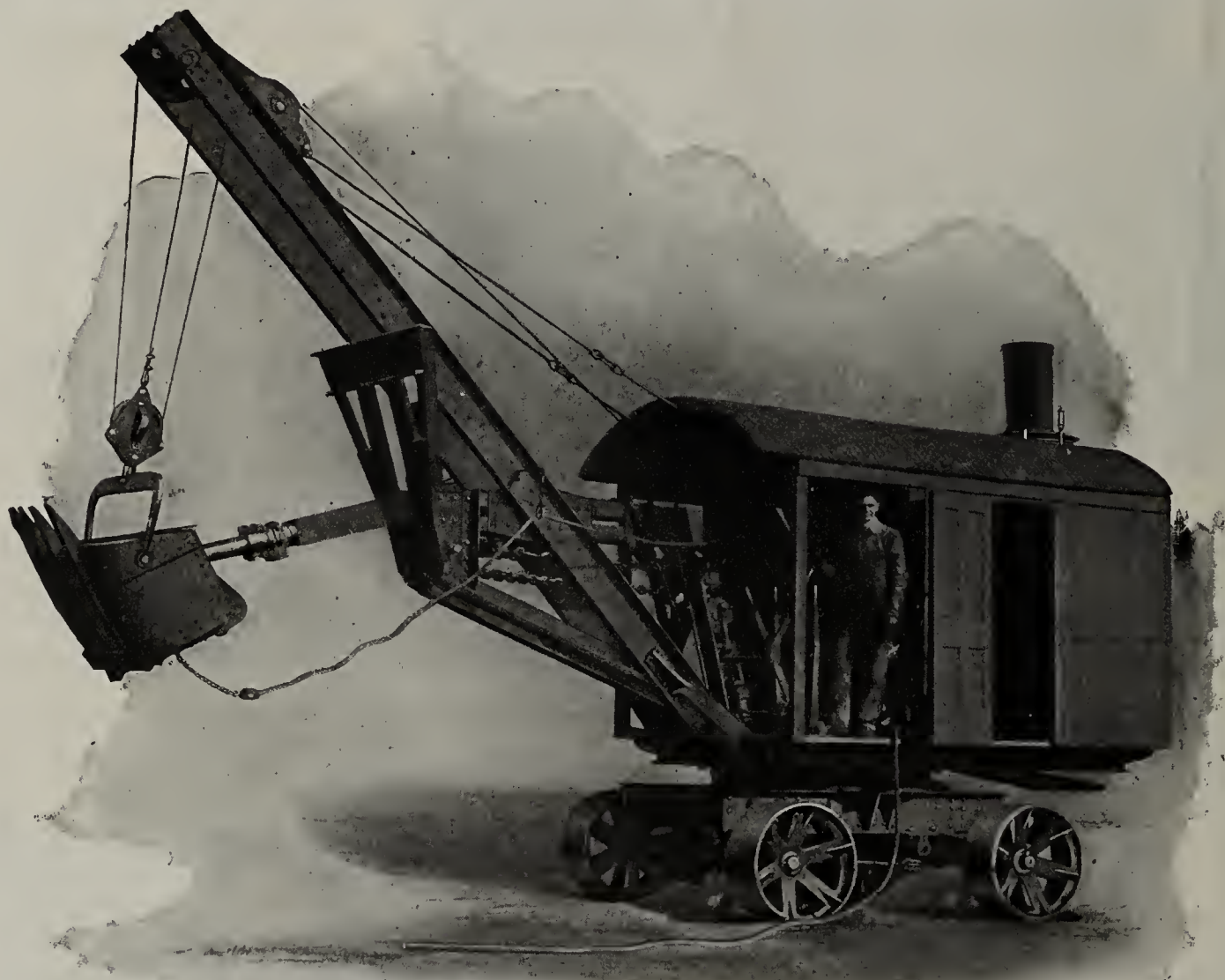
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The above rated outputs are for one man operation and may be doubled by using a fireman and extra laborer on ground.

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THE EFFECT OF HEAT UPON CLAYS

It contains valuable information on burning and drying, told in a plain and practical way, and is invaluable to the burner or superintendent. This comprehensive book should be in every clayworker's library.

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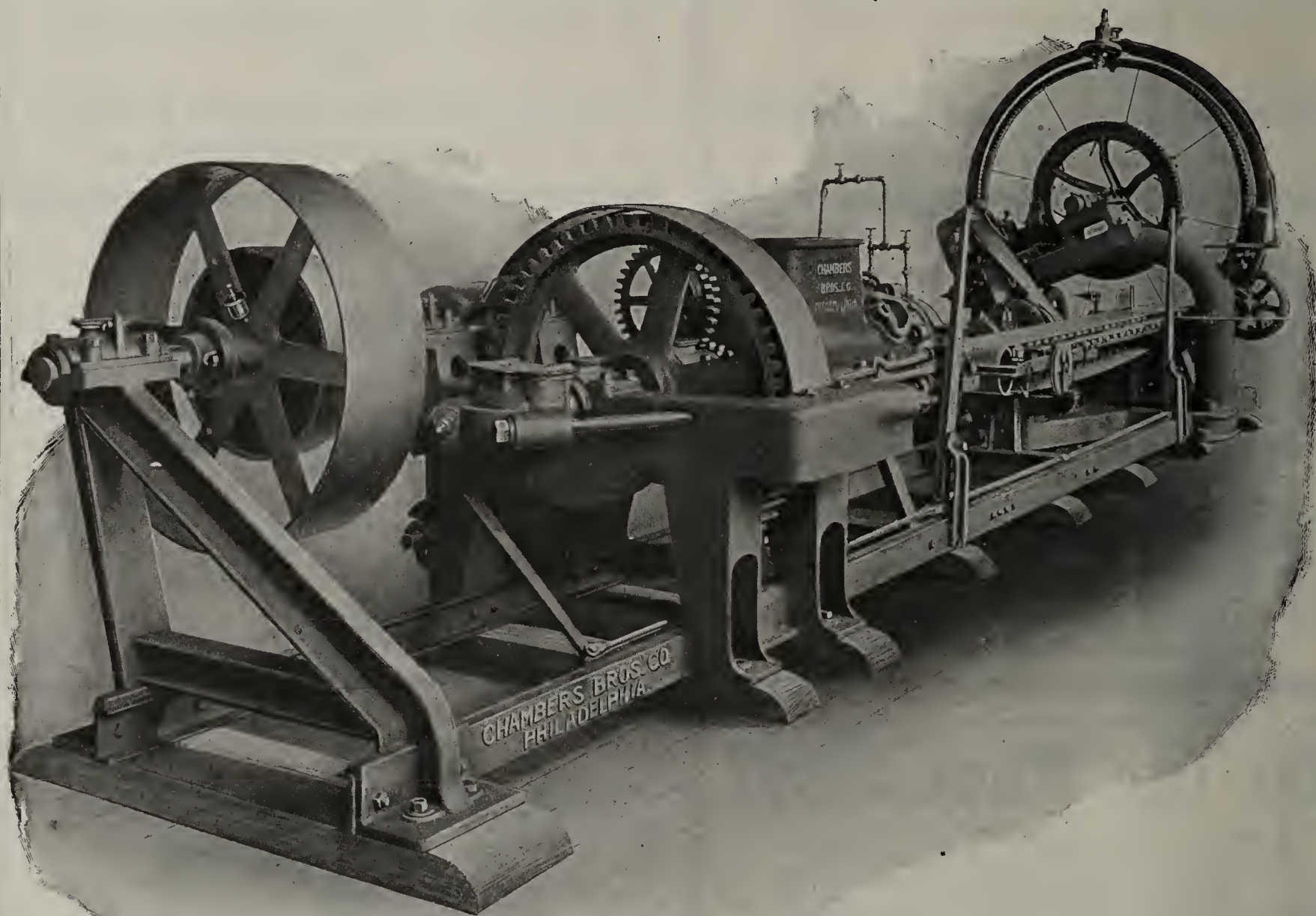
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THE CAM is 6 in. face of large diameter, and fitted with a hardened steel shoe.

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Because of my unique (patented) construction, I have no equal in the efficient use of *exhaust steam* for drying.

Also, my construction is such as to secure unusually ample provision for expansion and the *same* degree of flexibility to *every* pipe.

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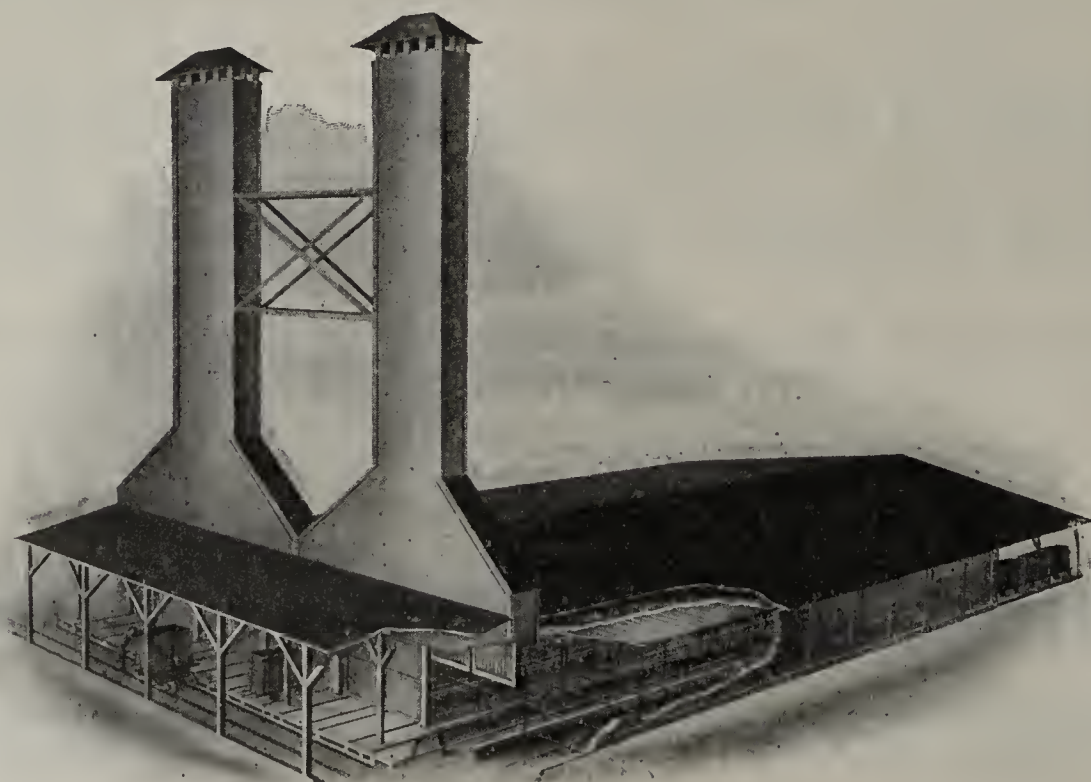
Superintendents don't say "Darn those leaky pipes" about *me!* My pipes are not the ordinary kind. They're full weight and made specially to order. And I have long threads—with correspondingly long and heavy couplings.

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But to be on the safe side, my pipes are arranged so that any one of them can be gotten at and lifted out instantly.

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Write for the catalog and learn more about me. Address: The Standard Dry Kiln Co., 1547 McCarty St., Indianapolis, Ind.



Mention THE CLAY-WORKER.

THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LVIII.

INDIANAPOLIS, IND., SEPTEMBER, 1912.

No. 3

Written for the CLAY-WORKER.

CLAY PRODUCTS' HIGH PLACE IN CHICAGO'S ARCHITECTURE.

COMPLETION OF A NUMBER of important new structures of great variety of character proves conclusively that brick and clay products are largely responsible for the tremendous advance which is being made in the architecture of Chicago. This is especially noticeable, of course, in the downtown business blocks, and in the apartment dwellings of the residence districts, but also the advance can be seen in suburban homes, in churches and a great many other kinds of building.

In the beginnings of the big downtown office buildings the architecture was chiefly of the dry-goods box species, either of the plain or garden brand, of simple homeliness of line, unadorned, and with comparatively little regard for exterior effects, or holding aloft a ginger-bready crown about as much in harmony with the rest of the structure as a garland on a clothes pole. The same principle applied to apartment dwellings, which, at first, were almost wholly of stone front. The dwellers therein, entered feeling much like a letter going into a filing case, found their proper places, and, having eaten and slept, re-emerged for the business or pleasure of life, real living being impossible within, and the general type of buildings being such an eyesore that living was an agony to those who dwelt without, but in the same neighborhood. In those days no one would have thought of having an apartment building in a really first-class residence neighborhood.

Now all this is changed. Brickmakers and dealers and architects have shown how to make structures for the most plainly practical of purposes attractive and in perfectly good taste, and among the materials which are figuring prominently in this work of reform in Chicago are the brick of the Thomas Moulding Company. For some years there has been

a growing effort to give to downtown buildings an individuality and character of their own, not inharmonious with their purpose, but relieving the streets and the sky-line of the deadly monotony and somberness which made Chicago the anathema of artists and novelists a decade and more ago. Buildings recently completed emphasize this tendency and indicate that great progress along desirable lines is being made.

The largest building in the loop district which has been erected in a number of years is the new Insurance Exchange Building, occupying over half of the area of the block bounded by Sherman street and Fifth avenue and Jackson boulevard and Van Buren street. Actually this is a twenty-story monument to the excellence of the Tiffany enamel brick, one of the Thomas Moulding Company's best known lines, and the white glaze of its giant walls attracts attention from afar. Unlike many of its sister buildings, it has the advantage of being able to have its face washed without going through the more or less painful and expensive process of a sand-paper massage, so to speak.

A record was made in putting the brick into this job, the Moulding people assert. A total of 300,000 of the Tiffany enamel brick were put in at the rate of 10,000 a day for a straight thirty days, each brick wrapped in paper to preserve the high finish which marks the building. As is indicated by its name, this building is the home of most of the leading fire insurance companies with offices in Chicago. This building is imposing by reason of its tremendous size alone, and whatever harshness of outline there might be is relieved

and broken by suitable ornamentation, chiefly in terra cotta, not too prominent and not out of keeping with the general character of the building.

A new downtown building which is somewhat more pretentious from the strictly artistic point of view is the Monroe Building, an office and shop building at the southwest corner of Monroe street and Michigan avenue. This building, in



Insurance Exchange Building, Chicago, Ill.

terra cotta and brick, is a splendid match for the magnificent University Club Building on the other corner. As the University Club is said to have the finest club building west of New York City, and as fine as any in this country, the above comparison is saying a great deal for the appearance of the Monroe Building. The University Club Building is in blue Bedford limestone. The architecture of both structures tends to the Gothic. The walls and ornamental work on the Monroe street and Michigan avenue fronts of the Monroe Building are of terra cotta, which compares favorably in appearance with the stone work across the street. In fact, many think that its texture and greater warmth of tone makes the Monroe Building even more pleasing. This building rises fourteen stories, with a gable story under the eaves, and the roof is shingled with tile. The first two floors are used for retail shops. Unlike many buildings, this structure has its alley wall in pleasing harmony with its street fronts, instead of having it in

The apartment is now a place in which to live and enjoy life. Porches and pleasant outlooks help to make life worth while for the "cliff dweller," and attention to details of construction makes these buildings objects to attract, instead of the old-time eyesores. One of the South Side apartment buildings which is attracting attention because of its architectural merit is a new building at Forty-fourth street and Grand boulevard. Brick has been used to splendid advantage, not only in the porch columns, but in panel work in the walls and architectural designs beneath the crest of the wall. The white Kittanning brick, supplied by the Thomas Moulding Company, make up the exterior of this building.

The James C. King Home for Old Men, at 360 Garfield boulevard, affords another example of the part played by brick in modern architecture. It is indeed a far cry from the old-fashioned county poorhouse, and, indeed, the common run of public buildings, asylums, hospitals and the like, to this new



James C. King Home for Old Men, Chicago. Built of Western Colonial Brick Furnished by Thomas Moulding Co.

common builders, as has been frequently the case in other buildings. The Kittanning white brick, supplied by the Thomas Moulding Company, continue on the alley side the effect of stone construction produced by the terra cotta on the street fronts, with the advantages of warmth and texture which clay products always have over the cold gray stone.

Apartment buildings show the same advance as office buildings, and where formerly their advent into good residence districts was looked upon with abhorrence, now we find them invading the very best neighborhood, but in such attractive form that they quite put to shame the old stone front private residences which were so much "the thing" in the '90's. The February number of *The Clay-Worker* showed some of these fine types of apartment dwellings on the North Side, in the Lake Shore drive and Astor street neighborhood, but high-grade architecture, aided by brick construction, is not confined to millionaires' row. One finds it in all parts of the city.

institutional home. For all its considerable size the Western Colonial brick (also furnished by the Thomas Moulding Company) give to the exterior almost the hospitable warmth and character of a colonial mansion. This home is endowed under the will of the late James C. King, a well-known millionaire, and is under the direction of W. C. Graves, who achieved a considerable reputation as executive secretary for the Illinois Charities Commission.

Indeed, thanks to the renaissance of brick as a building material, a trip through the suburban districts of the city reminds one of a trip to the East from Virginia to Massachusetts, and the old colonial homes which one sees there, mostly brick built and enduring to this day, in spite of the fact that the brick of those times was more like our present common builders than like the impervious blocks of the present day.

Even the churches are making more and more of brick. A recent fine example of its use is the St. Joseph's Roman Cath-

olic Church, at Southport and Belden avenues. Its walls and twin towers, crowned with gables, are of white Kittanning brick from the Thomas Moulding Company. Its clean, simple lines give it an air of stanch solidity, and a design of roofed niches above the entrance seems waiting to receive the images of saints and martyrs.

THE MANUFACTURE OF DRAIN TILE.*

BY C. B. PLATT, VAN METER, IOWA.

YOU are no doubt acquainted with the sign used by the barbers. It is supposed to represent a bandage around a bloody limb, and history tells us that the trade of barbering and the profession of surgery were followed as a single profession. This trade mark would indicate that the barber was probably more proficient than the surgeon.

These barber signs usually bring to my mind the sign

tion of the extent and regularity of the clay supply and its examination by ceramic departments of state or government institutions.

I am aware that clay experts have been known to report on examinations of clays that they were "not suited to the manufacture of a good brick but would make a good material for the manufacture of drain tile." While I am not a clay expert, I would advise that such a verdict be carefully examined before proceeding on it, with the idea of making tile successfully and with profit.

Drain tile are the leading conservation agents of the age.

It follows that the tile used should be of the very best grade and consequently made of nothing but first class material.

Since it is vitally important that a kiln be filled with ware made from clays of a like chemical construction, in order to produce an even result in the burned ware, it is important



Beautiful Brick Residence in Highland Park, Chicago, Ill.

used by the clayworker, from the fact that he usually announces to the world that he is engaged in the production of both brick and tile. The clay trade has developed to such an extent that we should specialize and become manufacturers of either one or the other of those two important divisions of the industry.

In considering the manufacture of tile, I would mention this as perhaps the first consideration, and if, on investigation, it is found that the market will not stand your proposed addition to the supply, stick to making brick, if you are making brick, and in case you are not a clayworker, stay out until you see that the market is ready to absorb your efforts without danger to your profits.

The next matter of importance is the thorough investiga-

tion of the deposits of clay be carefully tested throughout the depth of the deposit to determine the shrinkage, the heat absorbing qualities and the range in heat absorption between the point of vitrification and flowing, to the end that the clays be properly mixed to produce an even blend, or that the strata be worked in sections.

Laboratory tests are good investments. They have a bearing in their findings on all the operations of manufacture.

Leading up to the question of burning, it seems necessary to study effect in the slighting of some of the steps in manufacture which have a marked effect in the working of a kiln, no matter how well designed or built nor how well attended.

Most of the questions having to do with the machine work are not vitally important, since it is largely a question of adjustments of the machines. All clays look alike to the machine.

Drying is more difficult and the selection of the type of

*Paper read before the Twelfth Annual Convention of the Wisconsin Clay Manufacturers' Association, Milwaukee, Wis.

dryer, one that will dry the clay in the minimum time, is a matter requiring considerable study. Tile should be evenly and perfectly dried before placing in the kiln. If they are not the kiln must be called upon to perform two functions directly opposed to each other, at the same time.

Drying is an operation calling into use the action of evaporation, an operation in which the body so treated loses heat.

Consequently a wet tile, set in the kiln, repels the heat and tends to establish heat tracks within the kiln, if there are dry tile in the kiln which the heat can follow to the bottom.

The finishing operation, that of burning the tile, has so much charged against it as a producer of loss items, which it is not really blamable for, that it seems to be magnified in importance. All the errors of judgment in starting a tile plant and the mistakes and haste in manufacturing and setting the tile, come out in the wash, or when the tile are taken from the kiln.

The kiln proper is a generator, a conservor and a distributor of heat. As a generator its first requirement is a furnace properly designed to burn freely the fuel which is most available, and a combustion chamber of the proper dimensions.

As a conservor of heat it must possess walls of the proper thickness, built of suitable materials, which will serve as a retardent of radiation. As a distributor of heat the kiln chamber, which is really an enlargement of the flues, must be properly regulated through a series of underfloor flues, so arranged, graduated and dampered as to check the flow of heat at the points where the setting of the ware and the general form of the kiln would tend to increase the force of draft.

We are considering in this article the burning of tile in the commonly accepted best type of kiln for burning tile, or the round down draft kiln. This type is the cheapest to construct and to maintain and can be made the easiest to control. Its size may be made to fit the capacities of the dryer, which has been constructed to take care of reasonable machine capacities, to the end of producing a kiln a day of finished product. In size it varies from 18 feet to 40 feet or even larger diameters. As this diameter increases above the minimum, so does the difficulty in distributing the heat, and so must increase the strength of the walls and their banding. All things considered, it is my opinion that the machinery and drying output capacities should be arranged to take care of two kilns per day, when it appears necessary to take care of more than a thirty foot inside diameter kiln will produce.

In a thirty-foot kiln, it of course follows that the under or collecting flues are of greater length than in the smaller diameter kilns, and that in the case of the ordinary type kiln, or that known as the "T" flue type, the draft force at the center increases and the tendency is to burn more quickly in the center of the kiln than at the outside or next to the walls. To overcome this tendency the kiln must be driven slowly and the firing held back by a low damper stage, and

because of lack of a multiplicity of outlet, under reducing fires. This has the effect of using up extra fuel and extra kiln time and is consequently expensive. In order to overcome this difficulty and permit of progressive burning, or burning with the minimum loss of time, the underflues must be divided or segregated so as to serve the different sections of the kiln represented in the floor area. It has been demonstrated that multiple stack system is not good because of a tendency toward balanced drafts and the non-working of some of the stacks. It becomes evident that this divided force must be effected through one draft impelling agency or stack and that they enter this stack through a common draft



Monroe Building, Chicago. Handsome Terra Cotta and Brick Structure. (See p. 261.)

chamber into which the dividing flues enter and in which the force of draft is regulated by independent dampers.

The necessity of such an arrangement appears when we consider that in the setting of tile there is no chance for lateral draft in the body of the kiln or through the ware, as is the case in a kiln of brick. The heat entering a tile kiln passes immediately to the crown and is pulled straight down through the tile into the floor outlets.

The problem is to exert a force on the heat collected under the crown, so that it will be drawn down through the ware with an equal force throughout the kiln area. With the kiln so arranged, it is still advisable to have the ware evenly dried, although this handicap to even burning, or that of

unevenly dried ware, is not so serious in such a kiln as in the ordinary one outlet kilns.

When the clay used is of an even blend and this force of draft within the kiln chamber is equalized, the progress of burning is made as nearly progressive as it is apparently possible to secure.

The ware is in a condition to absorb heat evenly and consequently the speed of draft may be regulated to coincide with the speed of absorption, which means that the process is being conducted with the minimum loss of fuel. Burning is purely a process of heat absorption. A given clay will absorb so many degrees of heat before it will vitrify, or become worthy of use, and it will absorb just so many more

within reason to state any set rules for burning other than the determining of the nature of the clays and their handling within the limitations as heretofore outlined. No kiln is automatic and none, unfortunately, are perfect.

As to the matter of furnaces, there is little doubt but what simplicity is a good rule to follow. A kiln fire must be clean to burn with economy of fuel and the furnace should be so constructed as to make the operation of cleaning fires as simple and easy as possible, to the end that it be not neglected. Fuels enter largely into the determination of types and sizes of furnaces. A common type of furnace which has been found satisfactory in most cases is what is known as the slanting grate type. This furnace should have

a width ranging from 20", in case a non-clinker coal is used, to a 28 to 30", where heavy clinkering fuels are to be used. The height should be 24" to the firing arch, and this should be put in with a 10" rise. Doors are advisable but not necessary. In burning with this type of furnace the control of crown heats is an easy matter and cleaning fires is reduced to a simple equation. In the main under-flues a depth of 3' is recommended and a width sufficient to make up in area the openings into it from the floor flues. The floor flues should be five brick or one foot in depth. The best size of floor flue is 8" x 1', which would require a floor tile 12" long.

A rule for burning which may be safely applied in all cases is to drive off the watersmoke by regular fires maintained at a height which is below the known danger line in checking the particular ware in question, to the end that it be accomplished as soon as possible and to follow this stage promptly with the raising of heat stage, maintaining a dull red heat on top until same has reached the bottom tile all over the floor. The heat should never be raised to what is called settling heat until the dull red heat has reached the bottom. When this stage has been reached dampers should be lowered to hold the heat within the kiln as closely as possible within the limits of admitting enough air through the furnace to make complete or practically complete combustion. A reducing fire is never advisable unless it is wished to flash the ware, and such firing is dangerous unless the clays have a wide range in heat absorption. One point to be observed in the economical use of fuels is that it makes no difference in the



A Substantial Brick Church at Belden and Southern Avenues, Chicago. (See p. 262.)

degrees of heat before it will melt or lose its shape. A tile, owing to the thinness of its wall, absorbs heat quickly, hence the speed of draft is much higher than in the case of brick and it is not apparently necessary to run as much danger in exceeding the range of heat absorbing capacity of the clay, as in the case of burning brick, still the heat may be raised more quickly than in a brick kiln, owing to the free draft of the tile kiln, and needs to be watched very carefully. Excepting in the case of clays having a wide range in capacity of heat absorption, it is advisable not to trust too much to the eye in determining heat, but cones or pyrometers should be used. These appliances and the draft gauge are not particularly expensive equipments and if the burner has a sufficient intelligence, they should be used. It is not

burning of tile how long heats are maintained at degrees that are not sufficient to vitrify. A tile may be subjected to heats below the required number of degrees for an indefinite period and not change. It is a question of degrees rather than time beyond that required for the tile to absorb throughout its thickness the full heat surrounding it. When the tile have received the requisite number of degrees this may be held upon them indefinitely without changing their quality. If then under heats are maintained longer than is necessary, it is done at a loss of fuel and the same is true in the higher heats below the danger point. For this reason the top tile are finished and held at that point without raising until the lower tile to the floor have absorbed the required number of degrees to vitrify. Another

point in this connection is that a certain number of pounds of ware require a certain number of thermal heat units applied to them a certain length of time and it follows that the more ware put into the kiln the more heat units and the more coal is required to burn them. It follows then that nesting or stuffing of tile is not particularly desirable as far as economy in fuel is concerned, and since it is done at the expense of labor in setting and drawing, there appears to be no special economy in the practice. It is often the case that nesting is not a safe practice as injury to the tile is very apt to result.

In the manufacture of tile, the successful outcome of the venture is not dependent alone on the steps in manufacture, but the selling of the product has much to do with the success of the whole operation. A good tile cannot be made and sold unless a good price is obtained and maintained. In order that a good price be maintained it is necessary that all manufacturers know to a nicety what the cost of production is. This cost should be determined on a tonnage basis and the base or unit of cost should be determined by figuring the output as shown by the outcount of No. 1 ware from the kiln figured over a cost as represented by the full expense over full time of the period in which the estimate is made. This cost must include interest on the investment, deterioration, taxes, insurance, selling expense, and every expenditure, including salaries, and must be considered not on the running time but for every day in the week, month or year.

The art of selling is a new thing. The act of disposing of a product is as old as business.

A salesman who is worthy of the title is the man who is able to sell at a profit over the cost of manufacture, and who is able to do so in spite of a tendency toward ruinous competition in price cutting.

Price cutting is not business building. It is business killing. No market advances under price cutting conditions. The sales artist accomplishes his good results not through personal popularity nor the practice of cunning, but rather by the practises of common sense business rules and principles. His sales plans are based on honesty and backed by a manufacturing organization which is qualified to deliver a regular supply of quality goods.

It is the problem of a good salesman to put up to the consumer, by various advertising methods, the many sources of profit to be enjoyed in the intelligent use of the product offered for sale. He avoids pointing out the weak points of the ware of his competitor for fear of exciting a distrust of his material, in general, on the part of the consumer. Cutting prices is the last resort and is the advance agent of failure.

Proper advertising is a division of salesmanship and a necessity of a sales campaign. Advertising as used in the tile business should be considered under two general divisions; educational in respect to the profits to be derived from a more extended use of tile as embraced within a system of thorough drainage applied to all farming lands, be they rolling or level, and specific advertising, which sets forth the ability of the concern in question to faithfully and efficiently serve the consumer.

The first division is preeminently the function of associated interests and its execution should be the first and foremost object of our clay associations.

There is a manifest tendency toward the organization of associations in each important branch of the clay industry because of the recognized necessity for educational publicity work and the appreciation of the fact that specialization in the various branches has become unavoidable both as pertains to the manufacture and sale of the various products. Clay products need the help that comes from publicity. Every branch of the industry should have its own publicity bureau, consequently its own association to regulate the operation of such bureaus. Such organizations need not attempt to do anything to regulate prices. Their work is to better trade conditions by improving the demand by means of creat-

ing an interest in the use of the article because of the profit in its use.

There is surely a useful field for the tile publicity bureau, the working of which will demonstrate that there is a unity of interests between the individual industries and between them and their several agencies of distribution, which may be observed with profit to the consumer of their product. (Applause.)

EVANSVILLE ENTERPRISE.

EVANSVILLE, DOWN IN the lower end of Indiana, is a wonderfully enterprising city, and high among the leaders in hustle and enterprise are the brick men, who have perhaps spent more money, and certainly have done more good, effective boosting for brick than any other people in any other city of equal size. And the leader in the brick boosting is John Andres, of the Standard Brick Manufacturing Company, who in turn is backed up and heartily supported in the work by H. C. Kleymeyer, general manager of the company.

Those who were at the Louisville convention, and those who read the reports of it, may readily recall the inspiring address made by Mr. Andres, in which he set forth in detail the work they had been doing for brick. Well, that was only a sort of beginning. Since that time he has been at it persistently, enthusiastically and with a broader and better knowledge all the time of the work, with the result that he is noted as the brick booster of Evansville, known far and wide as such, and the knowledge has bestirred the lumbermen and set them to doing advertising that they would not have been doing otherwise.

And here's how it is done: The ground work or foundation is regular display ads in the various papers—the Evansville Courier, in the Sunday edition, along with the booster page for Evansville, which carries real estate, building and general progress and booster news and articles; the Sunday Journal-News, on a similar plan; the Evansville Press, in the Saturday edition, and in the Sunday issue of the German daily.

These form the foundation or starting point, and they include some very catchy and timely ads. For instance, as soon as they could get in a supply of those B. B. A. "One Hundred Bungalow" books they not only carried a display ad asking the people that read English to come and get one of them, but they had the same ad translated and printed in the German daily. But while these display ads are live and effective in themselves, they are really only the foundation of the work that Mr. Andres has been doing.

First, he has had printed practically all the articles fathered by the B. B. A., and then some. He has made it a point to cultivate the editorial and reportorial men of his local papers, as well as the advertising men, and the result has been some awakenings to the good of brick that should prove inspiring to others. Beginning with the B. B. A. articles and suggestion, Mr. Andres looks for more everywhere, gathering and using all those he finds in THE CLAY-WORKER and other trade papers, and then generating a lot for himself.

For instance, when he got back home from the big clay show, there was prepared an article that the local paper was glad to use on how the clay show was in itself a great argument for the use of brick. When the democrats were right in the midst of that big convention in Baltimore, and the public eye was turned on that city, there was an article on Baltimore's lesson, in which the great Baltimore fire was recalled, together with the fact that the lesson is: Use brick as a preventative. There was a fire in Evansville that was only stopped by a brick wall, the wall evidently saving a couple of city blocks. This fact was used both for reading

matter and display ads, together with detailed showings of just what the brick wall had saved. In fact, all building and booster editions of the papers are kept teeming with interesting things, all of which point toward brick as the king of building material. Mr. Andres and brick boosting are boon companions all the time, and about every time he turns around there is a new idea comes to the front—because he's looking for them and never lets an opportunity get by. The other day he had occasion to visit Louisville. When he got back and the reporters wanted to know about his trip the headline of that story told of how Louisville had been beautified by the use of brick, and the text of it contained such a strong hint that Evansville should use more brick, too, if

little because the advertisers of rival material are complaining about it. To that he says, "No. Give them the same favors; let them come back at me with their side of the argument. That is the fair thing, and I will take care of our side of the argument." And, do you know, all of it is doing good for all the building material people, and to boost the city. It keeps the people thinking; it inspires more and better building, and begets more civic pride generally. Also it should inspire any man in the brick business anywhere to look at what they are doing in Evansville, and make him want to roll up his sleeves and go to work boosting for brick as he never dreamed of boosting before.

Would you hesitate because it takes a little time and

Are You Planning to Build?

Is the main question with you **HOW CHEAP?**

Is the **FIRST COST** all that you care to consider now?

Are you ready and willing to sacrifice genuine comfort, beauty and durability in order to save a little money **AT FIRST?**

Would you rather save the money now and pay it out **together with large additional amounts** in the years to come for **PAINTING AND REPAIRS?**

*If so, then **DON'T USE BRICK.***



But, if the reverse is true in your case, then

BUILD WITH BRICK.

Standard Brick Mfg. Co.

A Forceful Advertisement Used by The Standard Brick Mfg. Co., of Evansville, Ind., in Their Local Papers.

it would be beautiful as well as substantial, that it perhaps changed the minds of many who had thought to build with lumber.

Indeed, so prominent and effective have been these articles that the lumber people of the city have been trying to counteract the influence by considerable display advertising themselves, ads in which they have taken note of the brick boosting and claims, and thus the papers who have extended the favors of their columns for these special articles have in turn secured more advertising from others than they would otherwise. Now one of the papers is telling Mr. Andres that they will have to trim down that special stuff of his a

thought, and costs money? Then listen here: While the writer was in Evansville looking over the work they are doing there, Mr. H. C. Kleymeyer was busy with men from a well-known clay engineering concern, who were down there figuring on the doubling of the capacity of one of their plants. And in the course of the next year it is intended to open yet another new yard to take the place of one that is about worked out. They are not wasting money or time. They are building up business, business that calls for an enlargement of their manufacturing capacity. That's the answer, and the injunction that goes with it is—go ye and do likewise.

GAS FROM GAS PRODUCERS, AND ITS COMBUSTION

By J. J. Koch.

The Gas Producer.



THE MECHANICAL appliance called gas producer, to the uninitiated and unacquainted, seems to be a thing of mystery, until it is understood that an ordinary gas producer is practically nothing but a great big heating stove, with only a slight difference. In a stove the gases are given off and burned therein, while in a gas producer the gases are also given off, but by means of a conduit are led to a combustion chamber located elsewhere, to be burned, and thus with but a little thought the mystery vanishes.

The different zones in a gas producer are practically the same as in a stove, and for the purpose of comparison and analysis we shall begin with the lower layer in each, where we find a bottom layer of ashes, resting on a grate surface, through which air passes to produce combustion above the ash zone. The place or location in both where the fuel is burned is called the combustion zone. The heat next passing through the adjacent fuel distills off the volatile gases, and the products of combustion are also converted into a combustible gas if the superimposed fuel is in a bed thick enough and hot enough.

That combustion gases are given off can readily be seen by watching a bituminous coal stove fire, as when the heat is high enough the gas begins to distill off; when a higher heat is reached in the presence of air the gas begins to burn with a smoky flame, and when a still higher temperature is attained the gas is burned up completely, provided there is air enough present for proper combustion. This same thing would take place in a gas producer; the gases are led to a combustion chamber, there to be mixed with air and burned, the same as in a stove. As a matter of fact, in a leaky gas producer, where air can get to the gas, it is oftentimes burned up in the producer when the temperature is high enough, just as the gas burns in a stove.

For another comparison we can take an ordinary pot fuel stove. If the fuel is just high enough, so that air in sufficient quantity can pass through the incandescent fuel and mingle with the gas, as it arises from the fuel bed, then, if the temperature is high enough, all the gases will be burned, but, if ever the fuel is so great in depth that no free air can pass through the fuel, then a gas producer will be the result. But as the gas producer has to handle a very large quantity of fuel, as compared with a stove, it is apparent that in gas producer designing and construction the question of relative dimensions are important factors.

The customary primary division in gas producer construction practice relates to the method of producing combustion either by the suction principle or steam blast principle, that is, as far as the clayworking industry is concerned. With the clay burner's object in view, the writer will not go into all details as relates to the state of the art, at the present time, regarding the full field of gas producer construction, in that it would make this treatise too long and voluminous.

As ordinarily practiced, in the suction type of producer it is necessary to have a grate surface of some type or another, just like a stove, so as to afford means to hold up ashes to allow air to enter for primary combustion and gas formation. In this country the ordinary flat grate is used extensively, whereas, in Germany, Austria and France a great many combustion engineers prefer the so-called step or slanting grate, but in any event the grates must be in accord with the type and size of fuel which is intended for use. In some of the producers, where the ordinary flat grate

bars are used, there is used in conjunction therewith a supplementary set of grate bars adapted to hold up the fire, while the regular lower set of grate bars are pulled to allow the clinkers to drop, so that they may be removed. After such is done, the regular bars are replaced, upon which the fire drops or falls as the supplementary bars are removed. In other types of suction producers there are used horizontally, revolvable or rotating grates having a flat or conical face, so that the ash and clinker can drop off the periphery and others again have spiral breakers on these turntable surfaces, so that the clinkers will be broken up and forced out of the gas producer. The maximum and minimum sizes of the openings in the grates have to be carefully planned and carried out to suit the fuel and also to take care of the variable draft conditions which are unavoidably created by excessive ash content of the fuel and the formation of clinkers from same. A great deal of annoyance can be avoided by having water in the ash pit or a source of steam, in that the water vapor has a tendency to crackle and brittle the clinkers when coming in contact with them while hot.

In some types of gas producers it is a difficult matter to get at the clinkers, and when they have to be "sneaked out" the fireman's lot is not a happy one. Clinker formation can be kept down considerably when it is borne in mind that a gas producer is a good deal like a stove; that is, mild draft makes ashes and strong draft fuses ashes to clinkers. The size of the grate bars in a gas producer is limited in part by the fuel; in some gases only six pounds of coal can be gasified satisfactorily, while other coal (low in ash and sulphur) will gasify at the rate of sixteen pounds of coal per square foot of grate surface per hour. The size and number of gas producers will depend upon the grade and type of fuel, and also upon the quantity of gas needed for speedy operation of the plant, for it certainly is very detrimental if producers are operated at a higher speed than what proper gasification indicates. Gas producers can be built with round or four-cornered gasification chamber, and the grates should be in accord with such form.

An approved type of gas producer is

The Steam Pressure Gas Producer,

which makes gas independent of the suction draft in the kilns. In using steam for blowing air into the gas producer there is generally enough moisture furnished to crack and break the clinkers, and thus furnish easier access to the air. Besides this, the steam, on decomposing in the combustion zone, furnishes "hydrogen" gas, thus giving heat producing qualities to the producer gas which it otherwise would not have. As this formation of hydrogen is accompanied by heat reduction in the combustion zone of the gas producer (owing to lack of air to maintain combustion temperature) it follows that with an excess of steam the gas producer may get too cold for further gas production and "freeze up." The quantity of steam that may be used to best advantage for any certain type of producer or kind and grade of fuel must be determined by experiment, but it can be safely assumed that slightly finer fuel can be used with the steam blast than when using suction, but too coarse fuel is just as bad when there is not enough surface contact present to induce correct gasification, and there is a liability of the products of combustion not taking up any more additional carbon to form a combustible gas. The "Koerting" type of blast nozzle is very extensively used in gas producer practice and the various modifications all do good work.

On top of the gas producers are found one or more "bell" hoppers for feeding fuel. The writer prefers the bell to drop, as the fuel will then run off, like from an open um-

brella, and allow it to scatter, and his experience has been that where the bell has to be raised the fuel drops in big heaps, which entail a great deal of poking to keep up a good fuel bed. On the top of gas producers are usually found a number of poke holes, to allow the leveling off of the top layer of fuel and stirring up of the fuel as well. These poke holes must be of proper size and shape, and in the proper place. When not in active use they are kept closed with sealing covers.

There should also be on the sides of the producers a suitable number of sealable peep holes, so that the relative position of the combustion zone can be determined, and if any ashes or clinkers should hold up the fuel bed they may be broken up. But of this there should be as little done as possible, as it is a well known fact that stirring ashes has a tendency to form clinkers.

The steam blast producers are generally closed at the bottom with a water seal, which at the same time serves as an ash retainer and also keeps air from entering the gas producer during the period of ash removal. The height of the gas producer as a whole is determined in a great measure by the depth of ashes and fuel bed as well, it in turn being governed by the fuel and the character of gas that may be required. The outlet for the gas should be of a sufficient capacity so as not to cramp the gas flow, as if too much pressure has to be used for gas production it sometimes happens that the dust from dropping coal is carried into the gas conduit, thus reducing its gas carrying capacity. Allowance should also be made for gas volumes relating to the various gasification methods, and also for deposited lamp black or soot deposited from the dissociation (breaking up) of the producer gases.

As an example of possible conditions, we tabulate the gas volume from one pound of our certain coal, from which it will be seen that there are variable quantities, weights and densities:

	Volume.	Weight.	Densities.
Gas No. 1.....	52.49 cu. ft.	3.9 lbs.	92.09
Gas. No. 2.....	82.92 cu. ft.	5.46 lbs.	90.78
Gas No. 3.....	48.91 cu. ft.	3.33 lbs.	84.47

And it can be readily seen that the gas conduit should be in a predetermined proportion to the possible maximum production, at the same time taking care of the possible velocity of the gas flow.

There are so many different things connected with the selection or choice of a gas producer that a competent combustion engineer and ceramist as well should be the party to give an opinion as to whether a suction or pressure producer should be installed. The writer recalls two producer gas burning clay plants where one burner says, "Give me a suction producer," and the other fellow says, "I had a suction producer outfit and could not do anything with it and had to put in a steam blast producer, and that is working satisfactorily." The height of the fuel bed varies with the type and size of fuel and the quantity of gas to be produced (in a given time) varies with the size of the producer and the removal of the producer gas, in a shorter or longer time, has something to do with it as well.

In a suction producer some operators never allow the ashes to accumulate higher than six inches, in order to keep the grates cool. In steam pressure producers at least six inches of cold ashes ought to remain at all times on top of this bed of ashes; the bed of fuel may vary from thirty inches to five feet or more; but it should always be borne in mind that the finer fuel packs tighter and the gas producing pressure must be higher than with the coarser fuels, requiring different pressures for proper speed in making gas accounts, in a large measure, for the failures attending a change of fuel. Besides this, a question of excessive moisture in fuels is a matter of consideration, when it is remembered that water vapor has a cooling effect in a gas producer, hence it would not be a good plan to use a steam blast producer for them, as only more moisture would be added. Gas producers of too large a diameter should be

avoided, for it is difficult to keep level fires, take out clinkers, and obtain a uniform production of gas. At the same time, the gasification zone area should be in the proper proportion to the air cutting area, so as to prevent blow holes through the fuel and induce a uniform formation of gas by allowing for the expansion of the producer gas by heat. The relative quantity of the distillable volatile matter of the fuel also has a bearing on the proposition whether a pressure or suction producer is best adapted to a certain fuel. Of vital importance as to the construction of the gas producer are also the following burning problems: the temperature of maturing heat, the length of time of soaking heat, the position of setting, the velocity of draft, etc. As for an example, we can take it that we want to finish up with a tighter draft on a red burning clay that does not have much leeway between good vitrification and breaking down. In this case, if we used a pressure system the possibilities arise that the pressure may be too strong in the gas producer, that the velocity of the flow of producer gas may be so much as to cut down the flow of air to the combustion chamber and entail a reducing condition of the kiln; which again in turn induces rapid breaking down of the vitrifying clay ware. For another view of the problem, we may take a case where we burn with a free draft and a suction producer. If the draft should not work in good relation with the gas producer, it can occur when attempting to make speed that the gas production is too slow, and the air thus growing to excess inducing a cooling of the ware that is burning. In this case a pressure gas producer, susceptible of easy regulation, would afford an easy remedy for the difficulty.

The statement of the above various conditions are not made with a view to discourage the use of producer gas in burning clay ware, but rather to emphasize that it is a wise precaution to install the gas producer suitable to your wants. Gas producer literature is of a widely scattered nature, and at its best fragmentary in furnishing acceptable data, hence it is a wise precaution to enlist the services of a reliable ceramic engineer who is posted on burning problems. It is a fact that with the advances made in the last few years in gas producer practice in all its phases that there should be no difficulty in supplying gas producers that will meet all requirements of the science and art of burning the various classes of clay ware.

(To be continued.)

WORKINGMEN'S COMPENSATION LAW.

Wisconsin brick manufacturers, several of whom have gone in under the new Wisconsin workmen's compensation law, are much interested in Bulletin No. 3, just issued by the Wisconsin Industrial Commission, the body which administers the new law, which explains every phase in the operation of the act. Besides outlining every case which has been appealed to the commission for settlement, various interpretations are given, the compensation laws of other States are taken up, and statistics are given regarding the operation of the Wisconsin law. The commission calls particular attention to the fact that the old line casualty companies operating in Wisconsin published their rates in combination last September, when the Wisconsin law went into operation, and that, as the commission has no power to fix rates, the alleged exorbitant schedule is still in effect, offering an inducement to the employer of labor to go in under the new compensation law. The commission is strongly of the opinion that liability insurance is a question that may well receive the consideration of the next Legislature. Wisconsin employers are advised by the commission to form mutual companies, similar to those now successfully operated in Germany. Comment upon this subject is as follows:

"The commission does not understand why employers in this State do not seize upon the opportunity to reduce the expense of insurance. Under the mutual companies of Germany the expense of insurance does not exceed 15 per cent. of the premium, while under the old line companies in this country, the expense of insurance, together with profits, exceeds 60 per cent. of the premium."

Written for THE CLAY-WORKER.

IMPRESSIONS OF CLAYWORKING METHODS IN EUROPE

BY A. E. EATON.

Part IV.—The Value of the Continuous Kiln.

ON THE CONTINENT, as in England, it is in the kilns in use, and the economy attained in burning, that the most interest is found, the continuous kiln, in some of the very numerous forms found, being in nearly universal use in the more modern plants, especially in Germany.

In machinery there are very few points in which we do not excel, but, owing in part to the higher price of fuel and to the closer and stronger competition with each other and other building materials, the burning has been brought to a point where there is very little waste. It is hard to understand the reason for the very slow adoption of the continuous kiln in this country, in view of the results attained with it in burning nearly every class and kind of ware in Europe, with a saving of from 60 to 70 per cent of the fuel, and from 40 to 50 per cent of the labor required by the usual type of down draft intermittent kiln.

The impression held by many of our clayworkers, that it



Mendhiem Gas Chamber Kiln Set with Heavy Fire Clay Goods.

is impossible to get good results in a continuous kiln with anything but common bricks, is not at all held up by the facts. Among the different plants visited, nearly every class of ware was being burned in continuous kilns of a suitable pattern, with the best of results, the goods being of the highest grades, as well as common bricks.

In one of the accompanying photographs a chamber is shown set with heavy fire clay goods, the results with every kiln of this type visited being of the best.

In the photos of the interior of the kiln shown, it will be noted that all are much lower than is usual in this country, a low arch being a characteristic of nearly every kiln visited.

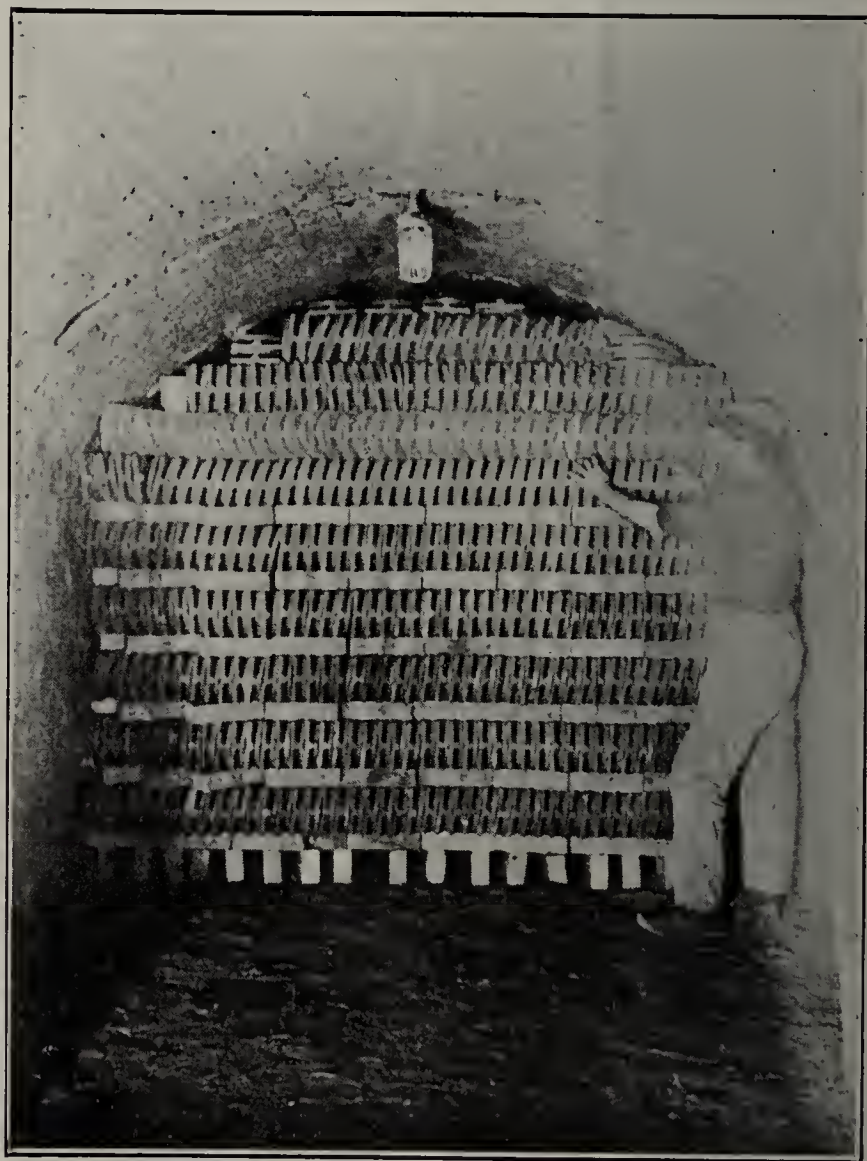
The builders and the users of these kilns both state that the saving in labor in the setting and the drawing, and the better results obtained, more than make up for the additional cost per thousand capacity of the kilns, while the fuel consumption, it is claimed, and pretty well supported by facts, is less than in many higher and larger chambered kilns. While it is true that the average plant of Europe is much smaller than the average in this country, still in the larger plants, as well as in the smaller, this type of construction is used. Two other photos are shown, showing plainly the methods of setting roofing tiles in continuous kilns. It will

be noted that only one course of brick were used in this kiln on the floor, with the supporting course set on the flat, the tile of course not being vitrified, as few tiles are in Europe.

The output of these kilns, with the low arches, is larger than one would expect, owing to the fact that in all of the newer kilns of this type the draft is higher than was formerly used.

In fact, one of the points of greatest advance in Europe has been in the ability to work with a greatly increased draft, increasing the fire travel to as high as three or even four times that formerly obtained, even with rather delicate goods, giving greatly increased outputs for the kiln investment.

Buhrer has been the leader in this direction, having in some cases been able to get a fire advance of from 130 to 150 feet per 24 hours, with the best of results, and great fuel economy. It is a well-known fact that the faster a ware is



Continuous Kiln Set with Roofing Tile and Brick.

burned, within, of course, the safe limits of the clay, the better the color, and the lower the fuel consumption also. There are many clays, of course, that contain combustible matter that will not allow of so rapid a rate of burning, but the average rate of fire travel per 24 hours in the Buhrer kilns visited was close to 100 feet, or, in most cases, the time of burning, including the watersmoking and the cooling, was only about five days. With vitrified ware the rate was, of course, slower.

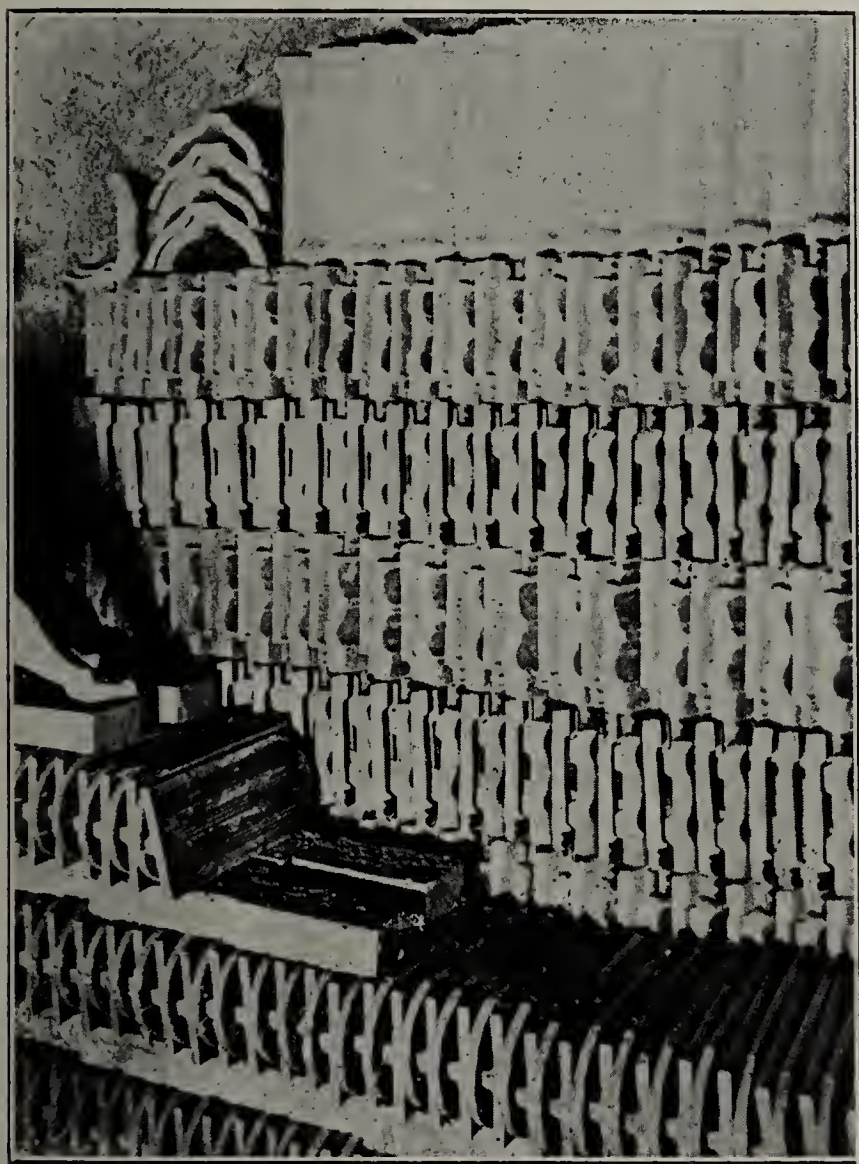
As will readily be understood, with these rapid rates of fire advance, a very large capacity is obtained with a fire canal of relatively small cross section, the fire canal being lengthened to allow of the longer fore and after glow, i. e., more chambers preheating and cooling, required in the rapid working. The effect of this very rapid burning is not at all what would be expected, as in several plants visited, where the clay was not so exceptionally good as that at Mulacker, the owners were getting the best of results burning roofing

tiles, etc., at a rate three times as fast as they formerly had been able to get with a kiln of the older type. The main trouble in these plants seemed to be in getting the ware absolutely dry before setting, any ware that does not contain vegetable or other combustible matter, will in general stand very fast burning if dry when put in the kiln.

There is at this time considerable interest all over Europe in the tunnel and car type of kiln, due partly to the success attained by the Faugeron kilns burning porcelain and pottery, and to the use of other kilns of this type in England, Germany and France.

There have been many attempts to introduce a kiln of this type before this time, and there are still some of these older kilns at work, notably those of Bock, there being in all, to the present knowledge of the writer, some twenty-five or more kilns in use.

The majority of these are burning porcelain and pottery,



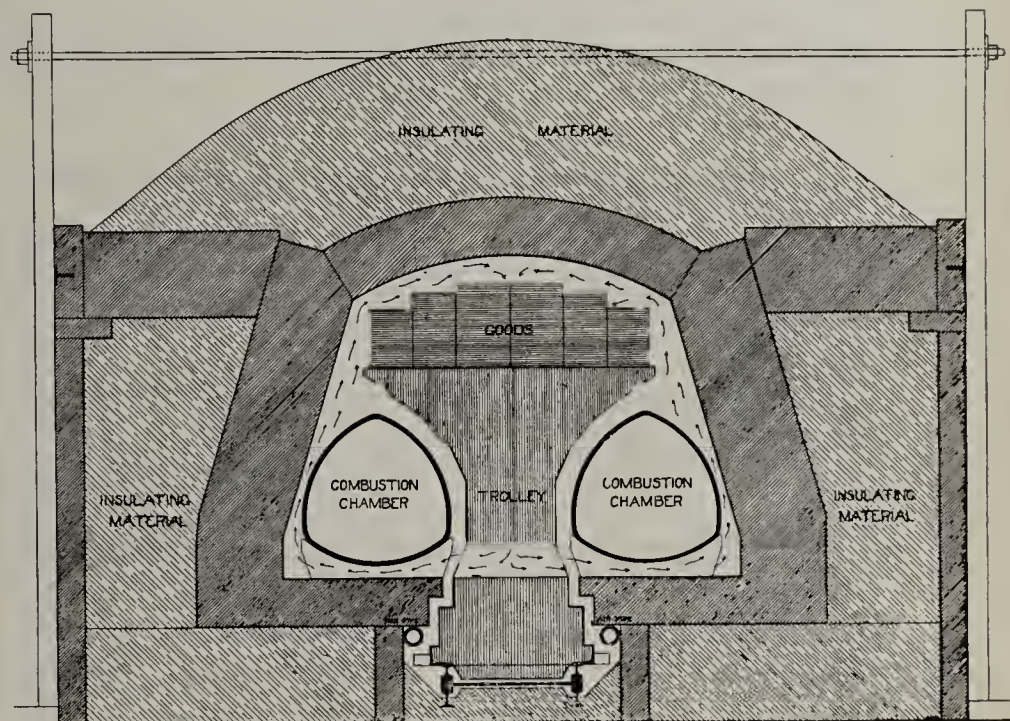
Method of Setting Tile in Mendhiem Kiln.

etc., being of the Faugeron type before described in THE CLAY-WORKER, similar to the kilns at Altwasser and Montereau, but there are also other kilns now giving satisfaction to their users, as Mendhiem's at Neuhausen, burning carbons, Dressler's in England, and several older types. The only kiln of this type visited burning heavy ware (brick) was that of the Bock type at Zwickau, before mentioned, this kiln having been in use for several years. This kiln has a length of approximately 200 feet, a width of fire canal of 5½ feet, and the height of canal to top of arch from car tops being about the same. This kiln is of especial interest in that some of the cars have been in use practically continuously for over eight years, with very few repairs, except to the fire clay tops. The cars have a width of approximately five feet, with a flat fire clay top, the dip plates being of iron. The manager of the plant stated that the total repairs would not cost them over the equivalent of \$200 per

year. This kiln, as stated, has a capacity of approximately 20,000 of the large sized common bricks per day, the bricks being very well and evenly burned. At this plant the bricks are first hacked upon the regular type of steel cars, to be dried, and are reset on the regular cars for the kiln, arrangements are made to unload direct from the cars to wagon, however. The bricks are bone dry when set, as it is impossible to get results otherwise, the time of burning being too short to allow any time for drying, and little for water-smoking, the usual time between starting cars being about 50 minutes. The motion of the cars is continuous, an electric winch, or pusher, furnishing the motive power.

Producer gas is admitted from both sides of the tunnel, approximately one-third of the kiln being included in the firing zone, the supply of gas being controlled by a series of valves. Draft is furnished by a stack, or chimney shaft.

Judging from the results attained by this and other kilns in use in Europe, there is no reason why a successful kiln of this type can not be constructed, as the faults shown are almost entirely those pertaining to constructional details, and are not the fault of the principle of the kiln. The fuel economy with the kiln at Zwickau was very good, running about 350 to 400 pounds of the low grade lignite and coal



SECTION

Mendhiem Gas Fired Continuous Kiln.

to the thousand of the large bricks, finishing temperature being 950 C. In this country the saving with a kiln of this type would be still greater, owing to the great saving in labor as well as in fuel, it being possible to either load the bricks on the cars at the machine, and run them through a dryer, or, in larger sizes, to install mechanical setters. There are other advantages, as:

Convenience in unloading at any point without rehandling.

The absolute control of the burning, not only by the admission of gas, but by the rate of advance of the cars, the small cross section giving good control also.

Low construction cost, it being necessary to build the fire zone only with fire bricks, with ordinary temperatures.

Ease of maintenance of the kiln, there being none of the alternate expansion and contraction of the brick work of the kiln so destructive in other types of kilns. With rightly designed cars the cost of upkeep should not be high.

The fuel consumption should be lower than in any other type of kiln, owing to there being only the floor of the kiln, i. e., the car tops, to be heated, the main part of the kiln brick work being maintained at the burning temperature continuously.

Ware can be burned at the highest possible rate, with

little chance for deformation, there being little weight on the lower courses; with ware in saggars there will be considerable saving in breakage losses.

The disadvantages are that some clays can not be burned rapidly enough to allow their being economically burned in this type of kiln, the difficulty in burning heavy vitrified goods and goods that require being cooled exceptionally slow, and the expensive car construction, the last named being the greater proportion of the cost of the kiln, in average cases, and often being less, however.

The fact that there have been numerous failures of kilns on this principle in this country proves nothing, since the greater majority have all failed on the same faults, and, judging from the plants visited where kilns of this type were in use, there are kilns that are a partial success now in use. In Europe they have had many more failures than we in this country, but from the results now achieved it seems to the writer that a successful kiln of this type is more a matter of engineering knowledge and mechanical construction than any change of principle from the forms now in use.

To sum up my impressions, this country is far in advance in the economy of the machinery in use in the average brick plant of England, and some in advance of those of Germany, conditions and the cost of labor being such that machines that may be the most economical in this country might not be in others, however.

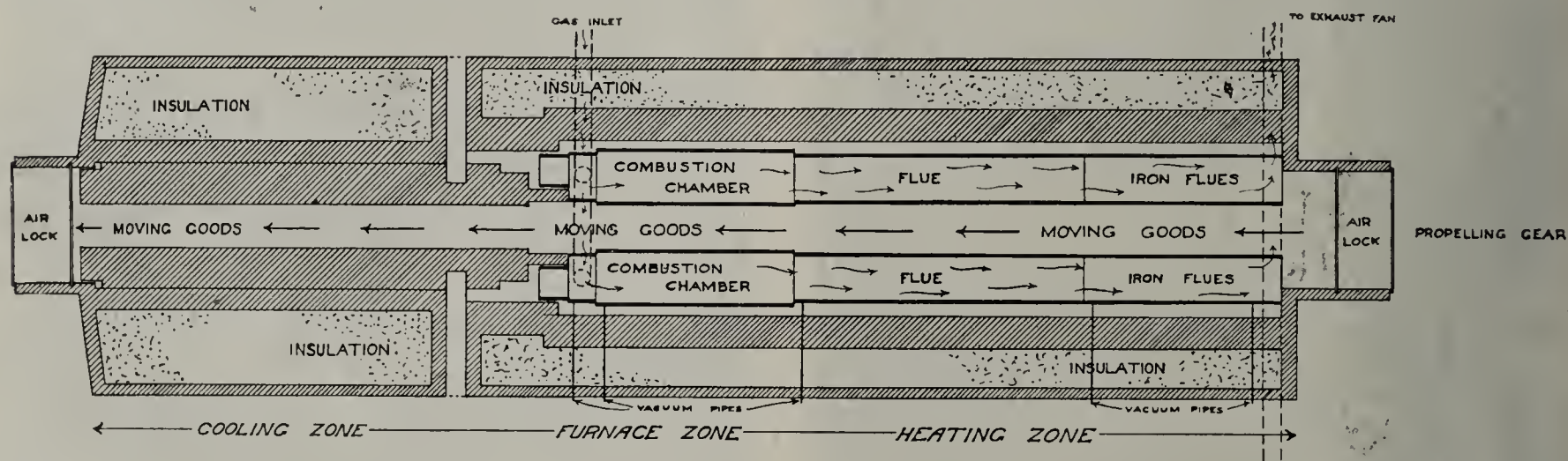
In the variety and general appearance of the ware produced, this country is again in the lead, especially in the

CLAYWORKING MACHINERY should receive in some respects more careful attention in setting and maintaining than almost any other class of machinery. The work is of such a nature that the wear and tear is excessive as compared to many other lines of machinery. In fact, as compared to almost every line except that of stone crushing, cement making and kindred lines where the wear is naturally harder than in clayworking.

Because of this hard service the uninitiated often imagine that clayworking machinery is rough, crude stuff that requires but little in the way of millwright skill or extra precaution about setting and looking after. The fact of the matter is, as those who have had experience know, clayworking involves the use of some of the finest machinery going, and some in which careful and delicate adjustment is an item of great importance.

All this preamble is simply by way of introducing with more emphasis the idea of taking great pains in installing machinery originally, to have it carefully set on absolutely solid foundations and firmly bolted down so that when put to the hardest kind of duty it will stand up and do the work it was intended to do.

Just the other day the writer overheard one brick man



Plan of Dressler's Muffle Tunnel and Car Kiln.

line of face brick, due more to the demand than to any fault of the makers of Europe. In porcelain, etc., the higher grades of glazed ware, and the like, the quality of the well-known makes of Europe is well known.

It is in the economical burning of the clay products that we seem to be behind the average practice of the plants of Europe.

In the plants visited, practically every kind and type of clay products were being well and economically burned in a suitable type of continuous kiln, with a saving of from 50 per cent up of the fuel and labor in the burning. In plants visited there was being burned in continuous kilns nearly every variety of vitrified ware, finished both under oxidizing and reducing conditions, salt and slip glazed ware, as well as higher grades of glazed ware, roofing tiles and nearly every grade of bricks, etc.

The cost of the more modern continuous kilns was generally less than an equally well built like capacity in periodical kilns, of the down draft pattern. The proportion of continuous kilns to that of periodical kilns is almost, if not, the reverse of that in this country, and is being rapidly raised, as the firms using periodical kilns can not compete in the open markets with the better equipped firms.

The buildings housing the plants of Germany are mainly of a more substantial character than those found in any other country visited. Also, in the care taken in the preparation of the clay, and in the thoroughness of the study given the work, the Germans are in advance of the usual practice.

telling about another brick man's troubles and about having to go over every once in a while and help him out.

It seems that the brick man who had his troubles didn't keep a competent millwright on the job and had but little appreciation of the importance of substantial foundations and the careful bolting down of machines and the putting up of substantial bridge trees to carry shafting and things of that kind. As a result, every once in a while there would be a broken journal box, or this would happen, or that would happen, and this brick man would come over to see his neighbor, ask him to go see the damage, and advise him how to repair and get things in shape again.

Finally, his friends told him that what he needed in the beginning, and wouldn't be able to get along much longer without, was a good millwright who had knowledge enough about machinery to understand the importance of setting up machinery right in the first place and then keeping it in good condition.

There are some others in the same shape. Some who spend good money buying excellent machines and then fail to get the results they should from them, because they don't give the machines a chance to do what they can do. They are not properly bedded down and the shafting and pulleys used to drive them are not properly aligned or substantially framed up, so that the whole thing becomes in a little while a sort of rattle trap, and machines that started out with good promise are soon headed toward the junk pile, sur-

rounded with disappointment and dissatisfaction. Often, too, the operator himself, who is to blame for these conditions, fails to realize that it is his fault, and simply blames the machinery man for furnishing him with something that looked good and acted bad.

The first important point for consideration in any machinery or any equipment of machinery is foundation. Every press, every pan, every pulverizer, and every machine of any kind that requires much power to drive it, should be so thoroughly and carefully bedded on a substantial foundation that nothing short of an earthquake will disturb it.

Those that are down on or near the ground level should be put on independent foundations extending into the ground for a good piece. These foundations should be made of masonry, either concrete, stone or brick.

It is really a good place to use concrete. One can do a monolithic job in concrete and make the foundation in one big mass, and if it is extended into the ground below the frost line and to a firm bearing, machinery properly bedded on it and bolted down will stay in place and do its work.

If you have an inherent objection to concrete, use brick and follow the same idea. Get down into the ground below the frost line for a base and build up thoroughly substantial masonry foundations to bed your machines on. Not merely the heaviest machines, but it is worth while with even comparatively light machines. It prevents vibration and settling out of shape and is worth while generally.

This same idea of substantial foundations should be carried out around the building and under posts and framework supporting other machinery.

The better the foundation under the building itself, the less likely the building is to settle out of shape and disturb the alignment of machinery, and the same care as to foundations for footing under posts will secure the stability of line shafting and machinery arranged overhead, and it is a blamed sight cheaper to do all this carefully in the beginning than it is to do it indifferently and then have to go over it all and straighten it up and put the foundations under afterward. Not only that, but the careless doing of the work in the beginning leads to settling and this in turn does damage to shafting, journal boxes, and machinery generally, to say nothing of the poor service you get out of it.

With good foundations under the ground floor machines and under the building the balance is comparatively easy, but it should not be taken for granted or neglected. Every piece of shafting that is framed in, or every machine of any kind that is attached in any way to the building, should be put up there to stay, not merely tacked up with a few nails and make-shift arrangements of one kind and another, but a job made of it that a millwright can take some pride in. It takes a little longer to do this and may seem like taking a lot of pains for clayworking, which is more or less rough and dusty, but it is worth while.

It is the very roughness and severe nature of the duty the clayworking machinery has to perform that makes all the more important careful setting and maintaining of it. It lives a short enough life anyway, the wear and tear account being very excessive at times, and right here is where some people make a mistake. They think, what's the use to take extra pains with it since it won't last long anyway, and by this very attitude help wear it out quicker than it should wear out, and get poor service out of it while about it. This severe requirement should really encourage more careful setting, more substantial foundations, more care in setting and attaching pulleys, and everywhere the millwright should be on his mettle to do the best kind of job, one that will not only look well but will stand the test of hard service.

This is a subject that is of particular interest, for if this work is poorly done there will be breakdowns during the rush of the busy season that will cost more, twice over, than it should to do the work properly in the

beginning. So don't, whatever else you do, slight the work of putting in machines and putting your old machinery in order during the overhauling in the spring to get ready for the summer run.

OCEAN-GOING CLAY PRODUCTS.

TO THE average brick man this matter of the merchant marine, the Panama canal, export trade, coastwise shipping and all the talk thereabout, is mainly of interest because he is a prideful American citizen, has faith in the supremacy of the country and take delight in seeing it progress. He does not consider it as being of much direct interest or matter to the clayworking industry.

But it is of direct interest, and of more interest than one is likely to think—unless it happens to be one of those that have a personal interest in this trade—and that is the whyfore of the present discourse. That is why it is desired to talk a little about the big ditch, the increased coastwise trade it is going to build up, and the foreign trade, to the end that the clayworkers may find more of both interest and profit in the subject.

To begin with, it is a fact that we do export clay products, and other clay products than chinaware, too. During ten months of the present fiscal year—ten months ending with last April—we exported fire brick to the value of \$933,903, and other brick to the value of \$1,200,628, earthen and stoneware to the value of \$1,150,394; chinaware, \$123,359. Here we have more than two million dollars worth of brick in ten months, and there will be over a million dollars worth of the fire brick alone when the totals for the year come in. All the brick combined make about twice the total value of our exports in pottery.

That is not a very big item when we come to size up the clayworking industry, not enough on its face to make a mighty fuss over. Yet it is that much trade, which makes it significant in a way, and that is not all. Who can guess or get at the amount of coastwise traffic we have in brick now, or may have in the future with the building up of the coasting trade? That is the big kernel in the nut, the coastwise trade, up and down and around the country. Brick is a heavy product, one that comes in especially well for a ballasting load for vessels that have bulky cargoes of lighter material. It is heavy freight that makes possible the shipping of cheap light freight long distances.

We may well turn aside here and consider a specific example of this even in railway shipping. From such centers as St. Louis, such light articles as grape and market baskets are shipped as far west as California. The thing that makes it practical is the combining of light with heavy freight. Say the Simmons Hardware Company is shipping a carload. It is to their advantage to ship with it enough light woodenware to fill up the car and thus make the heavy carry the light without the excessive rate that would come from loading the light material alone and failing to get the minimum car weight.

Getting back to ocean-going traffic, ever since the days of early sailing vessels there has been such partiality to heavy freight for ballasting that at times the charges on stone have been but nominal. So here we have two chances to benefit from a greater merchant marine; one in the coastwise and the other in the export trade. It should help solve the freight problem, especially to and from coast points—and they are quite numerous.

And when the big ditch is completed, the brick man as well as others may ship from the Hudson around to Seattle (or vice versa), or to any other of the coast cities that may be in need of brick, or have a hankering for some of the particular color of face stock made in other parts of the country. And—but why continue the details? If you have read thus far your imagination should be able to picture the balance, and to bring home to you not only possibilities of the coastwise trade of the future, but also of the fact that there is a chance in the future of the export brick trade, as well as in pottery.

Written for THE CLAY-WORKER.

MAKING TERRA COTTA COLUMNS.

BY H. W. JOHNS.

Form and Working Methods.

SO MUCH IGNORANCE exists on the subject of faithfully constructing fluted columns and pilasters that architectural abortions are not infrequent throughout the country. How often, in the course of his peregrinations, does the experienced designer, with a keen eye for the sense of true architectural proportion, receive a severe jar to an ingrained perception of Art with a capital A, when such awful architectural eyesores assail his gaze as are often presented by a crippled entasis?

Too frequently sufficient attention has been denied the preparation of the working drawings and "rule of thumb" methods have been employed in the making of the shop details for the necessary plaster models for the various courses comprising the entire fluted column. As is generally the case, the individual courses when assembled together in their entirety produce anything but the correct entasis, as though a man devoid of soul had been entrusted with the work. Instead of a line of beauty loved by the ancient Greeks, who were almost slaves to ironclad "modules" and "parts," the inexperienced tyro presents to the observant eye an architectural abortion which jars to the foundation the disciple of aestheticism. This unpardonable offense against the feeling of beauty in objects as well as the principles of taste and art is even more noticeable in columns built up of timber, many of which adorn (?) residences, suburban and otherwise.

With the laudable object of minimizing, or altogether avoiding such errors in future, a careful examination of the subject of constructing fluted columns may prove of some service, not only to the junior draftsman, but probably also to those wielders of the pencil who have had more lengthy experience in the terra cotta field.

During the writer's fifteen years of study in drafting departments of terra cotta factories, both in Europe and the United States, some scores of those fluted columns were produced in terra cotta with unvarying fidelity to architectural detail. Time after time it was demonstrated conclusively that with ordinary care a fluted column may be manufactured in terra cotta with almost as accurate fitting properties as when constructed in stone, where the clay man's bugbear of unequal shrinkage is unknown. Furthermore, as terra cotta outdistances stone by reason of rapid adaptibility and cheapness when more than two columns of a kind are required, it behooves the up-to-date terra cotta manufacturer to adopt the best methods possible in his industry in obtaining the highest grade product.

The object of the present article is to describe the methods of obtaining the correct entasis for the average styles of columns commonly met with in potteries in the United States. At the outset a word on "form" may be opportune. All the world acknowledges that the ancient Greeks had no equals in their day for the development of the artistic eye. Even in these hustling days of the twentieth century one should not overlook pleasing effect, especially in the construction of a stately terra cotta column. The drawing of a straight line may be simple enough, but the drawing of a curved line requires much finer and subtler feeling than the drawing of a straight one; just as the toning down of a regularly graduated shade demands more delicate perception than the laying of one of an even depth. It does not demand very great refinement of eye to decide as to the correctness, or otherwise, of an attempt to copy a straight line; whether artistically educated or not, men generally are able to pronounce immediately as to the

accuracy or falsity of such copy. Not so with a curved line. Perhaps the greatest attainment of Giotto was his power of drawing a correct circle with one stroke of his pencil, and any one who has noticed the much greater difficulty which young students have in appreciating and expressing the flow of a curve than in drawing a direct line, will fully concur in these remarks. One can recall the drawing of a pupil representing an egg and an egg cup. The straight line efforts of this youth were above the average, and he received government prizes for them. But in the drawing under consideration—his latest one—he failed miserably. The errors in calculation, and the weakness and falsity of the lines, were something surprising, considering his proficiency in the first elementary department. The truth is, it needs much delicate artistic feeling, subtlety of perception, accurate powers of calculation, and great experience to draw even simple curves with anything like correctness.

Ellipses and circles, as they are the most beautiful of plane figures, so they are the crowning difficulties with which the ornamental draftsman has to deal in the manipulative portion of his art. The perfectly beautiful ornamentation of Greek construction, founded principally upon ellipses and an endless variety of foci and the less noble but still fine decoration of the Roman period—based mainly upon the circle—are instances of the extensive use of these figures. Prime importance consequently attaches to form. The fluted columns under consideration are, of course, all circular or plane and their flutes are one-centered.

Generally columns are of three types in respect to the entasis or profile of the shaft proper. Between the top member of the base molding and the lowest member of the cap, the shaft proper is divided into three equal parts. The first portion is perpendicular and the remaining two-thirds diminish according to strict architectural proportions. This is the most favored type of outline.

The second type of column has a swell from base to cap, the widest part being at a level of one-third the height above the base. In the Doric-Greek, with superincumbent entablature, the fluted column diminishes in a straight line from the base to the cap necking. The five orders of architecture consist of Tuscan, Doric, Ionic, Corinthian and Composite, and their proportions are all founded on a scale of modules and parts. Presuming that the width of the fluted shaft has been decided upon, half the diameter immediately above the base constitutes one module.

According to Vignola, a recognized authority on the architectural orders, the shaft of the Tuscan order rises twelve modules, the column being perfectly plain in sectional plan and perpendicular in first third of its height. The remaining eight modules taper from two modules to one module and seven parts at the necking.

In the Doric style the shaft has a height of fourteen modules, four and two-thirds being perpendicular and the remainder tapering to one module and eight parts. The sectional plan of the Doric column is circular with twenty flat flutes. The flute is struck from a series of equilateral triangles, the apices forming the centers.

In the Tuscan and Doric, the module is divided into twelve equal parts, but in the Ionic, Corinthian and Composite the module is subdivided into eighteenth parts.

The Ionic possesses a more stately column, which, when used in collaboration with an entablature, has a shaft of sixteen and one-third modules in height, one-third of the total height being perpendicular and the balance of the shaft tapering from two modules to thirty parts at the necking. The shadow cast is more emphatic in this class of column, for, instead of the flat chord flutes of the Doric, we have in the Ionic twenty-four true semi-circular flutes, with an intervening delicate nosing between each flute, excepting a third of a module in height.

The proportions in the Corinthian and Composite orders

TERRA-COTTA COLUMNS.

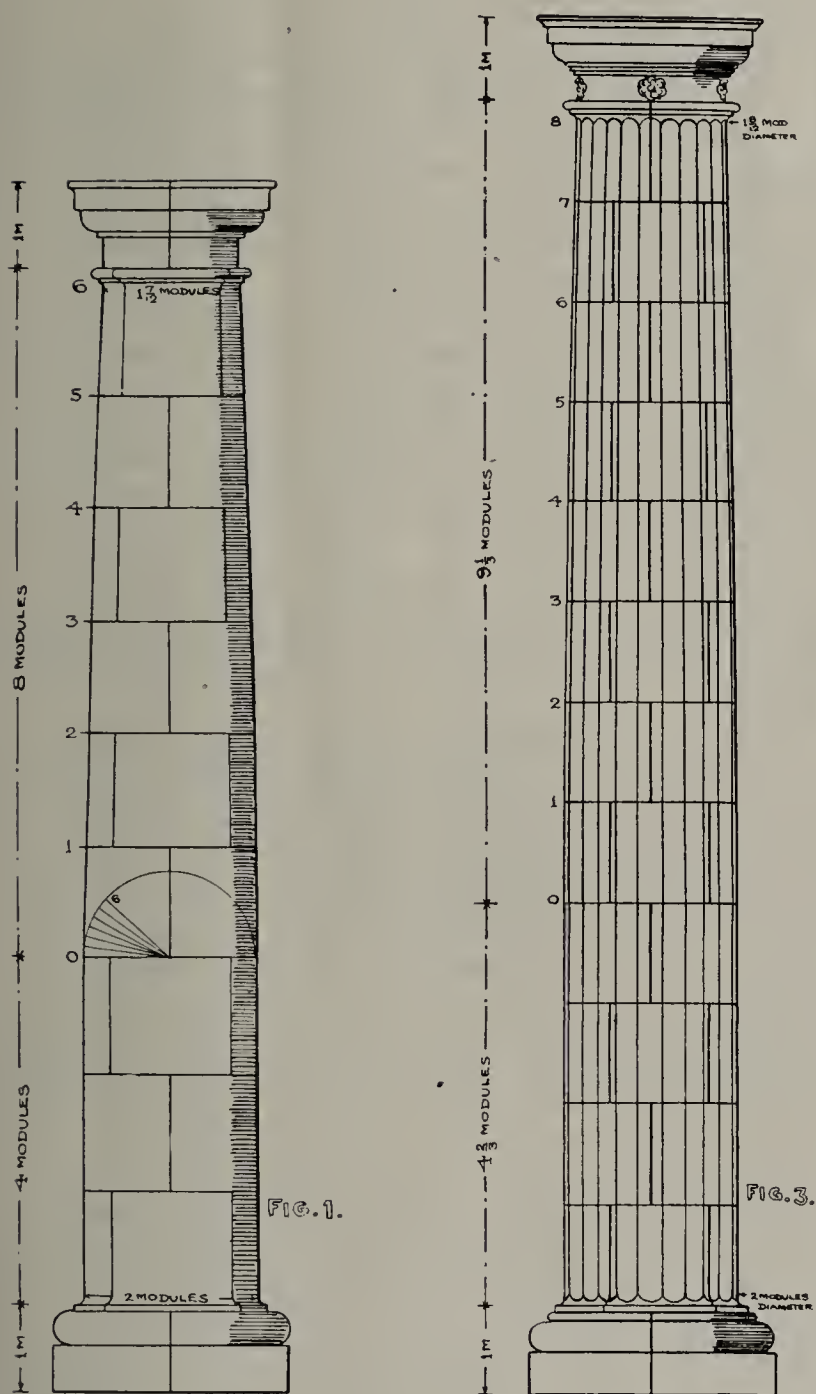
DRAWN BY H.W. JOHNS,
SAN FRANCISCO.

FIG. 1.

FIG. 3.

TUSCAN.

DORIC.

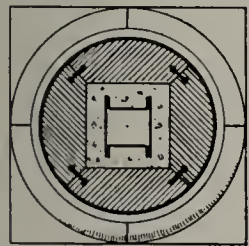


FIG. 2.

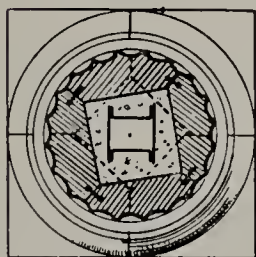


FIG. 4.

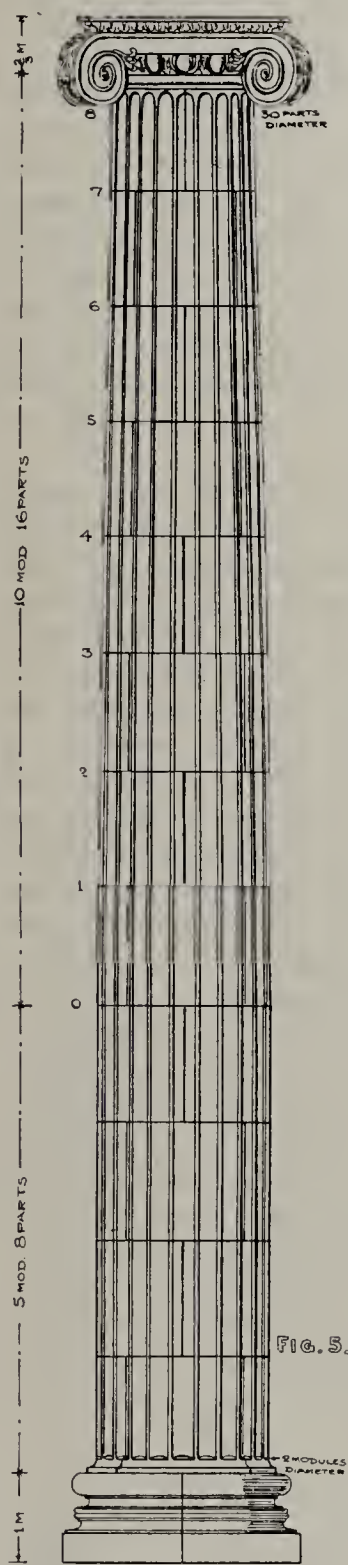


FIG. 5.

IONIC.

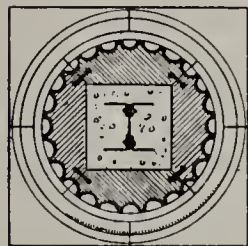


FIG. 6.

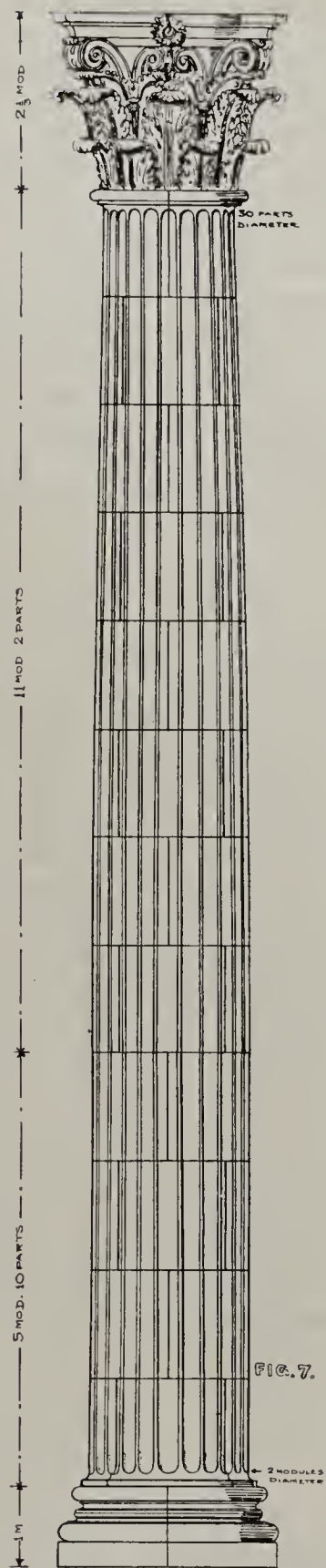


FIG. 7.

CORINTHIAN.

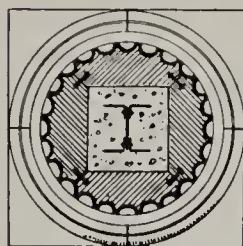
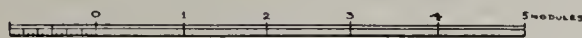


FIG. 8.



for the shafting are the same as mentioned for the Ionic, the distinctive features being the peculiarities of the bases and ornate capitals, as well as the variation in the starting of the flutes directly over the base.

According to Vignola, the Ionic, Corinthian and Composite shafts should swell from base to cap, the widest diameter

being at a point one-third up, but, in at least 90 per cent of the instances where Ionic, Corinthian or Composite columns are employed, the modern architect stipulates the first third to be perpendicular as being more pleasing to the eye than the full swell shaft, which many argue offers an appearance of bulkiness and exaggerated proportion, resembling a

wooden post shivering asunder at the center through overloading.

At a glance the Tuscan and Doric profile greets the eye with a pleasing dignity and solidity without equal and is consequently the most favored type of column outline. Figure 1 depicts the Tuscan column with cap and base. One-third of the shaft is perpendicular and the remaining portion diminishes from two modules to one and seven-twelfths modules at the necking. To obtain the true entasis a semi-circle is drawn with a radius of one module. Measuring from the center line, the diameter at the necking is marked on the semi-circle at the point 6. The intervening space between 6 and 0 on the horizontal line is then divided into six equal parts and the points projected to levels, all rising equally and indicated at 1, 2, 3, 4, 5. Through the several points the curve of the entasis is drawn by the use of a bender. It will be observed that as the points recede towards the center line, the pitch of the separate courses becomes sharper and consequently the angles all vary at the bed lines. This is the fundamental point to be memorized in producing the correct entasis.

In the Tuscan, unless the shaft be very wide, each course may be jointed into four pieces, each securely anchored together in situ (Figure 2), and additional anchor holes are usually provided for securing the terra cotta to the steel column in the core. Figure 14 is a working drawing of a Tuscan single course, giving top and bottom bed plans.

In Figure 3 the strict Doric base, shaft and cap are represented. In this case the entasis portion may be obtained similarly to that of the Tuscan order, excepting that the shaft from the commencement of tapering is divided into eight parts and accordingly the semi-circle is divided also into eight from the point where the necking width cuts the semi-circle to the horizontal line. The various points of the necking are then projected and the bender again requisitioned to complete the correct profile for the entasis.

Reference to the plan in Figure 4 indicates the mode of joining usually adopted for the Doric and Doric-Greek. Each course is cut into four repeating pieces and the alternate course represented by dotted lines. The only disadvantage constructionally here is that the bond does not "break" exactly over the center of the course below, but this is unavoidable, as at that point two flutes meet at a sharp point. Inequalities in shrinkage are easily corrected by easing at the joints when the column is being assembled in the fitting room after the process of burning has been completed.

(To be continued.)

PROGRESS OF POTTERY.

The domestic production of pottery in 1911 was \$34,518,560, and the consumption for the same period was \$43,731,244, or nearly nine and one-fourth million dollars less than the consumption. This was more than made up for by imports running above ten and one-half million. The year 1911 marked the greatest value on record for home made pottery, but it looks like there is more to come.

A lot of this increase in our home pottery business is rightly attributed to sanitary ware and to porcelain electrical supplies, but it is not by any means the only thing that increased. The fact of the matter is chinaware showed a greater percentage of increase than sanitary ware, and the value of chinaware for 1911 was the highest ever recorded. and what is more and better it looks like the record is to be broken again. Ohio produced over 42 per cent. of the pottery, leading all other states, and most of the product was white ware. New Jersey, the second state in importance, produced nearly 25 per cent. of the total, and the other leading states were, in the order named, West Virginia, New York and Pennsylvania.



LAND DRAINAGE.

A Large Drainage System.

THE Harrison-Pottawattamie counties drainage district is one of the largest in the State of Iowa. The ditches embraced in the district specifications are all open ditch work, but are to be supplemented by private drainage work, much or all of which will be tile drains. The district embraces about 58,000 acres, of which probably seventy per cent will need tile drainage.

Drainage bonds have been sold to the amount of \$235,000, the estimates indicating that that amount of money would be needed. When the contracts were completed it was found that about \$15,000 had been saved from the amount realized from the sale of the bonds. This amount was used in betterments such as dressing sides of levees, putting in inlets for laterals and the construction of short lateral connections.

There are 28 miles of open ditch in this district. The ditches range in depth from 7 to 16 feet, with an average of about 11 feet, and width of bottoms ranges from 16 to 50 feet.

Three steam dredges are employed on this work. Two of the machines were of the 1½-yard capacity, while the third carried a dipper of 2½ cubic yards capacity. The smaller machines excavated about 40,000 to 45,000 yards and the large machine put out about 75,000 yards per month. The smaller machines deposited the dirt about 15 feet from the bank of the ditch. The larger machine made a berm of 20 to 25 feet in width between the ditch and the spoil bank.

The work of improving the Boyer river is now being extended to the north line of Harrison county, with a total of about 20 miles of ditches to be added to the above, making a grand total of about 48 miles of open ditches.

The estimated cost of the extension of the Boyer river improvement is \$183,000. The work consists of straightening and improving the river with the idea of protecting adjacent lands from overflow by lowering the height to which the flood waters will rise.

In addition to this a subdrainage district has been established. This district has about 7 miles of open ditch besides a large amount of tile work, reclaiming about 15,000 acres more at a cost of \$45,000, making the total number of acres reclaimed about 73,000. These are all in one drainage system located on the east side of the Missouri river. The town of Missouri Valley is about the center of the drainage district. Mr. Seth Dean, of Glenwood, Iowa, is the engineer who designed and has charge of the work. Mr. Dean has about 110 miles of open ditch dredge work under his care in different districts in Harrison, Mills, Pottawattamie and Fremont counties and is in the front rank of drainage engineers. He was chosen chairman of the recent State drainage convention and made many new friends by his pleasant administration.

"The Central States Contract Reporter" for May 1 was a special Iowa drainage number. The first article gives an outline on drainage investigations at the engineering experiment station, Iowa State College, at Ames. This work is being performed by investigations and experimental work under the direct supervision of the station and also through

the co-operation of drainage engineers who make investigations and furnish reports as requested by the station.

The Keokuk dam, which is being built at Keokuk, Iowa, by the Mississippi River Power Company, is the subject of the second article. This great engineering enterprise is second only to the Panama canal in proportions and importance and yet the work has been carried on so quietly that even the newspapers hardly knew of it, yet when completed next year it will be the greatest power dam in the world and will energize the largest single electric installation on earth. The plant will develop 250,000 kilowatts of power, approximately 300,000 horsepower. The promoters and builders of the huge water power plant declare that it will shift the manufacturing center of the United States and change the map of industrialism in this country.

"Reclamation of River Bottom Lands" is the title of the third article. In this, John J. Harman, of the Harman Engineering Company, of Peoria, Ill., describes the Louisa-Des Moines county drainage work. This work consists of the reclamation of Mississippi bottom lands subject to overflow. The Louisa-Des Moines drainage district No. 4 and the Des Moines county drainage district No. 1 form a contiguous body of land 24 miles long, having an average width of $3\frac{1}{4}$ miles and containing approximately 45,000 acres of reclaimed land. This land is protected from the high water of the Mississippi river by a government levee, construction work on which was started about fifteen years ago and completed in 1898. This partial protection encouraged the farmers in cultivating the bottom lands, but for the most part no satisfactory results were obtained until pumping plants were installed to provide the necessary drainage when the river was high. Drainage districts were organized, and an adequate system of drains constructed, leading to a pumping station. As an evidence of the value of these improvements it will be sufficient to say that lands which some fifteen or twenty years ago were practically sold for taxes, and within ten years could have been bought for \$10 to \$30 per acre, are now ranging from \$60 to \$175 per acre.

"The Year's Drainage Work in Iowa" is the title of a series of reports from thirty counties showing what important work is being done and who is doing it. These reports furnish interesting reading, as they give the contract price of many large drains, the size, length and amount of excavation, together with the names of the drainage engineers and contractors.

Boone county, Iowa, ditch No. 71, which contemplates the use of tile from 44-inch down, is likely to be tied up in the courts perhaps for several months to come. The estimated cost of this drainage district ditch is \$57,303. The Chicago & Northwestern railway crosses this ditch and its branches four times. In adjustment of claims for damages the railway company was not allowed the amount requested and have started proceedings in the courts against the establishment of the drain, also an appeal against the amount allowed for damages.

VALUE OF SWAMP DRAINAGE DEMONSTRATED.

The great value of swamp drainage has been demonstrated in thousands of cases. Private enterprise and capital have already drained and developed many thousands of acres of swamp lands in the United States, and the results have been wonderful. I have seen worthless swamps in Iowa and Missouri made productive and very valuable in one year's time by drainage. I have seen land values leap from a few dollars per acre to over one hundred dollars per acre in a few months as the result of drainage.—Extract from an article in "The Gulf States Farmer," by Ed. L. Roth, member Executive Committee, National Drainage Congress.

One of the best things the good roads builders do is when they face the roads with paving brick.

Written for THE CLAY-WORKER.

CLAY NEWS FROM ILLINOIS.



CLAY INDUSTRY has been given recognition in two branches of the Illinois state government. The State Geological Survey, at its meeting at the close of July, decided upon a survey, as the result of which will be issued engineering maps for 625 square miles, which areas are promising for the production of coal, oil and clay. In his annual report, A. R. Crook, Ph. D., curator of the Illinois State Natural History, repeats his plea for a display of building materials as quoted some time ago in THE CLAY-WORKER. He outlines the plan upon which he and other prominent men of Illinois have been working, namely for a central museum building. One room in this, tentatively 40 x 60, would be devoted to a display of economic geology. He cites especially the \$12,000,000 output of clay, which has been unheralded, and, worse yet, no steps taken by the Commonwealth to increase it.

Contract for the tile in the Troy township ditch, near Covington, Ind., has been let to the National Drain Tile Company, of Terre Haute, Ind., for \$6,000.

The advance census bulletin of W. M. Steuart, chief statistician for manufacturers, shows that in 1910, in Illinois, there were 340 brick and tile plants, employing 7,347 persons. Of these 384 were proprietors and firm members, 242 salaried officers, superintendents and managers, 117 male clerks, 30 female clerks, and 6,574 classed as wage earners. The maximum month was June, when 8,302 wage earners were employed, and the minimum month in January, when 3,795 were at work. The plants are capable of developing 36,013 primary horse-power. A capital of \$18,495,247 is represented, while the total expenses are \$8,285,610. Of these, \$6,686,256 goes for material, exclusive of fuel and rent of power. The value of the products are \$9,765,051. Value of \$7,273,693 was added by manufacture.

Business men on Adams street, in Springfield, have filed a protest against creosote block pavement, preferring brick.

W. R. Guyer, for nine years manager of the Abingdon Paving Brick and Tile Company, of Abingdon, has sold his stock to the other members and resigned his position. E. R. Sturtevant, of Monmouth, will succeed him as manager.

The contract for two of the four brick roads voted by cities of Paris township, Edgar county, was let to Allen J. Parish, of Paris, for \$27,400.

The Livingston County Board of Supervisors changed its plan for constructing a new barn and silo at the county farm and will use vitrified brick.

The United States District Court, at Springfield, has released the Western Stoneware Company from bankruptcy, and smooth operation is believed assured for the company. The concern operates factories at Macomb, White Hall and Monmouth.

The Collinsville Brick Company, of Collinsville, has been incorporated with a capital stock of \$2,400, to manufacture and deal in brick and other clay products. The incorporators are Thomas W. Sauer, Rosie Sauer and Maude E. Messinger.

The Jersey Clay Products Company, of Newbern, has been incorporated with capital stock of \$20,000, to manufacture and deal in brick and other clay products. The incorporators are Walter P. Grath, Adeline Grath and Harry J. Krueger.

The Advance Terre Cotta Company, of Clearing, has been incorporated with a capital stock of \$500,000, to manufacture and deal in terra cotta and other clay products. The incorporators are Walter B. Rix, Stanley K. Gage and G. A. Johnson.

The Northwestern Clay Manufacturing Company, of Richland, Center township, has increased its capital stock from \$150,000 to \$650,000.

The Illinois Clay Products Company, of Chicago, has increased its capital stock from \$5,000 to \$250,000.

S. P. RING.



By W. G. WORCESTER.

Tempering.

THE TERM tempering, as used in the clay industry, refers to the addition of water to a clay in order to prepare it for the forming operations. For instance, in dry press work only 6 or 8 per cent. is needed, while for stiff mud products 15 to 25 per cent. may be needed, and again for casting work much larger quantities are required. In each instance it is a matter of tempering, though in ordinary practice we think of the term as only applying to the stiff and soft mud manufacture.

Strictly speaking, the term tempering means more than the mere adding of water to a clay ware: it covers in addition the proper blending and distribution of the water among the clay grains, so that each is surrounded by a film of water, thus enabling the clay to become mobile and workable.

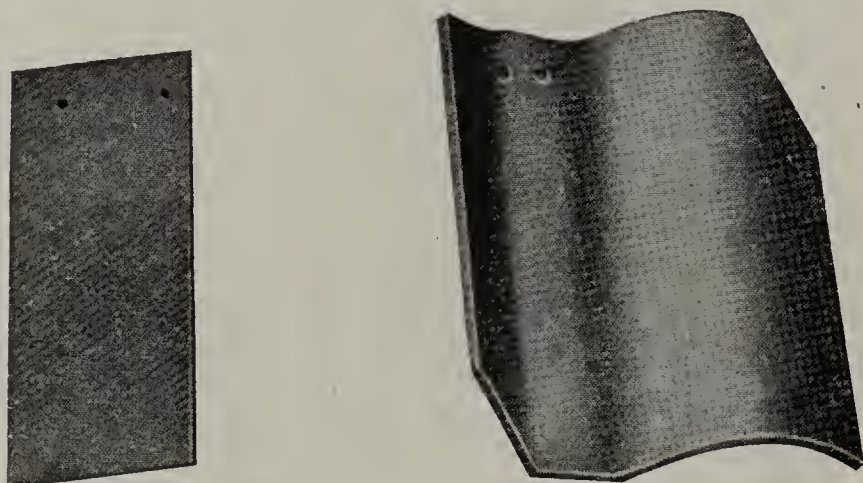


Fig. 1—Shingle and Auger Made Spanish Tile.

The ease with which some clays will take up water and become plastic varies widely. The chief causes of these variations are physical and are not due wholly to the clay substance content, as was formerly believed. We find clays which have been greatly affected by heat and pressure during the past ages to such an extent that it is practically impossible to develop anything but a very low degree of plasticity. The slates are common examples of this. They are mineralogically exactly the same as shales, but having lost a part or all of their chemically combined water, they are non-plastic.

On the other hand, there are soft clays and young shales which break down to a plastic mass very easily. Between these soft clays and the hard slates there are all degrees of consolidations, so that it is quite plain that the work necessary to bring these extremes to the same physical condition of plasticity is sure to vary widely in amount and kind. In some cases it will only require the stirring of the clay with water to develop plasticity, while in other cases extreme grinding in the presence of water will be found necessary.

At present there are but two general machines used for the tempering of roofing tile clays: they are the pug mills and wet pans.

Pug Mills.

The pug mill is the machine which has been most widely used by the trade. Its wide use has not resulted from the character of the work done, but from its low first cost, rela-

tively low operating expense, and capacity. There are two general kinds of pug mills, the single and double shaft types. In the former there is but a single shaft of mixing blades, which propel the clay forward in the barrel of the mill. The other type, or double shaft mill, as the name implies, consists of two shafts or sets of blades. These shafts are placed in the same plane and near enough together to permit the blades to intermesh about one-third their length, thus in operation the clay is kneaded or worked together by the action of the two sets of blades, which revolve inwardly or towards each other.

In the nature of the case, constructed as it is, the pug mill is a mixing machine only; its grinding powers are extremely low, if any. With a long pugging chamber many clays leave the machine in a much finer state than when put in; this fineness, though, has resulted more from a moldering of the clay grains than from any direct action of the mill.

On hard, granular clays the work accomplished by a pug mill is of an extremely low grade and will not as a rule suffice for roofing tile manufacture. If the pug mill is used on such clays it should be supplemented by using hot water instead of cold for the tempering, and then storing the pugged clay in bins or cellars to age for a period of days or weeks.

While, as stated before, the pug mill will not produce much plasticity from difficult clays, the roofing tile industry has made extensive use of them. During 1908 there were nine of the fourteen United States roofing tile plants using pug

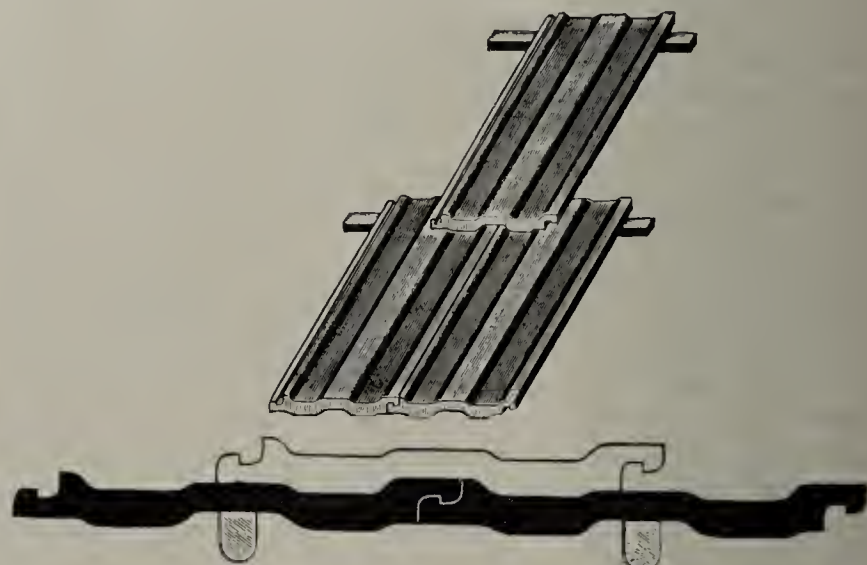


Fig. 2—Auger Made Semi-Interlocking Tile.

mills in their plants, though with far from equal success. Some that were using single shaft mills would have done better with double shaft mills, though in nearly every single case better ware with less loss would have resulted had they all aged their clay after pugging.

Wet Pans.

The wet pan is nearly the counterpart of a dry pan except that the bottom of the pan is solid instead of being made up of screen plates. Their action on a clay is the same, that of grinding. It is in this respect that for the majority of clays the wet pan is superior to the pug mill. With a wet pan it is possible to bring out the most latent plasticity of a consolidated clay.

The wet pan, though, has some objectionable features, such as an intermittent load, the feed to the forming machinery is irregular, it can not be emptied instantly, so that part of the charge is tempered more than the rest; it consumes much power and is somewhat more expensive than a pug mill. Even with these defects, there are cases where the wet pan should be used, though for the average shale or clay a double shaft pug mill will be found the most satisfactory in all respects.

While with the wet pan it is not so essential to age or store the clay as with pug mill treatment, there are clays where aging after wet panning would prove beneficial. In fact, the

writer believes that all shales and most clays should be thoroughly aged before forming into roofing tiles, no matter what their tempering treatment may be.

The Forming of the Tiles.

There are two general methods of forming roofing tiles; first, by flowing through dies, and, second, by pressing either by hand or machinery. The style of tile to be manufactured will determine which of the two methods must be employed.

By the flow die method it is of course impossible to produce tiles with end locks. This method is restricted to tiles of straight lateral lines like the plain shingle tile or the auger-made Spanish.

In some of the old world countries considerable attention has been paid to the production of semi-interlocking tiles by the flow die method.

Figure 2 is a common example of the type. In this country very little has been done along the same lines. The trade calls for a full interlocking tile where a tile of this type is wanted.

As to the type or style of machine used to produce flow die ware, it can be said that over 90 per cent. of the tiles made in the United States by the flow die method are produced on auger machines. The balance are made by plunger machines. This machine, though, has nearly dropped out of use for roofing tiles, and for many reasons its use is not to be recommended for tile manufacture. The auger machine is the machine ideal for flow die roofing tiles, though it is essential that the auger and die or mouthpiece be properly designed for a given clay. In most cases the double wing auger is better than a single wing, in so far that it will produce a more even flow of the clay. For thin ware like tiles this point is very important, otherwise the tiles will twist or warp while drying.

As to capacity of the auger machine working on roofing tiles, it can be said that it gives the greatest output of any style of machinery for the purpose. Working on Spanish tile, it is not uncommon to run as high as 10,000 per day. In one plant as high as 12,000 tiles have been run per day on a single auger machine. In other words, the daily output was approximately 65 squares per day. Working on the same tile a plunger machine with the same labor force would have produced only 25 to 30 squares. On flat shingle tiles an auger machine should produce from 10,000 to 12,000 tiles per day, or, in other words, from 20 to 30 squares, which is about one-half the squarage of Spanish tile on the same machine, the difference being due to the size of the two tiles.

In the past the mistake has been made of using small, light auger machines for roofing tile manufacture. The small machines are, however, being rapidly replaced by the largest and strongest brick machines. In fact, for Spanish tiles an auger machine capable of producing 60,000 to 80,000 brick per day is none too large. Strength and capacity are the desired qualities to be sought in purchasing an auger machine for tile work.

(To be continued.)

IMPORTANT TEST MADE IN PITTSBURG.

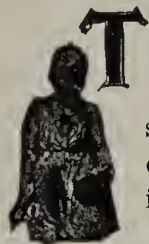
The International Society for Testing Materials came as far west as Pittsburg following their meeting in New York city, September 2 to 7, inclusive, and were in Pittsburg on September 12. At that time a test was made of a vitrified brick pier built under the new testing machine at the United States Bureau of Standards, Arsenal building, Pittsburg.

The brick pier was four by four feet and about six feet high. As a preliminary pressure upon this pier the machine was allowed to come down upon it with a weight of 4,737,600 pounds. The testing machine has a compression capacity of 10,000,000 pounds. We believe that this test will impress the engineering world of the value of vitrified

brick, not only as a street paving material, but for uses in heavy structural work. Moving pictures were taken and the publicity given to the test will be of the greatest value to all brickmakers, not only in this country, but throughout the world.

Written for THE CLAY-WORKER.

THE BRICK SITUATION IN ST. LOUIS.



THE BRICK MANUFACTURING INDUSTRY has been quite good recently owing to the extensive amount of building now in progress. It is considerably better than usual, although it is a presidential year and as a rule there is not much building done during that period.

The prospects are also good for a big fall trade being done. While there are not quite as many residences being erected this summer, there are a great many business buildings, such as stores, office buildings and manufacturing plants. There are also quite a number being added to and rebuilt.

Prices on nearly all classes of brick have gone up recently. The average advance has been about a dollar a thousand. This is especially true with common building and face brick, which has a big call.

The report of the building commissioner for August, issued on the first of September, shows an increase of \$40,432 in the estimated cost of buildings for which permits were issued in August of last year. With the alterations the total for August, 1912, is \$1,671,951, as compared with \$1,631,519 for August, 1911.

There were 474 permits taken out for new buildings, the total estimated cost of which was \$1,539,850, leaving a total of \$132,101 as the estimate for 300 alterations.

Warehouse property was the most valuable for which permits were issued. Six permits for warehouses were issued, to cost \$398,650. The most prominent is that at 616 and 618 St. Charles street, which will be the power plant for the Railway Exchange building and warehouse for the Famous and Barr store. The cost of this building alone is estimated at \$350,000.

Among the important permits was one for a theatre at Grand avenue and Lucas avenue, to cost \$60,000; a permit for an addition to a shoe factory to cost \$50,000, and a permit for a new church to cost \$50,000.

Permits were issued for five manufactories and workshops to cost \$175,000.

Architects and builders are taking keen interest in the new residence being erected for Jack L. Green, president of the Laclede-Christy Clay Products Company, at 12 Kingsbury place, a special permit being needed for the construction. The building is of reinforced concrete and hollow building tile; the latter being a product of the Laclede-Christy Company. Drain pipe rings, manufactured by the Laclede-Christy Company, will be used as an ornament in the parapet wall at the front of the house. The surfacing will be of rough cast plaster, laid directly on the building tile. The entire structure will be fireproof, only the picture mouldings and the doors being of wood. The floors will be of paving tile, laid on floor tile.

The architect of the building has introduced other novelties. The structure is two stories high in front and four stories in the rear. One story in the rear is sunk below the first floor level, supplying a garage, with a nice driveway leading to it. The fourth floor is a sleeping porch, entirely open at the sides, except for screens, and served by a bathroom adjoining.

The servants' quarters are all on the parlor floor and include two sleeping rooms with bath between, a servants' parlor and dining room. The other apartments on the first floor are living room, dining room, main hall, library and sun room. On the second floor are five bed rooms and four bath rooms.

The cost of the residence will be \$35,000 and the structure will be finished by January 1, 1913.

The Hydraulic Press Brick Company, a couple of weeks

ago, at Clayton, the county seat of St. Louis County, filed a mortgage on all its property in St. Louis and St. Louis County, as security for an issue of bonds aggregating \$1,500,000. The bonds were authorized at a meeting of its Board of Directors a week previous and the proceeds are to go to retire a former issue. A deed of trust on about sixty parcels of land in St. Louis and St. Louis County, valued at approximately \$1,850,000, is given by the brick company to secure the mortgage to the Mercantile Trust Company of St. Louis. The bonds are to be of \$500 denomination, at 5 per cent. interest, payable February 1 and August 1.

The contract for improving Forest boulevard from Verlie avenue to Kings highway, East St. Louis, was let recently. Vitriified brick blocks will be used for the paving. The work will be finished by December 15. It will cost \$19,212.25. The distance to be paved is about half a mile. Work started September 1.

A committee composed of city officials and citizens of Poplar Bluff, Mo., which inspected paving brick for the streets of Poplar Bluff, at Murphysboro, Ill., returned to this city recently and immediately left for Poplar Bluff. The city of Poplar Bluff recently let a \$96,000 contract for the paving of eleven streets, totaling twenty-eight blocks in the business section, with brick. The committee was appointed to inspect the brick to be used, which will be furnished by a Murphysboro factory.

The Anthony Ittner Brick Company report a nice trade, both on the east side of the river, where their plants are located, and also in St. Louis, where they have a large trade.

The Superior Brick Company, which has been getting ready for some time to manufacture paving brick, has started to manufacture. The company expects to have a big demand for the product, as it has quite a number of advance orders.

A SAINT.

ONE HUNDRED BUNGALOWS.

THE ABOVE is the title of a book issued recently by the Building Brick Association of America, which, if used by the individual clayworker in his local territory, will reap a golden harvest.

The book is a splendid agent for bigger business and wider publicity. The one hundred designs of attractive bungalows are sure to please the prospective builder, and you will succeed in turning an order for a frame house into one of brick, if you use this book in the way meant for it.

Here are a few of the facts you should carefully consider:

Last year there were over 70,000 wooden houses built in this country. If the outer walls alone of these houses had been of brick, the quantity of face brick required would have been over one billion, and the quantity of common brick required would have been over two billions. This would have increased the face brick business to nearly three times its present value, and would have increased the common brick business over 20 per cent.

While it is impossible at present to displace wood entirely, rapid progress in this direction is being made. All through the South brick houses are going up in large numbers. Frame is getting to be a back number down there.

The immense increase in business which would result from the displacement of frame is a sufficient incentive to arouse every brickmaker to join in this battle.

You have the means of displacing frame houses with brick at your finger tips. The average builder needs to be educated as to the merits of your product. Here is a medium for an educational campaign that will cost but little when the larger returns are fully realized.

Send copies of this splendid book, "One Hundred Bungalows," to prospective home builders, and you will reap a harvest you little anticipated at this time. You will do a great good work for the clay trade in your territory. See advertisement on page 341 of this issue.

PROSPECTUS OF THE SECOND CLAY SHOW.

A Beautiful Booklet Sent to the Clayworkers of the Land, Giving Information Relative to the Next Clay Show.

THE CLAY PRODUCTS EXPOSITION COMPANY has issued a most attractive prospectus of the Clay Products Exposition to be held in the Coliseum at Chicago, Ill., February 26 to March 8, 1913. If you have not received a copy, write to Frank L. Hopley, secretary of the Clay Products Exposition Company, 815 Chamber of Commerce Building, Chicago, for it is his desire that every clayworker in the United States and Canada be fully informed as to the placing of exhibits, the benefits thereof, etc.

That the second clay products exhibition will be a great success there is little doubt. The show last year was a wonderful exposition, the greatest exhibition of building material ever held in Chicago, and was of great importance to the clay trade. The same management is arranging this second show, and with the experience of last year to work upon, we are assured that the next clay show will be doubly more important and beneficial than the last.

The prospectus is the first appeal to the clayworkers of



Cover of Prospectus for Clay Show.

the land by the exposition company's officials, and gives all necessary information.

The cover of the prospectus is beautiful, consisting of a gray panel, surrounding a three-colored view of the \$3,000 bungalow, the main feature of last year's clay show. Forty-two views of the exhibits made at the last exposition are the chief illustrations of this year's prospectus.

The main object of these clay shows is to extend the popularity and use of clay products. Those who attended the clay show last year in Chicago know that its purpose was fulfilled; that it far surpassed the rosiest prophecies of the officials, and surprised the citizens of Chicago, who are accustomed to seeing large expositions of the various trades.

The clay show was well attended. Nearly 150,000 people, a large number of whom were interested in clay products and were actual buyers, spent considerable time inspecting the exhibits.

The clay show to be held next year at the Coliseum will without doubt far surpass the first show, which was just a starter, and gave the people who visited the various exhibits a hint as to the great possibilities of burned clay products.

A complete showing of clay products will be made this

next year, including all kinds of brick, terra cotta, roofing tile, encaustic tile, sanitary ware, sewer pipe, wall coping, pottery, faience, garden ornaments, stoneware, chimneys, fireproofing, hollow block conduits, insulators, dickey birds, turpentine cups, acid tanks, runner brick, antique china, imported china, model home, lamps, marbles, tobacco pipes, clay novelties, crucibles, tableware, bathroom equipments, washboards, flower pots, terra cotta lumber, garden walls, and walls showing entrance to estates and residences, laundry tubs, silos, etc.

This year the clay show will extend over a period of three weeks, while last year only five days were allowed. These three weeks will be of great value to you if you place an attractive display in the Coliseum. Write to Mr. Frank L. Hopley, 815 Chamber of Commerce Building, Chicago, for detailed information, secure your space, and make a careful and supreme effort to place an exhibit that will rival all others in uniqueness, beauty and adaptability. It is well worth while. Give this your most earnest consideration.

BRICK NEWS FROM TIDEWATER, VA.

THE SUFFOLK CLAY COMPANY has changed its hot air dryer to a steam dryer and added three more tracks, making eleven tracks in all, increasing their capacity to 40,000 per day.

Mr. Henry Crocker, president and general manager of the Virginia Brick Company, of Suffolk, Va., died Sunday, August 4, after being sick only three days. Heart trouble was the cause of his sudden death. He was thirty-nine years old and leaves a wife and two children.

The city of Suffolk, Va., is having two thousand yards of brick streets put down. Work commenced on August 5th. They are using the Carlisle brick from Portsmouth, Ohio. Mr. R. H. Brinkley, C. E., of Suffolk, has charge of the work which is being done by the city and county chain gang. The brick are being laid on five-inch concrete base with sand cushion and pitch filler.

Mr. Tom Furgason, who has been in the brick business in Norfolk for a great many years, has bought the W. R. Mayo & Sons' brick plant, at Sturgeon Point, Va., on James River. After improving the plant he has it running to its full capacity.

The Eureka Brick Company, of Norfolk, Va., operating a large plant at Lynhaven, Va., has taken over the plant of the Norfolk Brick Company, at Mundon Point, giving them a capacity of one hundred thousand brick per day.

The West End Brick Company, of Suffolk, Va., is no more. This plant was sold at trustee's sale on July 16th for \$7,600. The plant has been torn down and moved away.

E. E. Titus, Petersburg, Va., owner of the Waverly Brick Company, will install a small size steam shovel to dig clay at this plant. He is in the market for a second-hand shovel of small capacity.

Mr. G. W. Truitt has moved into his new \$100,000 mansion in Suffolk, Va. This building, with pergolas, barn, garage and carriage barn, is all faced with the Fiske tapestry brick, including a handsome tapestry brick fence around the large lot, making a beautiful soft-tone finish. This is one of the finest mansions in the south.

The new million dollar union depot of the N. & W. and Virginian and N. & S. railways in Norfolk has been completed, and the trains are now running into it. This is a very handsome ten-story building, faced with the Columbus velvet brick, furnished through the agency of the Southern Building Material Company, of Norfolk.

The steel frame for the Royster skyscraper, corner Granby and City Hall avenue, Norfolk, is all in place. This building will be fourteen stories high and built of brick and fireproofing and to be strictly fireproof.

JACOB.

GET RIGHT ON THE GOOD ROADS QUESTION.

[Address of R. C. Penfield, president of the American Clay Machinery Co., Bucyrus, Ohio. Delivered before the Fifth National Good Roads Congress at New Orleans May 15 to 19.]

THERE IS NO LONGER any question as to the United States needing good roads. If the people want them and insist upon them, they will get them.

Few people know that in the one item of hauling the wheat crop of this country we are losing annually \$9,000,000 because of the bad roads.

Think of the good roads that nine million annual loss would build.

And there are other places where we are losing larger sums because of bad roads.

Government statistics, which can be relied upon, show that the annual road repair bill of the United States runs into the billions of dollars, and even then we do not have "good roads." This annual repair bill is frightful. It is apparent that it is practically thrown away, because if roads were made proof against repairs we would save the larger part of this vast amount.

Figures which may be relied upon have been compiled to show that the annual amount wasted on repairing roads in the United States would in five years be sufficient to build every road in the country of such a quality as would mean repair proof. Think of what this means. By stopping the wasted repair drain for five years we would get roads which would need no repairs in an ordinary lifetime, and the saving for the balance of the life of the road would be clear gain and could be saved to the taxpayer.

A loss of \$9,000,000 annually in the hauling of the Nation's wheat crop affects everyone in the country because wheat is one article used generally. One million dollars' loss for every 10,000,000 inhabitants of the country is in itself stupendous, but when it is figured that other losses because of these bad roads also affect all the people, the total loss becomes a national calamity which is annually being tolerated because of a lack of knowledge and interest and a lack of concerted action to stop the loss.

Good roads mean economy because they lessen the waste. This waste covers loss of time, loss of horses, harness, and conveyances. Good roads also mean that the load can be practically doubled at no extra cost.

Good roads shorten the time and conserve the convenience of both coming and going.

Good roads are ready at all times, especially when they are needed most—in bad weather.

Good roads will reduce the cost of living because the products of the country—everything we eat and wear—must now be marketed over the public highways. Statistics show that it is costing from 23 cents to 27 cents per ton per mile to haul the products of the farms. This can be cut to 7 cents per ton per mile if good roads are the rule.

These few facts will show you that good roads are desirable. More, they are a necessity, as no country can stand for long this annual throwing away of millions paid as a premium to careless indifference.

Having determined the advisability of good roads, it becomes a question as to the type of roads best adapted for our use.

The Government having shown that the annual repair cost of roads is up in the millions, it seems only ordinary wisdom to seek out that type of road which will need the least repairs.

It will pay handsomely and prove a wise economy to build that type of road which will require the least repairs.

A few years ago, before the auto truck, traction engine, and automobile were factors in road destruction, there were

several types of roads which could be counted as "good roads," but we find ourselves face to face with new conditions which make new requirements necessary. For years we passed legislation to hold down the weight of the load and to govern the width of tires in order to save our roads. This was before the traction engine, auto truck, and automobile became factors. The people of the United States are the most progressive in the world, and any legislation to restrict development and enterprise has always been unpopular. To prevent a man from exercising his desire to haul a bigger load, to save a trip by means of a larger haul, is decidedly un-American. Now that the heavier traffic on the roads makes it absolutely necessary to consider better road construction it seems folly to temporize by building anything but the best.

The highways and the waterways are the only thing in this country which belong to the people and over which the public has an equal right for all time.

Public interests are not always handled as carefully as business interests, though they should be.

The railways of the country furnish a simile which should be considered in comparison with our road problem.

The railways are carefully managed. When the demand upon them increased they did not cut down the loads and restrict the size of wheels in order to protect their roadbeds. They went the other way about their problem. They rebuilt the roadbed, making it equal in constructive strength to present requirements and added something extra for future demands. They have increased their hauling capacity from year to year by building their roadbeds for any emergency.

In our highway work we have failed to profit by the experience of the railways, though that experience, which cost the railways millions, was attainable by us without price.

It is apparent to those who have made the closest study of road conditions and demands that the best type of road is the cheapest.

There is no question in my mind and in the minds of the unbiased that the vitrified brick roadway is at once the cheapest and by far the best. More than this, it is a positive economy because the enormous annual repair cost is practically eliminated. If you will show me any other type of road where repairs are unnecessary for a quarter of a century or more I will concede that road a hearing.

The merits of the vitrified brick paved highways are as follows:

It is impervious.

It is the most sanitary.

It is smooth, but not slippery.

It is equally adapted to heavy and light traffic.

It does not require traffic lightened by legislation.

It is in no wise affected by climatic influences.

It originates no dust.

It is economical in use as well as maintenance.

It is equally satisfactory at all seasons.

It can be built in any form, in any manner, to suit the conditions of use and traffic, over the hills, upon the level plain, or through the swamp.

It can be left in its own dirt without injury, or it can be swept clean as a parlor floor, and flooded by water without injury.

It does not soften in heat, crack in cold, or rut up in wet weather.

Where is there any other road which possesses any two of these advantages, to say nothing of that annual repair cost of billions of dollars?

As president of the Clay Products Exposition Company, I challenge the world to produce any roadway that will compare with the vitrified brick, all points considered. At our last exposition, held in Chicago last March, we made a showing of brick roadways. Such a showing has never been made

before. It was convincing and was examined with interest, surprise, and conviction by the best and most aggressive engineers of the country. We are going to make another and better showing next spring at our second clay-products exposition, which will also be held in Chicago from February 26 to March 8. We will be pleased to have you appoint a committee to attend this exposition. It will be worth a great deal of money for you to get started right on the road problem, and we will be glad to help you start right, because we are interested in stopping that annual road-repair drain of billions of dollars.

Any section of the country can have good roads, but they will not have good roads until they have vitrified brick roads. Some people may say that they have no brick. This is a mistake. Good paving brick can be obtained almost anywhere. Several hundreds of plants are in daily operation in various parts of the country making paving brick. The quality and value of vitrified brick for road-building purposes have been fully demonstrated, and this type of roadway has been accepted as the standard of excellence.

I urge you to go in for good roads, but do not make the mistake of counting any improved road a good road. The annual cost of upkeep on a road will soon make the first cost a minor consideration. You never will have a good permanent highway until it is built of vitrified brick.

I am not advising you to do that which I have not done myself. I take my own medicine. In my own State, Ohio, we have been through the mud and sand period, and it was hard pulling. We have also been through the restricted-load period, and that was harder pulling. Then we went through the improved-road period, and that was the hardest pull of all, because it pulled annually on our pocketbooks for repairs, and we always had roads torn up or rutted up. Then we got right on the road-building problem. Now we are building our highways of vitrified brick. In my own home county, Cuyahoga, we have hundreds of miles of brick roadways winding through hill and dale and making the home life of the farmer worth living. In a single year we have built over a hundred miles of brick highway and are keeping at it, reaching farther and farther into the country. Loads can be doubled on these brick roads. They are usable at all times and seasons. They originate no dust or mud. They are so good that they are generally used to walk upon as you would use a sidewalk, and, best of all, they are saving us a lot of money. Some of these brick roads have been in service for a dozen to twenty years without repairs. All a brick roadway asks is to be left alone and undisturbed. Isn't this in contrast with the so-called good roads which require constant attention and repairs? If there are any of you who doubt the quality and economy of brick roads I should like to have you come to Ohio and visit Cuyahoga county. If you will appoint a committee to visit us, I will see that your stay there is profitable to you and has at least a few pleasures to compensate you. We are proud of our brick roadways, but we are not selfish. We want you, too, to profit by them.

The cause of good roads is a noble one, but your title to nobility rests upon securing the right road. Get right on the road question and then push it through.

RUSSIAN OFFICIAL FINDS MINNESOTA DRAINAGE INSTRUCTIVE.

Peter Stakle, chief engineer of a Russian drainage project in Siberia, returned from northern Minnesota recently after a brief inspection of some of the State ditches. He was very enthusiastic over the work done in Minnesota, and regarded the ditches as among the greatest in the world. He is much impressed with the work of the American dredges and proposes to induce the Russian government to buy similar machines for the work which he has in charge. He has a project involving draining 15,000,000 acres of low land along the Amur river.—"Import Bulletin."

AMERICAN ROAD CONGRESS.

A Great Gathering of Good Roads Enthusiasts at Atlantic City, September 30 to October 5.

The preliminary announcement for the American Road Congress is being mailed by J. E. Pennybacker, Jr., secretary, Colorado Building, Washington, D. C. It provides for a very busy week for those who participate. Governor Woodrow Wilson will deliver the address of welcome on September 30. President Taft will address the Congress October 2. Many other notables will lend their presence and voices to the occasion, which is regarded of such great importance that the railroads in the Trunk Line territory have made an exception and offer reduced rates to those who attend. Delegates are requested to make inquiry of their local ticket agents before purchasing tickets.

Every phase and feature of the good roads movement

CLEVELAND AMERICA'S BEST PAVED CITY.

ONE OF THE HITS in the Cleveland Day parade, recently held in the sixth city, was the float of the National Paving Brick Manufacturers' Association.

Mounted on one side of a nifty gray car was a photograph of one of the brick paved streets for which Cleveland has become justly famous, while on the other side was one of the typical brick paved highways of Cuyahoga county, Ohio. The photographs, in sepia, attracted much attention on account of their mammoth size, the dimensions being four by five feet. The photographs were draped in the national colors.

Cleveland is this year adding largely to its extraordinary mileage of vitrified brick paved streets. This season alone is seeing the construction of one hundred and eighteen streets of brick pavements aggregating thirty-five miles and



Advertising Brick Pavements in the Ohio Metropolis, a Novel Street Display by the N. P. B. M. A.

will be given consideration by those who have given special study to the particular subject assigned them. For instance, a representative of the American Bar Association will speak on good roads legislation. There will be a conference of educators with a view of having highway engineering introduced into colleges on a scale that will meet modern requirements.

Logan Waller Page, director of the Office of Public Roads, and active president of the Congress, predicts that the gathering at Atlantic City will boost the good roads movement as it never before has been boosted in America.

The construction and maintenance sections of the Congress will occur Friday and Saturday, October 4 and 5. Brick roads will be discussed at one session, following an illustrated paper by Theo. A. Randall, secretary of the National Brick Manufacturers' Association. Those of our readers who are interested can obtain full program by addressing Secretary Pennybacker, as above.

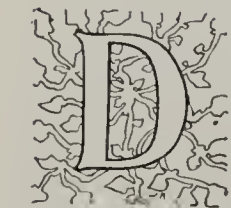
making the total mileage in the city and its immediate suburbs more than six hundred miles. The Cleveland streets are being laid in accordance with the No. 1 directions of the National Paving Brick Manufacturers' Association, which have been adopted as standard by the Cleveland engineering department. Just outside of Cleveland, Cuyahoga county is putting in seventy-five miles of brick paved country highways, which will bring the mileage in Cleveland and its environs to the magnificent total of 1,100 miles.

AN OLD JOKE UNDER A NEW NAME.

One of the newspaper reports for the month tells of the effectiveness of beer as an antidote against poison by inhaling illuminating gas—that two bottles of it effected restoration. This is good news that it is feared may prove a little bit dangerous in some of the dry territory. Especially in places like Kansas, where the snake-bite joke has been worn threadbare.

Written for THE CLAY-WORKER.

CLEVELAND BRICK NEWS.



ESPIE THE APPROACH of the fall and winter season, when it becomes necessary to discontinue building operations, the outlook in Cleveland is unusually bright. Many large building operations are now being rushed to completion and some new ones of large pretensions are being announced. The total volume of building for the month of August more than held its own. It looks at the present time as if the record of the year will equal that of 1911, despite the fact that during the first three months of the present year practically no building operations could be proceeded with on account of the extremely cold weather. Several unusually large permits, which were issued last year, but on which building operations have proceeded with this year, also tend to cut down the actual total of figures to be reported upon for 1912.

Brick manufacturers and sales dealers are pleased with the way brick is being employed in building operations in this city. A greater proportion of fireproof buildings are being erected each year than ever before, and brick is being used in many of these operations. The paving operations to be done by the city this year will probably set a new record, particularly if the weather conditions continue suitable for work late in the fall. The superintendent of the Cleveland paving department reported that about thirty-one miles of new pavements will have been laid this year if favorable weather continues late into the fall. Thirty streets have already been paved and about thirty are nearing completion, and work has been started on about seventy others. Cleveland lays on an average of from twenty-eight to thirty miles of brick pavement each year. Reports from the county engineer's office indicate that many miles of brick pavement are being laid in the rural districts. Contractors are experiencing some difficulty, however, in securing help, and some of the larger jobs will be extended into next year.

One of the largest building operations to be announced came with the leasing of the Lennox property at Euclid avenue and East Ninth street, said to be the most valuable business site in Cleveland and one of the best investments between Chicago and New York. The property extends several hundred feet on Euclid avenue, an entire block on East Ninth street to Chestnut avenue and back several hundred feet on Chestnut avenue. It is at present occupied by several four-story buildings. Long time leases have been secured on all the property by C. W. Summers, coal magnate and owner of the Cleveland baseball team. Mr. Summers contemplates the erection of a 1,000-room hotel, extending sixteen stories in the air, or the building of a business block of equal proportions. Leases expire shortly, and it is hoped that the building operations can be proceeded with early next year on at least a part of the site. The building promises to be one of the largest and most attractive in Cleveland when completed. The lease calls for the expenditure of at least \$500,000 on the building, but it is believed that the new owner, who is a wealthy Cleveland millionaire, will expend several million dollars in the construction of the new building.

A new ten-story building is to be erected at the northwest corner of Ontario street and East Ninth street. A lease on the property was executed during the past month and plans were made public for the new structure. The building will be fireproof throughout and will be constructed of either brick or tile. Architects are already working on the tentative plans for the new building.

The Cleveland Electric Illuminating Company announces that it will build a new power substation on the rear of the property recently purchased on the Public Square and for

many years occupied as the Lyceum Theater. Plans for the improvement of the front of the lot are under way. A twelve-story office building is contemplated. The lot has an 80 foot frontage on the Public Square and is 148 feet deep. It is planned to proceed with this operation early next year. The site is one of the most attractive in the down-town section and will make an excellent one for the new skyscraper for the Electrical Company.

The Morgan Lithograph Company has leased a tract of land 242 feet on Payne avenue, just west of East Seventeenth street, and will erect a new office plant on the site next year.

Contracts were let during the past week for two large additions to the plant of the Superior Foundry Company. The buildings have been planned by the Forest City Engineering Company. One will be 90 x 350 feet long, of brick and steel construction, and the other 60 x 135 feet long, of the same type of construction, two stories and basement.

Plans are being worked out for the erection of a twelve-story office building on the site of the old Y. M. C. A. building on East Ninth street and Prospect avenue. This property was recently leased to a syndicate of Cleveland and New York capitalists, on a basis that makes the present building unprofitable. It is planned to tear it down and erect a new modern building on this site.

The W. S. Gilkey Printing Company, now located at Lakeside avenue and West Sixth street, during the past month purchased a tract of land at the corner of West Ninth street and Main avenue northwest, on which it will erect a large office and printing plant. The building is 100 x 120 feet in size.

The Richmond Bros. Company, manufacturers of men's clothing, have purchased a new factory site on East Fifty-fifth street, at the corner of Harlem avenue. A four-story model brick and steel factory building will be erected on this site, which is 164 x 240 feet in size. Arrangements are being made to proceed with the work this fall.

Four new \$100,000 schools are to be erected by the Cleveland Board of Education during this fall and next spring. All will be of brick, with terra cotta trimmings. The city of Lakewood, just west of Cleveland, will spend \$85,000 on a new brick school on Clifton boulevard, scheduled to be completed for the fall term of 1913. C. W. Hopkinson, Rose building, has planned the new building. Shaker Heights, a suburban village to Cleveland, will erect a new \$60,000 school building at once. It will be of brick and fireproof throughout.

Floyd Curtiss, of the American Druggists' Society, representing 16,000 druggists in the United States, announced during the past month that a new plant, employing 300 people, will be erected in Cleveland to supply druggists in this territory. Negotiations are now under way for the purchase of a site and the construction of a building. The new plant will be under the supervision of F. G. Winger, Nelson Grossman and F. H. Hellwig, of Cleveland, who will act as a board of directors. The plant will be backed by one hundred and sixteen Cleveland druggists, as well as many in surrounding towns and cities.

The city of Cleveland has sold \$500,000 in bonds for the construction of a new municipal lighting plant, for which \$475,000 is to be spent. The new building will be of gray brick and will adjoin the Kirtland Pumping Station of the lake front. It is to be proceeded with at once so that it will be ready for use next year.

The C. W. Stine Pottery Company, of White Cottage, Ohio, during the past month increased its capital from \$10,000 to \$40,000. The new capital will be utilized in extending the work of the plant.

A. BUCKEYE.

The house that is built of brick is of itself one good advertisement, but that one is not enough; the brick man should keep live advertisements before the public all the time.

Written for THE CLAY-WORKER.

NEWS FROM THE TWIN CITIES AND THE NORTHWEST.



SEASON AS A WHOLE has not been the most satisfactory with the bulk of brick and clay tile plants of the Northwest. In fact, up to July things were rather dull with many of the clay enterprises, and some have been moved to curtail expense because of the situation. But in the past few weeks, and especially since

the crop conditions became fairly assured, things have taken a decided change for the better. There is every prospect that the fall will see one of the biggest building seasons in several years, particularly through the country districts and in the farming localities.

Not only will there be a heavy volume of interior and farm building, but there will unquestionably be a great deal more interest and investment in drain tile work. The season of 1912 has been generally an exceptionally wet one. The month of August in these cities has been decidedly wetter than the average, and this has been the case through the Northwest generally. Coming as it has, after a season marked by heavy rains generally, it emphasizes the need of good drainage. The time that drainage is needed most and greatest is in the spring, when the low ground and flooded sections prevent early seeding, but heavy rains show it more and more, while further experience in the worth of tiled land as against untiled shows the value of drainage in a way that can not be ignored. During the past few seasons tiled work has been tested in wet seasons and dry, and the outcome has been in its favor both ways, so that the predictions of those who saw in it danger in dry seasons have not been fulfilled.

The approach of the fall and the election calls attention anew of manufacturers and all using any kind of machinery, to the fact that a workmen's accident compensation law is almost certain to be passed in the coming session of the Minnesota legislature. A special committee of the State Bar Association has been working upon the question, and has recently made its report, recommending a compensation based upon 50 per cent of the first \$2,000 of wages for the first five years if there are persons wholly dependent upon the injured during that time. If there are no dependents, then the medical, hospital and funeral expenses, the latter to a limit of \$200. The limit paid for death is \$3,000.

Representatives of the State Geological Survey of Minnesota are making a systematic tour of the state, traveling from place to place, studying the clay resources and possibilities of the different sections of the country.

Charles E. Patterson, a stockholder in the Peerless Brick Machine Company, of Minneapolis, a cement brick proposition, has recently filed suit for an accounting and a receiver, alleging that the business is manipulated by the management so that there are no profits for stockholders.

City Chemist Roehrich, of St. Paul, has urged upon the city officials to purchase a testing outfit for building materials, similar to that owned by the city of Minneapolis.

Twenty-five members of the Civil Engineers' Society, of St. Paul, recently devoted one Saturday afternoon to an inspection of the plant of the Twin City Brick Company, on the west side, in St. Paul. They went through the plant, seeing the steps followed in the manufacture of their famous brick and interlocking tile. The members found the inspection to be a most interesting one and watched every step with great interest.

The Board of Charities and Corrections in St. Paul has asked an appropriation to provide for putting prisoners at the workhouse at work on pottery, such as flower pots. Cement and sand work wares may also be included.

The display of clay wares at the Minnesota State Fair

this year was larger than ever. The use of clay hollow blocks for siloes is being emphasized as being the only thoroughly satisfactory material for such construction. There were a number of displays using clay blocks. The leaders among them were the Mason City Brick and Tile Company, Mason City, Iowa, which showed its radial cut silo block; the Minnesota Farmers' Brick and Tile Company, which showed blocks for silos with angle cut. There were some others. The display of the Mason City people included their new three air-chamber hollow tile block, which is suitable for dwelling construction, with its exceptional strength. This block has met with a test of 140,000 pounds given in the Minneapolis building department, and has been approved for use in Minneapolis. A leading real estate firm is about to erect a cottage of this tile. The three air chambers assure all the advantages of the dead air space, for there is no point at which there is a continuous mortar joint through the wall.

The drain tile displays at the State Fair were also very interesting. The foregoing concerns also had drain tile in the usual sizes, and commanded a great deal of attention with their showings. They had to go against the displays and arguments of the cement tile concerns, which were represented in full force, but the indications are that the clay concerns lost nothing in the encounters.

Brick Construction in the Northwest.

J. W. Butler and Bro. Company, of St. Paul, received the general contract for fireproofing work in the second and third halls of the State Hospital for the Insane at St. Peter, Minn., their contract amounting to about \$21,000.

Bell, Tyrie & Chapman, architects, of Minneapolis, have plans in preparation for an elaborate mission hotel building to replace the St. James Hotel, Minneapolis, conducted by the city mission. The new building will be fireproof throughout, seven stories, costing about \$200,000. There will be a portion of the structure devoted to cubicles, with seven-foot partitions, arranged with slopes to drains so that the whole can be flushed and scrubbed.

The general contract for the new Great Northern passenger station in Minneapolis has been awarded to the C. W. Gindele Company, of Chicago. The structure will cover an area of 200 x 300 feet, and will be fireproof, of brick, stone and steel construction. The cost will be close to \$2,000,000.

The George J. Grant Construction Company, of St. Paul, received the general contract for the erection of a large fireproof construction warehouse in the Midway district for the wholesale paper house of Wright, Barrett & Stilwell Company, of St. Paul. Cost \$55,000.

Splady & Albee received the general contract for the erection of a new parochial school building for the Church of the Immaculate Conception, in Minneapolis, to contain sixteen rooms. It will be of brick construction, modern throughout. Cost \$100,000.

Madsen Bros., of Minneapolis, received the general contract for the erection of two modern brick apartment buildings at Park avenue and Fourteenth street, Minneapolis, to cost \$120,000. Mrs. Hannah Scharling, of Rainy River, Ont., is the owner, and J. E. Nason, of Minneapolis, the architect. Each will be three stories and basement, 77 x 42, light brick with dark brick trim.

T. WIN.

The Standard Brick Company, of Macon, Ga., has recently booked an order for the Y. M. C. A. building of that city, which is to be built of what the company calls its "Cravenette" brick, one of the latest products of the company. In addition to looking after all of the details of the business of this immense concern, Mr. W. E. Dunwody, general manager, is president of the Georgia State Fair Association, an office which he has filled with great credit to himself and to the advantage of the association for a number of years.



Fireclay Mixture for Glasspots.—In the manufacturing of glasspots, and especially glass pot rings, the clay body should be a tight one. The German Grosz-Almeroder clay is the most used for that purpose. A mixture which has been used often is made of burnt clay 24 parts, raw clay 20 parts, first clay fire clay 8 parts, and ground old glass pot grog 14 parts.—*Sprechsaal* No. 30, 1911.

Mottled Effect on Glazed Brick.—When bricks are glazed, and the glaze is mixed with some sticking material, like glue or flour, it is very hard to produce mottled effects. In order to overcome this difficulty, the oxides and materials used to produce the mottled effects are just put over the brick before the glaze is applied and the results will be greatly improved mottled effects.—*Tonwaarenfabrikant* No. 24, 1911.

A Swedish Clayworking Book of 1761.—An old book, printed in 1761 in Stockholm, and treating on the subject of clayworking and the art of making brick, was recently discovered and is at present in the possession of P. Chmielewski, Koklaks, Finland. The book was written by Carl Winblad, and illustrated with good cuts. *Lerindustrien* reproduces some of the cuts, and also gives a review of the methods employed at that time in making brick.—*Lerindustrien* No. 26, 1911.

Small Continuous Kiln.—In many places in Europe the continuous kiln is in use even for small yards. Of necessity in order to get the proper benefit of such a continuous kiln the kiln should be small. For an annual production of 600,000 brick and roofing tiles, of which 25 per cent. are to be roofing tiles, a daily capacity of 2,250 brick and 750 roofing tiles will be necessary if the period of operation is 200 working days. This will take about 15 cubic meter (530 cubic feet) kiln room. A continuous kiln, which has a 62 meter (203 feet) long tunnel for the burning of the brick, with a width of 2.4 meter (8 feet) and a height of 1.8 meter (6 feet), will be about the right size for such a kiln.—*Tonind. Z.* No. 105, 1911.

Raw Material Preparation for the Firebrick Industry.—In the firebrick industries there are two processes for the preparation of the raw materials. The dry and the wet process. With the dry process the clays are first dried, and then ground to the required fineness. The burnt and broken firebrick, usually called "grog," is also ground dry. The mixture of the ground clay and the ground grog is put through a pugmill, where the necessary water is added for making the fireclay mixture of the right temper for manufacturing purposes. If the clays that come from the clay pit or bank are wet, they are either dried in summer time and stored under sheds, or they are mechanically dried in rotary or tunnel dryers. When they are dried in this second method care should be taken that the clay is heated above 120 degrees Centigrade (250 degrees Fahrenheit), as the clay will lose a great deal of its plasticity. After the clay comes from the pug mill it is usually stored in silos, as the ageing of the prepared clay will greatly increase its plasticity. With the wet process the clays are run direct through a set of rolls, and the ground grog is added in the pug mill. By this

process the clay is not as good prepared as by the dry process.—*Deut. Topf & Z. Z.* No 71, 1911.

The Fitting of Sewer Pipe.—It has been found that in many cases the sewer pipe will leak where they are jointed together. In most instances the little ridges in the inside of the bell and at the outside of the end have not been deep enough to hold either the cement or mortar to make the joints watertight. Figure 4 represents the present methods of scratching the pipe. It has been attempted at different times to improve this, and now a new way has been adopted by several sewer pipe manufacturers. Figure 1 represents the first instances of this new method, by the use of a small iron angle wheel, that impressions are made

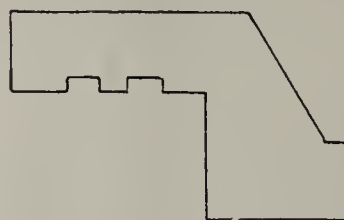


Fig. 1.

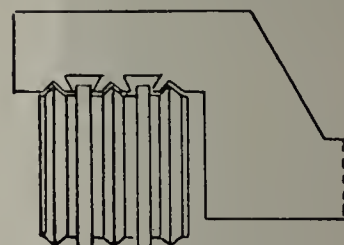


Fig. 2.

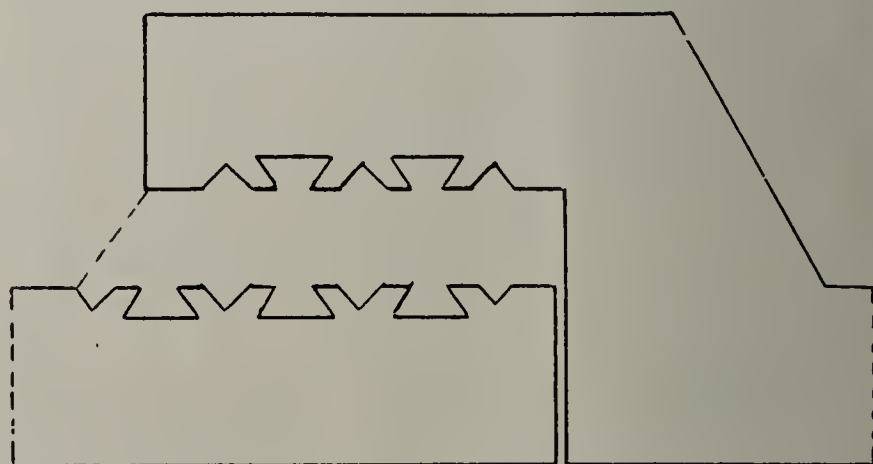


Fig. 3.

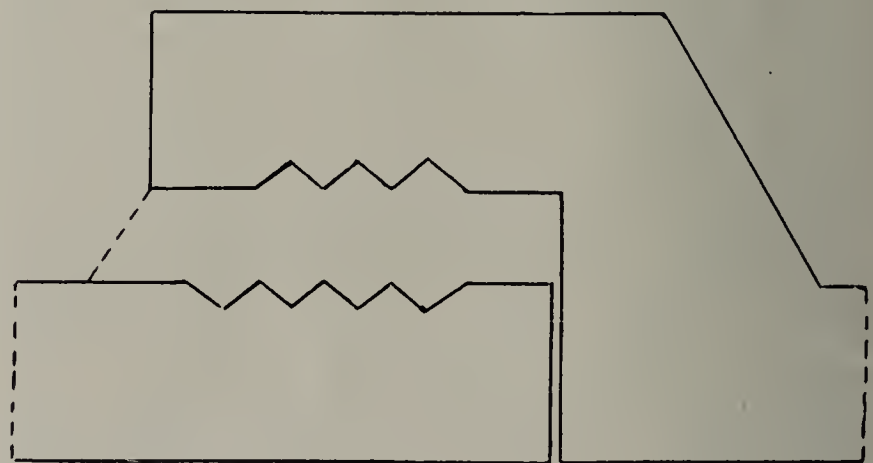


Fig. 4.

in the ridges of Figure 1, and the joints become so that the cement material can not get out of the joint, and the joint will be perfectly closed.—*Tonind. Z.* No. 104, 1911.

Lead in Tableware and Pottery.—Since we have in Europe several countries which examine the pottery used for domestic purposes regarding their lead glazes, Mr. N. Schoorl, of the Netherlands Health Department, has made some improvements in the methods of testing this pottery. He found that many glazes have a little copper, and that this will effect the proper determination of the lead. He uses chromate of potash in place of sulphur hydrogen in the determination of the lead. Of the 292 pieces of pottery which he examined, 228 pieces or over 78 per cent showed considerable amount of lead.—*Keramische Rundschau* No. 32, 1911.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO.



MOLEDO BRICK MANUFACTURERS have but one trouble to worry over at this time. This is the problem of securing sufficient help to turn out enough brick to keep up with orders. So far as Toledo is concerned there was never a time when building brick were in better demand. Not only is Toledo in the midst of the heaviest building season in its entire history, but people are using brick more universally than formerly. Brick of all kinds, from the plain building brick to the fancy varieties, are in constant demand, and it has kept brick men on the ragged edge trying to supply the demand. The building fever does not seem to be confined to Toledo, but from the surrounding districts the call is unusually strong and the dealers have been at their wit's end to supply the necessary brick. The quantity on hand is extremely small, and owing to the extreme scarcity of labor, it is next to impossible to get any supplies ahead. Prices are higher than usual, building brick being quoted on the local market at \$6.00 and \$6.25 at the kiln. The high prices are partly due to the extremely heavy demand and partly to the difficulties attendant upon the production which is costing considerable more this season than it ordinarily does. The scarcity of labor makes the cost of operation much heavier than when plenty of men can be secured.

Paving brick are about on a par with building brick and are also in strong demand. The good roads agitation has interested people throughout the state in good roads as they have never before been interested, and while the constitutional amendment lost out, yet the effect of the work done by those interested in the passage of the measure has borne rich fruit, and never have there been so many improvements in country roads as has been true this season, especially in northwestern Ohio. Vast sums of money have been expended on road improvements, and it has become quite the fashion for country roads in this section to be made of brick. While no immense stretches have as yet been constructed, there are many sections where brick have been chosen in preference to other paving materials, farmers believing that the first cost is more than balanced by the endurance of the road. There is a movement on foot in Williams county to have the road from Bryan to Farmer paved the entire distance with brick, and in various sections of surrounding territory like agitation is being made by those who pay for the road improvements and upon whom the burden must fall when the roads have to be repaired. Taken altogether, brick concerns have no cause for complaint outside the difficulties attendant upon production, and thus far they have been able to keep up with orders fairly well.

William J. Spear, a prominent Toledo contractor and president of the Spear-Evans Company, brick manufacturers, died very suddenly recently. While crossing the Fassett street bridge in his automobile, he was stricken with a hemorrhage of the lungs. He was driven with all speed to the office of Dr. Mills, a few blocks distant, but died in the office before the physician could relieve him. Mr. Spear had apparently been in the best of health and his death came as a terrible shock to his relatives and other friends. When stricken he was on his way to inspect a beet sugar factory at Rossford, being interested in these industries. Suddenly he said to his chauffeur: "I feel as though something had broken in my side." The car was immediately speeded to the physician's office, but the effort was useless. Mr. Spear, though born in Syracuse, N. Y., had been a resident of Toledo for fifty-four years. He was survived by a widow and two brothers—R. W. Spear, of Toledo, and Geo. A. Spear, of Toronto, Canada. Besides being head of the big brick con-

cern, he was a prominent contractor and erected many of the handsomest brick buildings in the city. He built a number of the factory buildings of the Willys-Overland Company. He was aged fifty-eight years.

The Norwalk county court house, which was recently destroyed by fire, will be rebuilt as soon as the necessary legislation can be passed. The commissioners have been asked to issue \$50,000 emergency bonds to rebuild the structure, which, added to the \$84,000 insurance received for the burned structure, it is thought will provide sufficient money. This will provide a nice brick contract.

A new pressed brick business block is being erected at Eleventh and Monroe streets, Toledo, for M. V. Barbour. The building will have a one hundred foot frontage on Monroe street and will contain six large store rooms.

W. R. McPherson, manager of the Bloomdale Tile and Brick Company, of Bloomdale, Ohio, suffered a slight stroke of paralysis recently. He was at work in his office at the time. His condition is much improved.

The Irving B. Hiatt Company is tearing down a number of frame buildings on Erie street and replacing them with brick structures. This concern is also remodeling a three-story brick building corner of Jefferson avenue and Erie street. All the structures will be used for retail business purposes.

Michael C. Galvin, eighty-four years old and a pioneer brick manufacturer of Toledo, died suddenly while repairing a cellar at one of his houses on Eleventh street. A stroke of apoplexy was the cause of his death. Mr. Galvin came to Toledo nearly half a century ago from Ireland. He went into the brick-making business with John Degnan, operating the Buckeye Brick Company, on the bank of Swan Creek for many years. A few years ago, owing to his advancing age, he retired from the brick manufacturing business and devoted himself to looking after his property interests.

D. L. Robinson, of St. Marys, Ohio, has been appointed foreman of the Buckeye Pipe Line Company, of Findlay, taking the place of James Leady, who died several weeks ago.

A new three-story brick building is to be erected on Monroe street for the Manton Bros. Commission Company, at a cost of \$100,000. This will be the largest and most substantial of Toledo's commission houses.

Bids were recently opened at Dayton, Ohio, for extensive sewer construction, including both sanitary and storm sewers. Contracts were awarded to Boyd & Cook, W. C. Kerschner and William Hilt. The work will cost nearly \$30,000 and some large brick contracts are involved.

A new state aid road at Spiegel Grove, between Cleveland avenue and Buckland, at Fremont, Ohio, will aggregate \$4,900. The road will be brick with a concrete foundation.

The village of Genoa is to improve its sewer system in District 1, for which purpose \$3,500 bonds have just been sold.

The little town of Deshler, Ohio, is all torn up, as most of its streets are being paved with brick. It will have the largest percentage of brick paved streets in northwestern Ohio when the work is completed. T. O. D.

OIL BURNERS FOR BRICK KILNS.

The Fresno Brick and Tile Company, Fresno, Cal., after thoroughly testing burners of various types, placed with Tate, Jones & Co., Inc., Pittsburg, Pa., an order for sixty (60) burners for equipping their kilns. A large shipment has just been made of a complete oil-burning equipment for brick kilns to Atlanta, Ga.

HIS FIRST EXPERIENCE.

Hostess (pairing off the guests)—Mr. Parvenu, you will please take Miss Gumwell out to dinner.

Parvenu—Eh! Why, I thought you were havin' the dinner here in the house.—Boston Transcript.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Canadian Brick Company Acquires Additional Plants.

Editor CLAY-WORKER:

The Tregillus Clay Products Company, of Calgary, Alberta, Canada, has recently purchased two clay products plants; one, the hollow block and paving brick plant of John G. Watson, and a dry press brick plant of the Calgary Terra Cotta Company, of which Mr. Watson was a heavy stockholder. Both plants are in this city. The dry press plant we are operating day and night. The greater part of the brick we are using in the construction of the large No. 1 plant.

The hollow block plant will be remodeled this fall and winter and will be put in operation on hollow ware. The addition of these plants makes the Tregillus Clay Products Company one of the largest, if not the largest, clay company in Canada. Our yearly output on brick alone will amount to 50,000,000 bricks. This is certainly a great and wonderful country. Its future is being made rapidly.

Very truly yours,

Calgary, Alberta.

W. G. WORCESTER, Supt.

Detroit's New Brick Plant.

Editor THE CLAY-WORKER:

Detroit is prosperous, politics seem to interfere little, if any, with business in general. Our builders are busy and all the brick plants are running to capacity. A new plant has been built by the Walker & Frank Brick Company. In a chat with W. W. Walker, of that firm, he admitted frankly that he and his associates were very proud of their new plant, which starts with a daily capacity of 66,500 building brick. Visiting brickmakers who have inspected the new plant speak of it in very complementary terms; say that it is up-to-date and complete in every respect. The plant has some novel features, the work of the inventive brain of Charles F. Frank, the practical brickmaker of the firm. He has been engaged in brickmaking ever since he left school, served an apprenticeship under Detroit's pioneer brickmaker, Richard Hall. He has superintended the building of other plants in former years and is generally considered one of Detroit's most practical brickmakers. "Detroit is growing by leaps and bounds," said Mr. Walker. "The present production of common building brick in the district is not sufficient to meet the demand. Our new plant will do its share to supply local builders with the best of all building materials, building brick."

WOLVERINE.

Business Good Despite Political Campaign.

Editor THE CLAY-WORKER:

While there seemed to be general discontent regarding business conditions earlier in the year, we believe that very few can complain at the present time, in spite of the coming presidential conflict.

We certainly have no cause to complain, as a partial list of the larger orders received by us during the past few weeks will show.

For the new plant of the West Salem Hollow Brick and Tile Company, of West Salem, Ill., we have supplied one

No. 2 Columbus piano wire screen, one size "B" Columbus automatic feeder, one thirty-eight-foot bucket elevator, one special double-drum friction hoist, one automatic cutting table, one clay gatherer and plow, one auger die for Corduroy brick, a complete electric pyrometer equipment, draft gauges, thermometers and gas analysis apparatus.

For the Tregillus Clay Products Company, Calgary, Canada, we have furnished two No. 2 Columbus piano wire screens, and one size "A" Columbus automatic feeder.

For the new plant of the Columbus Contractors' Supply Company, located just east of Columbus, we are furnishing five bucket elevators, one size "A" and one size "B" Columbus automatic feeder, three No. 4 and one No. 5 Columbus piano wire screens.

For the Saskatchewan Clay Products Company, Moose Jaw, Sask., we are preparing to ship one No. 5 Columbus piano wire screen, one size "B" Columbus automatic feeder, one thirty-eight-foot bucket elevator and one eighteen-inch by sixteen feet troughing belt conveyor.

We have also been very busy supply draft gauges, thermometers and pyrometer equipment.

Trusting that you will be interested in knowing something of our recent activities in the machinery line, and wishing THE CLAY-WORKER continued and unbounded success, we beg to remain, very truly yours,

THE CERAMIC SUPPLY & CONSTRUCTION Co.

Dark Glaze on Salt Glazed Pipe.

Editor THE CLAY-WORKER:

I notice in the July number of THE CLAY-WORKER that the version given by Sprechsaal on the best way to get a dark glaze on a salt glazed pipe. Now he gives a glaze for the benefit of the readers, which comprises 210 parts lead and 45 flint, 21½ clay, 13½ manganese. This composition would need to be put on a very weak burning body of clay, one that would not stand more than 1,500 degrees of fire Fahrenheit, or the glaze would all burn off. There is a statement in the finish of his letter where he states that salting should be done at cone 3 and the pipes should be finished with body vitrified at cone 8 or 9. That means 2,600 degrees Fahrenheit of heat. Does he mean that the above weak glaze should be used to that pitch of fire? If so, there would be no glaze on the pipe at the top, as the composed glaze would run all down the pipe during the firing. If he means that the pipes are finished when the glaze is run bright, then the body would not be hard enough. Therefore let the glaze be as good as possible for a glaze to be. It would be no good for sewer work, for the glaze would craze in itself, and the body not being hard enough would not resist suction. The cracks caused by the glaze crazing would allow the body to receive by suction a certain amount of the sediment that will have to pass through the pipes, and that means that the cracks in the crazed glaze put on will cause obstruction in the pipe and will keep accumulating till the pipes are half full, but what need is there to go to the expense of putting on a glaze or body when it can be done in other and cheaper ways, for glazing and putting on a body means expense, and the above would be a great expense. I don't know whether Sprechsaal has any personal knowledge of the salt glaze business. If he has he ought to know that a firm following his advice could never compete in the market with firms that don't need to do any glazing or dipping. The way to darken or to make lighter pipes is done in the firing. To make a light or what is termed a stoneware pipe, there needs plenty of air and draft while burning; to make a dark pipe you must check your draughts. During the early part of your firing by this process you oxidize your iron in your body and that will darken same. When times come for the salting to be done, finish in the same way as in the lighter pipes. A man burning salt glazed

ware ought to be up to all these ways, as by burning the way I have given you here I have made pipes as dark as Rockingham ware with glaze on as thick, with two charges of salt, one-half of a shovelful to each fire—I mean a shovel used around kiln for firing purposes. I don't believe in working to cones for salt glazing, as they very often lead astray. I hope by this letter to give my American brothers a more profitable way of burning a dark pipe than Sprechsaal, as I know that all firms making salt glazed ware in the States need to save all the expense they can. We in England could never make the salt glaze pipe trade pay if we had to dip them. The expenses would be too large, as competition is so keen. I am a lover of the clay trade, both in the States and in the old country.

Nuneaton, England.

H. W. HARDY.

More About Continuous Kilns.

Editor THE CLAY-WORKER:

In the recent issue of your magazine appear two letters under the above heading, one signed H. W. Hardy and the other F. W. Dennis.

If I remember right, there was some time ago a Canadian company inquiring about the merits of the Hoffmann continuous kiln. At that time I was impressed that they had already decided upon a kiln of that type and consequently I did not see the necessity of a further encouragement. The opinions expressed with these two letters, however, dictate me to mention some experience that I have had with continuous kilns, in this country and abroad, in Germany.

Both writers apparently agree on that one point, that kiln engineers are useless things. They are undoubtedly right, unless that title is backed up by a broad experience and technical training. In Germany, for instance, where every brickmaker is an expert in certain branches of continuous kiln work, no kiln is being built without the assistance of a kiln engineer. I wonder if this has something to do with the successful campaign of continuous kilns in that country? Now, why do they employ engineers? Because people know it is the quickest and cheapest way to get results; they take advantage of the kiln engineer's skill in supervising the construction and starting the operation. With his assistance the kiln is in running conditions within three to five weeks after completion; because he is specially prepared to work under new and strange conditions. When starting a new continuous kiln the operator very seldom is familiar with the peculiarities of the clay and product, neither does he know that particular kind of fuel, nor the men carrying out his instructions. The kiln engineer's skill is adapted to meet these first difficulties by employing mechanical and chemical devices (thermometer, draft-gauge, hygrometer and apparatus for taking smoke gas analyses), which warrant the necessary control and observation, from which he can establish a system of operation.

Mr. Dennis expresses a great enthusiasm for down-draft kilns, but the figures given will hardly be a sufficient evidence to back up his theory, I rather believe his letter will meet some sceptical ones among the readers. The fact that one man spent \$80,000 for a continuous kiln to burn 45,000 common brick daily, will by no means discredit the continuous type. If a man has plenty of money, why should he not be allowed to expend it at his pleasure? Using continuous kilns that way will hardly be of benefit to their reputation though, but I believe a skilled continuous kiln engineer would have saved him about \$64,000 out of the \$80,000. This is another point where the utility of kiln engineers comes into effect.

The two cases of failures of continuous kilns mentioned by Mr. Dennis will count but little in favor of down-draft kilns, for there are over 10,000 continuous kilns burning ware at least equally good as the best down-draft kilns and

using only a small fraction of the amount of fuel consumed in the latter.

Mr. Dennis also noticed that during summer months there was a disagreeable atmosphere in the continuous kiln; and further, the burner had to be replaced by educating a new man. Both troubles signify poor management and will occur on down-draft kilns as well as on continuous. In most cases the continuous kiln itself is not responsible for bad results obtained from it. Not long ago I was called to a kiln, which was supposed to burn fireproofing, etc., but on account of wrong methods applied in the operation it had proved a complete failure. During an experimental stage extending over eight months the designer of the kiln was not able to produce any satisfactory results. Nevertheless, I contracted to bring the kiln to success, and I have done it, too, although big mistakes in both design and construction lower the quality of the kiln far beyond that of an up-to-date continuous kiln. When I was correcting this kiln I at the same time educated half a dozen individuals in my system of burning, consequently there will be no lack in burners. I agree with Mr. Hardy that it is rather uncertain to produce continuous kiln burners in two weeks or so; during my practice in the continuous kiln line I have educated many of them and all grades of men, but never in so short a time.

RICHARD B. HOEHNE.

GERMAN CERAMISTS VISITING IN THE UNITED STATES.

August 19, 1912.

To the Members of the American Ceramic Society:—You have doubtless been wondering what has become of the proposed joint meeting of the American Ceramic Society and the visiting members of the Deutscher Verein für Ton-, Zement- und Kalk-Industrie, which is the nearest equivalent to the American Ceramic Society in Germany. This matter was discussed at the Chicago meeting, and it was there agreed that arrangements should be made to bring this joint meeting about, in lieu of our usual summer excursion.

We have been greatly delayed in making arrangements, by reason of the difficulty our German friends have experienced in deciding on a definite course of action. They wrote us several months ago asking our assistance in seeing American ceramic practice, and we replied with carefully worked out proposals for their itinerary, etc. It has transpired that they wrote to a number of others asking co-operation in the preparation of an itinerary. They received immediate responses from several, and there was thus an embarrassment of riches, instead of the shortage they had feared. The task of straightening out these proposed itineraries, and getting agreement among the various parties that desired to extend hospitality and assistance, has taken much time and trouble.

The itinerary of the Deutscher Verein in America has now been officially announced as follows:

September 1st	Party arrives in New York, and establishes hotel headquarters.
" 2d-3rd	Sightseeing in New York city.
" 4th	Opening of the Eighth International Congress of Applied Chemistry at Washington, D. C.
" 5th	Sightseeing in Washington, and return to New York.
" 6th-7th	Sessions of the Congress in New York.
" 8th	Sightseeing at coast resorts, near New York.
" 9th	Side trip to Baltimore and Philadelphia.
" 10th	Side trip to Trenton, N. J.
" 11th	Ceramic plants in neighborhood of New York, Perth Amboy, etc.
" 12th	Cement plants, iron plants and clay plants in Lehigh district.
" 13th	Final sightseeing in the neighborhood of New York. Closing exercises of the Eighth Chemical Congress.

- " 14th Leave New York for Pittsburg, arriving in the afternoon.
- " 15th Sunday—visit to the Carnegie Museum in the evening.
- " 16th Sightseeing in the vicinity of Pittsburg, chiefly among ceramic plants.
- " 17th Sightseeing in East Liverpool, among ceramic plants.
- " 18th Go to Zanesville, Ohio, arriving about noon. Spending afternoon in seeing ceramic plants.
- " 19th Part of morning in Zanesville. Afternoon in Columbus, Ohio, at the State University of Ohio.
- " 20th Arrive in Chicago in the morning—spend day in sightseeing in Chicago and vicinity.
- " 21st Spend day in Chicago and vicinity, seeing ceramic plants and other sights.
- " 22d Ride from Chicago to Buffalo.
- " 23rd Morning, visiting ceramic plants in Buffalo. Afternoon, Niagara Falls. Night train to Albany.
- " 24th Daylight ride on the Hudson to New York.
- " 25th Sail for Europe.

All traveling arrangements and hotel accommodations for the trip beginning September 14th and continuing to the 24th are to be furnished by the Travel Bureau of the Hamburg-American Line, for a fixed sum per person, under personal guidance of a competent agent.

Since our friends have contracted with the Hamburg-American Line to manage their trip, it seems evident that it will be out of the question to arrange anything like a formal joint meeting. But, it is not any less possible than before, for us to give them the right hand of good fellowship and to extend to them a genuine American welcome.

Two features of the plan command the attention of the members of the Society:

1st. A number of American cities, where we have members, notably Baltimore, Philadelphia, Trenton, Perth Amboy, New York, Pittsburg, East Liverpool, Zanesville, Columbus, Chicago, Buffalo and Niagara Falls, are to be visited by our German co-workers. In every one of these cities, our members should come forward and offer to do all they can to make their stay as interesting and profitable as possible in the few hours available.

2d. In Pittsburg, where they are to spend three days, it is proposed that the American Ceramic Society shall gather to tender its greetings and its hospitality to the visitors.

It is proposed to arrange for a dinner and general social good time at the Fort Pitt Hotel, to cost not to exceed \$2.00 a plate, on the evening of September 14th. Every member of our Society present should expect to take in as his guest one of the German visitors, or defray his share of the expense of the evening.

A large committee, of as many as possible, should arrange to spend Monday and Tuesday with our friends and show them all in their power of Pittsburg's marvelous industrial life.

Enclosed in this letter is a postal card, containing questions, which the Secretary wishes the members to promptly answer and return. Please take time to read and consider this matter seriously and let your reply come in at once. We can not make suitable arrangements at the Fort Pitt unless a sufficient number of the members will signify their willingness to come in and guarantee the cost. The credit of the society is at stake, and the loyalty of its members has never failed in the past. THE BOARD OF TRUSTEES,

"You call this cake angel food?" said the harsh husband.

"Yes, dear," said the timid wife, "but if the diet doesn't seem exactly what you want, here are some deviled crabs."
—Washington Star.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



BRICK BUSINESS IN THIS CITY has been exceptionally good the past month. There was plenty of demand to keep every one busy supplying it, especially with the shortage of teams with which to make deliveries. The coal companies were advertising that there would be an advance in the price of coal the first of the month and the papers were full of warnings that there would not be gas enough to use for fuel the coming winter, except in cooking stoves, so a great many have been ordering coal put into their basements for winter use, and the coal companies were hiring all available teams to make these deliveries. The result has been a considerable shortage in teams. Last year, when there were no large quantities of coal being delivered, teams were scarce at this season of the year, and it is much worse this year. The price of teams, \$5.50 and \$6.00 per day, makes it a pretty hard matter to get enough out of the delivery of the brick to pay for the team. Competition has been pretty close and it always seems to take a little longer to make delivery than it was figured, so it is generally found that the delivered price was made a little too low and the delivery has cut into the profits of the brick at the yard or car. There has been no change in the price of brick, as the supply in the surrounding country is far outstripping the demand, in spite of the fact that a number of the larger yards have been closed down for a number of weeks and will probably remain closed for a considerable period. Local yards ought to be making some money, as they are able to run regularly and have the inside track on the city business, but the outside yards shipping here are not making any money. Of course they are selling for better prices in other directions and are merely dumping here to get rid of the surplus brick, but there has been a big supply of surplus this summer.

According to present indications the city plants will be apt to close down the middle of September, at least temporarily, as they will not be able to burn with gas after that date, and must make the changes necessary for the use of coal. This will be quite an expensive change with some of them, on account of the fact that they are not located on a switch, or near one, and must pay for hauling their coal long distances. Not only the Kansas City yards, but those located in St. Joseph, Atchison, Leavenworth, and all those supplied with gas by the big gas company down in the gas field, must make the change to coal, and must make the change without delay. The developments of the past few months have eliminated the idea of turning to oil in probably every case. With the price of fuel oil advanced to nearly double and the oil company refusing to contract for any length of time at present figures, there is nothing to encourage brick people to change to that fuel. The railroads are even taking off their oil tanks and are beginning to use coal on all their engines once more, and it is evident the only fuel to consider for the brick plant is good old coal.

With this condition confronting the trade it is evident that such plants as still have their own gas will have an opportunity to make some money while their gas holds out, and there is no reason why they should sell their product for less than the companies must charge who use coal as a fuel. If gas is something that is going to play out soon the lucky owner had better get all he can out of it in the way of profit to pay back the big investment in drilling wells.

There is some improvement reported in the country demand, but it seems slow in starting this year, in spite of the fact that there is a bumper crop of almost everything in the larger part of this trade territory, and there will surely be a good demand for building material throughout this fall.

The Arkansas Brick Manufacturing Company, of Little

Rock, Ark., has increased its capital stock from \$100,000 to \$150,000.

The Valley Brick Company has been incorporated in Phoenix, Ariz., with a capital of \$10,000, by N. P. Olsen, A. F. Miller, and others.

Fort Gibson, Okla., business men, including J. T. Earnest, are looking for some one to engage in the manufacture of brick at that point.

There is a report in Parsons, Kas., to the effect that the Mound Valley Building Brick Company's plant will be moved from that point to Pittsburg, Kas.

The Denton Pressed Brick Company, of Denton, Texas, has just added four more kilns, thus doubling its capacity.

The Frazier Brick Company has been incorporated in Ginger, Texas, with a capital stock of \$50,000, by W. D. Frazier, O. B. Freeman and J. H. Payne, all of Dallas, Texas.

T. C. Jacoby, the well-known manager of the Fidelity Material Company, has been nominated for sheriff of this county on the Republican ticket. As Mr. Jacoby is something of a mixer himself, his chances for election are considered to be good.

The Winfield Pottery Company has been incorporated in Winfield, Texas, with a capital stock of \$60,000, by P. E. Miller, A. N. Holmes and J. C. Glass. KAW.

NEW YORK AND VICINITY.



BUILDERS AND OTHERS who want, or use, large quantities of brick, are wondering what they will do for supplies unless labor conditions change in the Hudson River district. In very truth the greatest brick manufacturing district in all the world is virtually helpless because it can not secure labor. And the situation grows worse daily. One manufacturer probably expressed the actual condition when he very pointedly declared that without a larger supply of labor some of the plants will be forced to close down.

The total quantity manufactured to date does not exceed sixty per cent of the output at the same date last year. And without further labor further operations will be seriously restricted. Perhaps the percentage for the season will not exceed sixty, a condition which will seriously hamper structural operations of importance.

The price for Hudson River stock holds firm at \$7.00, with no disposition to shade shown by any manufacturer. Indeed, many buyers have very plainly intimated that an advance is among the possibilities. Meanwhile, New Jersey manufacturers are benefiting and are receiving \$6.75 all the time and occasionally \$7.00 for some of the best. New Jersey shippers are troubled to secure sufficient craft for deliveries, both schooners and barges being in heavy demand. Large operators, wanting extra heavy supplies, are often puzzled to obtain enough to keep their contracts progressing.

The labor situation on the Hudson River district has been acute all summer and is yet. Indeed, it has been almost impossible to secure sufficient hands to carry on the work. And now, just as they would like to close the season with a rush, it is next to impossible to find workmen. The brick industry is suffering now and the building industry will suffer next year because of this scarcity.

Connecticut manufacturers have seen this opportunity, not important yet, but enough to stimulate them to activity, and they have delivered some brick to the upper portions of New York and Westchester county. Seven dollars scarcely allows them any profit, however. Should New York manufacturers advance the price, as they have said they must do to make a profit, then will come the opportunity of the Connecticut maker, and Nutmeg brick will become very plentiful upon the New York market.

The directors of the Greater New York Brick Company held a meeting the middle of August, and among other subjects the scarcity of labor came up for consideration. That

was about all that could be done. Even the Greater Company can't secure labor where it does not exist, and consideration is about all that can be done for it.

The report that the directors would advance the price on brick was erroneous, since that is not one of their prerogatives. Probably they touched upon the subject, and it is quite conceivable that they would not look with disfavor upon such action, yet even if all this is true they are not the ones to do it. The advance is coming. That seems assured, but perhaps not immediately.

So far as the scarcity of labor is concerned no action was taken upon that, but it is assumed that something further will be done at the next meeting of the directors some time during the current month.

Increased demand for front brick is noted, due to a revival of the construction of apartment and loft buildings. The price is stiff and ranges from \$28 to \$35 per thousand, with an upward tendency on all grades.

Other clay products share in the general firmness to some extent, with the exception of sewer pipe, which seems to be lower, and not so firm. Discounts are 87 per cent for all sizes from three to twenty-four-inch, inclusive; 79 per cent for sizes twenty-seven to thirty inches, and 77 per cent for thirty-three to thirty-nine inches. The prices of the first are, therefore, 3¼ cents to 42¼ cents, or a shade less on the latter. The second division is priced at 94½ cents to \$1.15½. The last are \$1.43¾ to \$1.61. Demand is very moderate and in some instances scarcely amounts to a market at all.

Roofing tile seems subject to the same conditions that govern in pipe. The best grade of promenade roofing now brings about \$20 per thousand, possibly a shade under. Selects run up to about \$30, or a shade below. Unglazed vitrified tile, French or Spanish type, is \$8.50 per one hundred square feet. Flue linings are quoted at 85 per cent discount.

Hollow tile is unchanged. Fireproof partitioning is unchanged, with all plants running at practically full capacity. One or two report 70 per cent, but in the main everybody is busy.

Testimony All Taken.

All witnesses have been to District Attorney Whitman's office to swear to their testimony in the case of D. C. Weeks vs. The Greater New York Brick Company, hence it is inferred that Assistant District Attorney Ellison, who conducted the examination, is preparing to submit the testimony to Magistrate Freschi, before whom it was taken. The magistrate is back from his vacation and some of the more sanguine expect a decision shortly.

This case is to determine whether the Greater New York Brick Company violates the Sherman anti-trust act. Former selling agents claim it does and brought suits for its dissolution upon the ground that it is a monopoly and absolutely controls the brick market of New York. The testimony was very voluminous and the hearings extended over a period of many months.

Second-Hand Brick.

It is an interesting comment upon the utility and durability of brick to see so much second-hand material used in New York construction. Indeed, brick from the walls of houses and other structures erected half a century ago are cleaned and used in new construction without detriment to the building.

No other building material lasts like that. And how about concrete construction? Can that be taken down and re-used? Such points as this are worth considering. It would be well to advertise such facts as extensively as possible. Permanence is absolutely assured when burned clay is used. Moths and rust do not corrupt. Water does not harm. Fire does not destroy. Time exercises no influence. In short, no deleterious influence makes any impression upon it. Absolute indestructibility is its principal claim to consideration.

It is hard on present-day manufacturers that they must compete with the product of their kilns turned out fifty years ago. Yet that is the penalty of producing virtually indestructible material. It supplies a sound reason for adopting it as a building material, and that reason should be more emphatically exploited than it ever has been before.

Written for THE CLAY-WORKER.

MAINE BRICK NEWS.



HIS HAS BEEN MAINE'S worst brickmaking summer for thirty years, as far as weather is concerned," said an officer of one of Central Maine's largest brick manufacturing companies to THE CLAY-WORKER correspondent early in September. "Last year was another very poor year, too, with more rain than usual, and taking the two in succession makes it rather tough for the manufacturers of brick in this part of the state, all of whom run open yards, and who are at the mercy of the weather. It has restricted our output ten per cent, and as a result we advanced the price of water struck brick from \$7.50 a thousand, the price ruling for the past three or four years, to \$8.00 a thousand on September 1. We have made brick on days this summer, owing to the need for them, that we never would have thought of making on in other summers."

The company represented by the above officer controls the water struck brick output in Central Maine, and practically all the water struck brick produced in Bangor and Brewer. The advance in price, therefore, is general in central and eastern Maine, and will doubtless be followed by independent brick manufacturers in other parts of the state, as all have suffered from the weather.

It is a thankless task to dwell on the poor weather conditions, but nevertheless, a few statistics from the United States Weather Observatory at Winslow, on the Kennebec, will be interesting. The observations taken at that place show that May, which marks the opening of the brickmaking season in Maine, was the rainiest month of the present year, with a total rainfall of 5.27 inches. As the average rainfall in the ten Mays, from 1900 to 1910, was only 3.51 inches, and in 1911 it was only .51 inches, it may be seen that May, 1912, was the rainiest in twelve years. May, 1910, figures are not at hand, but it is understood that this was not unusually rainy.

June of this year was a good month for brickmaking, the one notable exception which partly makes up for the other bad months. Only half an inch of rain fell during this month.

July, however, was a rainy month, indeed. Although the rainfall during this month was only three and a half inches compared with an average of slightly more than that for the ten years from 1900 to 1910, this does not tell the whole story. The figures obtained show that there were only twelve clear days in that month, the other nineteen being either wholly or partly cloudy, and very poor for brickmaking. It rained on eight days, the amount being from one-fiftieth of an inch to an inch and a third. There were thunder showers on four days.

August had the second heaviest rainfall of the months of 1912, a total of four and four-fifths inches falling. Rain fell on ten days, the amount being from one-fiftieth of an inch to two inches, so that in one August rainstorm four times as much rain fell as during the whole month of June. The average rainfall in the ten Augusts from 1900 to 1910 was three and one-fiftieth inches.

The demand for brick continues excellent in Bangor, as reported early in the summer. The output of the yards in Bangor and Brewer is not enough to supply all needs, and about 500,000 have been sent from central Maine to the Queen City of the East.

Bangor, of course, is using more brick than any other city in the state at present, but second place is probably to be awarded to Augusta before the end of the year, as the capital city is planning for several brick structures at present. In addition to the \$50,000 Maine Central Station to replace the present brick structure, the city is to build a \$40,000 grammar school on Hospital street, and a \$30,000

brick fire station. The late Ex-Governor John F. Hill left a sum of money which is to be devoted to building a memorial to him in the shape of a \$75,000 Young Men's Christian Association building, which will doubtless be of brick, as all the Association buildings in Maine are constructed of that material.

Fire necessitating a general alarm did an estimated damage of \$75,000 to Mill A, of the Portland Stoneware Company, Portland, the last of August. The cause of the fire is unknown. The immense factory was soon a roaring furnace and was quickly leveled to the ground. Edward B. Winslow, president of the company, states that another building fully as large will be immediately rebuilt. The company will be able to fill its orders by reason of its western affiliations with companies making the same line of product. One of the greatest losses to the company was the burning of thousands of valuable patterns, a collection of years, which can not be replaced. Special brick, tiling, etc., were made in the burned building. Mill B is not affected and will be run day and night in an effort to supply customers. By the burning of the mill practically one hundred and twenty-five men are thrown out of employment. The mill was insured for about \$62,000. The burned building was erected in the fall of 1887, and replaced one, burned on the same location in 1886. It was four stories high above the basement, and presented the appearance of a five-story building. On the first floor locomotive brick were made, on the second traps and vases, on the third three-inch to twenty-four-inch pipe and on the fourth fire brick and flue lining.

BRICKMAKER'S SON.

NEWS FROM THE PITTSBURG DISTRICT.

THE CHAMPION BRICK WORKS, of Wellsville, Ohio, is now the property of the Bankers' Surety Company, of Pittsburgh, the courts confirming the sale at a bid of \$10,350, made by the local company. It is the intention of the new owners to make all necessary repairs and improvements and place the plant in full operation.

The plant is one of the best equipped in the Ohio valley and cost the original management approximately \$100,000. The machinery and buildings are in good condition and will need but little repair. The works have been idle since the failure of the Silver Banking Company, of Wellsville. About 100 men will be employed under the new management.

A peculiar accident occurred in the General Porcelain Company, of East Liverpool, Ohio, August 13, when accumulated gas ignited and blew the top off a kiln. Preparations were being made for lighting the kiln and there was little damage to the contents, but ware in other parts of the building suffered severely.

Members of the family of Frank Hartford, superintendent of the Pennsylvania Clay Products Company, were badly injured by the overturning of Mr. Hartford's automobile while returning from the Kittanning fair, August 16. Mr. Hartford was not in the car at the time.

At a mass meeting of the citizens of Washingtonville, Ohio, recently, a proposition was made by an East Liverpool (Ohio) concern for the erection of a five-kiln general pottery plant to cost approximately \$40,000. The company offered to subscribe \$20,000 if the citizens of Washingtonville would take stock for a similar amount. The pottery would employ about 200 men.

Following the usual vacations during the summer months the plant of the Tarentum Glass Company, at Tarentum, Pa., opened in full on August 26. Extensive repairs were made during the vacation period and preparations have been made for a long, steady run. The plant of the Fidelity Glass Company reopened September 3 with a large number of orders on file. The plant of the C. L. Flaccus Glass Company, at Brackenridge, Pa., has been in operation for some time.

A. SMOKER.

REDUCED RAILROAD RATES FOR THE AMERICAN ROAD CONGRESS.

Practical support has been given to the American Road Congress, which is to be held in Atlantic City September 30 to October 5, by all the big railroads of the country whose officers have just announced that they will make special rates to all persons wishing to attend the Congress.

The presidents of the Baltimore & Ohio, the New York Central, the Southern Railway, the Frisco Lines, the Chesapeake & Ohio, and the Norfolk & Western Railway, have all signified their intention of being present at the sessions of the Congress. Most of these railroads are sustaining members of the American Association for Highway Improvement, which, with the American Automobile Association and the National Association of Machinery and Material Manufacturers, is holding the American Road Congress at Atlantic City.

In addition to the fact that most of the railroad presidents will be present, the fact that they are granting reduced rates, shows how important they regard the coming Congress. C. L. Hunter, vice chairman of the Trunk Line Association, in announcing that a reduction in rates will be made for the period of the Congress, wrote as follows to President Finley, of the Southern Railway, who is one of the directors of the American Association for Highway Improvement:

"The trunk lines generally in common with other transportation interests throughout the country are considerably interested in the improvement of the public roads and their maintenance in good condition, and you may be assured that they will use their best efforts to help in making the Congress a success in that direction."

Many sides of the improvement of the public roads of the United States will be considered at the various sections of the Congress, but the railroads are particularly interested in the transportation side. Mr. Finley points out that while improved roads will benefit the farmer first of all, the railroads will benefit eventually, inasmuch as they will not be compelled to carry so many empty freight cars along their rails if the roads to shipping points are made passable at all seasons of the year. During the muddy seasons the farmers are compelled to stop shipments. This means that the railroads are congested at some seasons, but suffer from idleness at others. Mr. Finley believes that the road movement, which will be crystalized in Atlantic City September 30 to October 5, will do much towards equalizing transportation, reducing the cost of hauling and the cost of living to the consumer.

OMAHA BRICK FIRM MOVE TO MORE COMMODIOUS QUARTERS.

Sunderland Brothers Company, at Omaha, are about to make a move of much consequence to their business, and one which signifies a growth of which any concern might well be proud.

A ten-year lease has just been signed, whereby the Sunderlands secure an entire floor (the third) in the new Omaha State Bank building, at Seventeenth and Harney streets, within one hundred feet of their present offices.

The building above first floor is "L" shape, giving outside exposure in all four directions. The space measures more than 6,000 square feet and lends itself admirably to subdivision as required by the several departments.

Especial consideration is to be given to the brick, marble and tile departments, which require spacious facilities for displays.

Except for solid walls here and there to furnish space for exhibits, the entire floor is to be thrown wide open with-

out a partition of any sort, except for vault, supply room, packing room, and the glass fixtures of private offices.

Mr. Albert D. Klein, of J., manager of the Sunderland brick department, has conceived some clever ideas for brick display, and it is more than likely that one of the finest brick salesrooms in the whole country will be established in the new offices of Sunderland Brothers Company, a progressive, clean-cut, substantial factor in the brick business.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.



PERHAPS NEW JERSEY manufacturers have never had a better business, all things considered, than has characterized the season now in progress. Prices have been high, approximately \$7.00, for most of the output, with slight changes up or down in accordance with demand. Nearly all the plants have had good sized contracts which have taken about everything made. And the situation has been fully as good as was anticipated at the beginning. The outlook favors a continuation of the present desirable conditions throughout the remainder of the season.

Dry weather helped manufacturers all through a larger part of the season, but the closing days of August and the opening days of September were rainy, and many brick then on the yards were more or less damaged. September opened with a plunging rainstorm, which came unexpectedly, and in not a few instances considerable injury resulted. The sheds are nearly cleared of the last burnings and the next one is nearly sold, which will leave them all bare again.

New York buyers have turned to New Jersey supplies in a good many instances since the introduction and enforcement of the new selling plan in New York. And New Jersey manufacturers have not been slow to see their advantage and profit by it. All the makers in the Raritan section have benefited largely by this condition and sales of their product have been large. How long this will continue no one knows, but presumably it will continue during the remainder of this season, and perhaps will be equally influential in the one to come.

The Atlantic Brick Manufacturing Company, May's Landing, makers of front brick, have one hundred or more men employed and are operating their works to capacity. Their product goes to Philadelphia and nearby Jersey cities and finds a ready sale among builders who want a good quality of stock. Inquiries concerning the future are numerous and the prospect favors a good sale for what is made continuously.

Sayre & Fisher Company, Sayreville, have been obliged to force their works to keep pace with demand. Front brick is apparently wanted more and more, and sales, formerly heavy, are increasing. Top prices are always obtainable by this firm. Indeed, Sayre and Fisher are among the leaders in New Jersey and the quality of all the stock they send out makes it especially attractive to buyers. All the enterprises in which this firm is engaged are conducted upon a high plane and are yielding satisfactory profits. A good many hundred men are given employment and many millions of brick of various sorts are turned out each year.

Augustus Reeve, Maple Shade, is doing an extensive business in hollow brick, fire brick and some common. His business in all the varieties he makes improves steadily, and this year has been larger than ever before, while prices in most instances have been better. Some of his product goes out on contract, but a good deal of it finds a ready sale near home. The clay beds from which his raw material is drawn are apparently inexhaustible and this, coupled with the improved demand, augurs well for his business.

The Bridgton Brick Company, at Bridgton, are enjoying

an active demand for their red pressed brick. The quantity turned out is larger than ever before, but it is quickly absorbed by the increased demand. The use of red pressed brick in structural work seems to be larger than ever before and sales are, consequently, much more liberal. The quality turned out by this firm insures repeat orders, and sales are naturally much better. For all brick of this type there appears to be a better demand than formerly and this progressive firm is deservedly sharing in the resulting improvement.

Enamel brick are being utilized more and more by architects in ornamental structural work, and the Stagmayer Enamel Brick Company, South Amboy, is profiting by this change in sentiment regarding it. Very many of the better class of dwellings, which are now in process of erection, or are to be built in the near future, will include considerable enamel brick in their construction. They are extensively used in office building, and if the new and popular loft buildings utilized them more largely it would be better for the owners. This firm turns out a superior article and finds a ready sale at profitable prices.

The Mutton Hollow Fire Brick Company, at Woodbridge, is enjoying a season of prosperity. Good orders, a plant working to capacity and a satisfactory outlook for the future. These are all elements which makes for profitable operation and apparently insures a continuation of the present desirable situation. Fire brick, formerly classed among the luxuries in building operations, are more and more specified in structural work, and manufacturers profit proportionately. When of good quality they are suitable for the highest type of work in which that particular variety can be utilized. This firm is particular about the quality of its output and adds to its business proportionately.

Increased demand and more numerous inquiries have been dominant factors in the experience of the United Porcelain Faced Brick Company, of Newark. It is only within a few years that porcelain faced brick has attracted attention in New Jersey. Since then this firm has forged rapidly toward the front as a producer, and its product ranks with the best of the kind anywhere. In ornamental work it adds materially to the appearance of whatever it has been used in, while its general usefulness has favorably impressed buyers and consumers in many instances.

The New York Silica Brick Company, of South River, is turning out an excellent quality of front brick and finding a ready sale for them almost everywhere. They find that front brick are coming more and more into vogue, and that builders are using them in many places where they were never used before. Their ornamental qualities serve to give an artistic appearance to a building which goes far to make it attractive. Their plant is running to capacity and no difficulty in selling is experienced.

The Great Eastern Clay Company is another South River concern that is profiting largely because it produces a specialty. Its chimney brick are known and used wherever chimneys are built and always with entire satisfaction to the user. The time has passed when constructors look upon it as a product of doubtful expediency, and they are ordering it freely. Some large stacks in Jersey have been built of this brick during the past year or two.

James Bissett, of South River, is operating his plant to capacity upon common brick and finds no difficulty in disposing of all he can make at satisfactory prices.

The Pettit Company is another South River concern running on common brick to the capacity of their plant. It is difficult for them to get any stock ahead, buyers are so numerous. Profitable prices have ruled this season and the prospect is good.

The South River Brick Company, of the same place, runs upon common brick and finds a good sale for whatever it turns out.

Yates Brothers, another South River concern, are operating their plant to substantially full capacity upon a high grade of common brick and their sales are eminently satisfactory.

BURTON.

OUTPUT AND VALUE OF CLAY PRODUCTS IN THE UNITED STATES IN 1911.

THE STATISTICAL REPORT mailed us this week by Mr. Jefferson Middleton, the statistician in charge of the work of the United States Geological Survey, contains some surprising facts. This report of last year's output and value of clay products shows a decrease of nearly eight million dollars in valuation, the production and value of common brick, architectural terra cotta and fire brick was much lower than in 1910. The output of vitrified brick or block was greater in 1910 by nearly twenty million, yet the total valuation for 1911 was \$111,000 more, the average price per thousand being \$11.72, while in 1910 it was \$11.37. This, we believe, proves the paving brick industry to be in a very substantial condition and points out the fact that in this branch of the clay business the producers have paid more attention to quality of ware than to quantity.

Front brick showed an increase of twenty-seven million in production, a little over one million dollars in valuation but a decrease of 38 cents in price per thousand. Fancy or ornamental brick exceeded its 1910 valuation by over \$200,000. Drain tile suffered a loss of nearly \$1,500,000, while sewer pipe made a gain of nearly \$16,000. Architectural terra cotta fell off nearly \$960,000 in valuation, but fireproofing advanced \$550,000, and stove lining \$111,000.

The output of fire brick was 113,000,000 less than in 1910, with decrease in valuation of over \$2,000,000, the average price per thousand, however, was \$19.86, while in 1910 it was \$19.09, a gain of 77 cents per thousand.

The brick and tile valuation suffered a loss of nearly \$10,000,000. Pottery showed an increase of close to \$1,000,000.

While there was a decrease in the total valuation of clay products of over \$8,000,000, due allowances should be made for the wonderful record in 1910, which was the banner year in the history of the clay industry. 1911 was the third best year, the total valuation in 1909 exceeding last year by four million.

The total valuation of clay products during the past seven years is as follows:

(1905) \$149,697,188, (1906) \$161,032,772, (1907) \$158,942,369, (1908) presidential year, \$133,197,762, (1909) \$166,321,213, (1910) \$170,115,975, and (1911) \$162,236,181.

Last year clay products ranked as follows in valuation:

Common Brick.....	30.75 per cent.
Pottery	21.27 per cent.
Fire Brick.....	9.91 per cent.
Sewer Pipe.....	7.06 per cent.
Paving Brick.....	6.85 per cent.
Drain Tile.....	5.44 per cent.
Front Brick.....	5.33 per cent.
Architectural Terra Cotta.....	3.71 per cent.
Fireproofing	3.49 per cent.
Tile (not drain).....	3.30 per cent.
Fancy or Ornamental Brick.....	.75 per cent.
Stove Lining.....	.38 per cent.
Miscellaneous	1.76 per cent.
	100.00 per cent.

The miscellaneous item includes adobes, aquarium ornaments, burned clay ballast, charcoal furnaces, chimney pipe and tops, conduits, crucibles, curbing, flue lining, gas logs, glass house supplies, glazed brick, grave markers, muffles, saggars, scorifiers, stone pumps, vases and ornaments and wall coping.

The ten leading states in production of clay products were Ohio, Pennsylvania, New Jersey, Illinois, New York, Indiana, Missouri, California, Iowa and West Virginia, the only change in rank being the position of California and Iowa, which in-

CLAY PRODUCTS OF THE UNITED STATES, 1911.
With corresponding totals for 1910, compiled by United States Geological Survey.

STATE	RANK.	COMMON BRICK.			VITRIFIED BRICK OR BLOCK.			FRONT BRICK.			FANCY OR ORNAMENTAL BRICK (Value).	DRAIN TILE (Value).	SEWER PIPE (Value).	ARCHITECTURAL TERRAZZO (Value).	FIRE-PROOFING (Value).	TILE, NOT DRAIN (Value).	STONE LINING (Value).	FIRE BRICK.			MISCELLANEOUS (Value).	TOTAL BRICK AND TILE (Value).	POTTERY (Value).	TOTAL (Value).	PER- CENTAGE OF TOTAL.	STATE	
		Quantity (Thousands).	Value.	Average price per thousand.	Quantity (Thousands).	Value.	Average price per thousand.	Quantity (Thousands).	Value.	Average price per thousand.								Quantity (Thousands).	Value.	Average price per thousand.							
Alabama.....	17	129,894	5708,903	86.47	91,444	8248,707	611.60	2,189	6128,403	614.00	(b)	\$3,777	(b)	(b)	(b)	(b)	(b)	11,929	\$193,376	\$16.21	\$16,221	\$1,818,808	\$28,498	\$1,947,102	1.20	Alabama.	
Arizona.....	44	10,249	90,282	6.81	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	108,882	15,500	124,382	.07	Arizona.	
Arkansas.....	36	57,306	389,091	6.78	(b)	(b)	8.14	738	6,000	10.88	4,261	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	465,143	15,500	480,643	.30	Arkansas.	
California.....	6	282,189	1,718,442	6.08	9,188	166,886	18.87	15,197	381,228	29.09	64,780	\$999,948	\$475,647	\$200,223	\$80,632	(b)	(b)	17,823	468,190	27.02	104,185	4,757,530	158,388	4,915,918	3.03	California.	
Colorado.....	22	89,960	560,818	6.22	2,384	81,672	13.63	28,189	204,783	11.26	23,056	297,800	(b)	(b)	(b)	(b)	(b)	8,057	182,788	22.68	65,086	1,686,838	40,073	1,726,911	.99	Colorado.	
Conn. and Rhode Island.....	26	208,631	1,153,409	5.68	(b)	(b)	16.60	(b)	(b)	12.49	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	1,257,939	(b)	1,257,939	.78	Conn. and Rhode Island.	
Delaware.....	41	80,168	165,225	8.20	(b)	(b)	(b)	(b)	(b)	18.60	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	800,810	(b)	800,810	.12	Delaware.	
District of Columbia.....	38	25,225	187,630	7.44	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	227,620	(b)	227,620	.14	District of Columbia.	
Florida.....	39	34,807	218,865	6.98	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	217,635	(b)	217,635	.16	Florida.	
Georgia.....	13	325,948	1,892,810	5.19	(b)	(b)	12.22	12,788	112,876	8.81	6,000	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	2,612,060	24,380	2,636,440	1.63	Georgia.	
Idaho and Nevada.....	42	22,261	189,604	8.53	(b)	(b)	(b)	680	7,828	20.82	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	198,479	(b)	198,479	.12	Idaho and Nevada.	
Illinois.....	4	1,074,466	9,128,911	8.50	124,823	1,627,883	13.06	18,788	240,136	12.14	10,281	1,872,049	607,694	1,679,276	655,984	(b)	(b)	19,286	288,039	14.83	48,872	13,865,200	979,611	14,338,011	8.33	Illinois.	
Indiana.....	9	192,057	1,132,656	5.90	81,198	392,186	12.67	40,777	480,709	11.79	2,006,803	466,014	(b)	437,778	(b)	(b)	(b)	2,903	78,116	26.22	491,994	5,998,034	1,004,737	7,000,771	4.82	Indiana.	
Iowa.....	9	164,434	1,026,011	6.24	6,879	103,384	11.64	8,241	114,178	12.38	(b)	2,488,982	284,817	(b)	374,828	(b)	(b)	(b)	(b)	(b)	(b)	4,399,874	36,319	4,436,193	2.73	Iowa.	
Kansas.....	16	183,809	694,688	3.78	63,337	823,606	9.88	27,687	216,711	7.66	84,876	(b)	(b)	(b)	16,287	(b)	(b)	(b)	(b)	(b)	(b)	2,380,282	(b)	2,380,282	1.46	Kansas.	
Kentucky.....	14	107,771	682,878	6.42	(b)	(b)	12.37	9,072	90,330	10.07	94,006	(b)	(b)	(b)	(b)	(b)	(b)	82,074	890,810	17.11	(b)	2,354,000	114,094	2,468,094	1.46	Kentucky.	
Louisiana.....	34	83,007	487,322	5.87	(b)	(b)	(b)	(b)	(b)	9.53	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	631,949	(b)	631,949	.88	Louisiana.	
Maine.....	32	51,444	364,414	7.08	(b)	(b)	24.74	8,139	51,602	10.07	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	819,214	(b)	819,214	.88	Maine.	
Maryland.....	19	160,229	999,781	6.24	(b)	(b)	16.98	767	10,674	13.87	(b)	(b)	(b)	(b)	(b)	(b)	(b)	13,181	249,674	18.97	(b)	1,618,023	234,411	1,779,434	1.09	Maryland.	
Massachusetts.....	20	166,834	1,079,778	6.47	(b)	(b)	11.00	(b)	(b)	18.00	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	1,935	70,104	86.86	(b)	(b)	(b)	1,700,287	1.06	Massachusetts.
Michigan.....	18	232,465	1,301,998	5.16	(b)	(b)	14.00	2,496	31,672	12.64	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	1,933,442	130,430	2,063,882	1.28	Michigan.	
Minnesota.....	21	163,015	888,037	5.45	(b)	(b)	13.16	10,683	136,086	12.45	121,966	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	1,693,478	(b)	1,693,478	1.04	Minnesota.	
Mississippi.....	30	92,431	684,860	7.41	(b)	(b)	(b)	1,012	11,020	10.89	66,196	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	664,176	23,660	687,836	.42	Mississippi.	
Missouri.....	7	217,466	1,309,164	6.02	44,813	488,299	10.90	25,491	630,332	12.96	164,393	1,156,528	402,988	123,489	(b)	(b)	(b)	88,346	1,763,648	20.28	189,517	8,269,145	5,308	8,274,353	3.87	Missouri.	
Montana.....	57	18,023	154,716	8.72	(b)	(b)	(b)	519	16,234	18.60	(b)	(b)	(b)	(b)	(b)	(b)	(b)	840	81,659	57.69	(b)	220,647	(b)	220,647	.16	Montana.	
Nebraska.....	28	102,706	667,001	6.49	(b)	(b)	11.55	(b)	(b)	20.00	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	795,894	(b)	795,894	.49	Nebraska.	
New Hampshire.....	36	57,657	430,746	7.46	(b)	(b)	(b)	47,609	628,868	11.10	28,602	106,137	1,658,873	1,728,811	1,187,390	(b)	(b)	66,470	1,364,684	83.00	831,276	2,778,287	6,401,941	15,178,228	11.21	New Hampshire.	
New Jersey.....	5	429,967	9,401,862	21.86	(b)	(b)	14.86	628,868	11,360	16.11	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	1,041	26,654	24.84	(b)	174,661	(b)	174,661	.11	New Jersey.
New Mexico.....	43	13,418	101,034	7.51	(b)	(b)	11.66	783	11,360	16.11	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	174,661	(b)	174,661	.11	New Mexico.	
New York.....	5	1,143,728	5,918,286	5.17	17,036	980,726	17.07	9,943	133,683	13.43	(b)	112,609	116,184	678,628	227,871	68,602	82,603	9,469	347,415	41.10	14,837	8,006,012	2,178,964	10,184,976	8.28	New York.	
North Carolina.....	24	176,235	1,078,183	6.04	(b)	(b)	(b)	(b)	(b)	9.81	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	1,271,570	8,558	1,280,126	.79	North Carolina.	
North Dakota.....	40	16,286	108,691	6.68	(b)	(b)	(b)	(b)	(b)	17.28	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	210,618	(b)	210,618	.13	North Dakota.	
Ohio.....	1	389,616	2,289,194	5.90	816,444	6,200,476	10.13	169,118	1,630,698	10.25	26,340	1,684,420	5,446,801	1,088,287	2,319,482	86,673	93,611	1,639,460	16.46	677,810	17,688,630	14,776,266	32,464,896	20.13	Ohio.		
Oklahoma.....	29	102,018	628,287	6.15	19,636	201,100	10.23	9,661	24,703	2.56	(b)	62,867	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	768,639	(b)	768,639	.47	Oklahoma.	
Oregon.....	27	68,207	533,892	7.84	(b)	(b)	(b)	(b)	(b)	28.43	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	1,081,025	(b)	1,081,025	.67	Oregon.	
Pennsylvania.....	2	774,129	4,983,232	6.41	124,126	1,611,061	12.17	184,669	9,111,492	11.44	44,683	12,779	660,809	389,000	300,667	656,913	184,846	294,062	6,666,629	18.69	606,908	18,113,218	2,156,817	20,270,035	12.49	Pennsylvania.	
Puerto Rico.....	48	1,686	16,278	9.25	(b)	(b)	16.00	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	19,828	(b)	19,828	.01	Puerto Rico.	
South Carolina.....	31	103,786	624,103	6.01	(b)	(b)	(b)	900	10,400	11.66	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	669,794	(b)	669,794	.41	South Carolina.	
South Dakota.....	47	5,621	42,287	7																							

a. Including adobe, burnt-clay ballast, charcoal furnaces, chimney pipe and tops, conduits, crucibles, flue lining, gas logs, glasshouse supplies, grave and lot markers, mullers, radial chimney brick, and block, re-ports, saggers, scorifiers, semi-enamelled brick, silo blocks, vases and ornaments, and wall coping.

b. Included in "Other States."

c. Made by Connecticut alone, and included in "Other States."

d. Includes all products made by less than three pro-

e. The total of "Other States" is distributed among the States to which it belongs in order that they may be fully represented in the totals.

f. Undistributed pottery products.

g. Includes enameled brick valued at \$1,038,865, made in the following States: California, Illinois, Maryland, Missouri, New Jersey and Pennsylvania.

h. In the total quantity and total value of fire brick are included, respectively, 104,483,000 silica brick, valued at \$2,520,816, of which 74,674,000, valued at \$1,525,-746,000, valued at \$1,057,965, by Alabama, Colorado,

i. Including enameled brick valued at

terchanges, the former going ahead of the latter. This was due to a large extent to Iowa falling off in drain tile, paving brick and sewer pipe, while California showed a gain over 1910 in paving and front brick and sewer pipe.

Ohio was the leading clay state and has had that honor since 1890, with the exception of 1910, when Pennsylvania held first place by a narrow margin.

Ohio was the leading paving brick, sewer pipe, tile (not drain), and pottery state. Pennsylvania ranks first in front brick, fancy brick and fire brick.

New Jersey led in fireproofing, while Illinois led in architectural terra cotta.

New York was the leading common brick state, producing over 1,000,000,000, her closest rival being Illinois. New York suffered a loss of nearly 250,000,000, but the price per thousand was \$5.17, while in 1910 it was \$5.00.

The first five states leading in common brick and their production, were as follows: New York, 1,143,726,000; Illinois, 774,122,000; New Jersey, 429,367,000; Ohio, 389,515,000. New Jersey was the only one of these states that showed a gain.

The five leading paving brick states were Ohio, with 315,944,000; Illinois, with 124,623,000; Pennsylvania, with 124,125,000; Kansas, with 83,337,000, and Missouri, with 44,813,000. While in 1910, the five leaders stood as follows: Ohio, 289,817,000; Kansas, 118,950,000; Illinois, 115,908,000; Pennsylvania, 101,330,000, and Indiana, 61,034,000. Indiana dropped to seventh place, with a decrease of 30,000,000. All of the leading states gained.

The five leading front brick states in 1911 were Pennsylvania, 184,569,000; Ohio, 159,118,000; New Jersey, 47,606,000; Indiana, 40,777,000; Kansas, 27,887,000. All showed gains over 1910 except Indiana and Kansas. Missouri and Colorado, which were fifth and sixth in 1910, dropped to sixth and seventh positions, Colorado beating Missouri.

The five leading drain tile states were Iowa, with a valuation of \$2,468,962; Indiana, \$2,006,803; Ohio, \$1,684,420; Illinois, \$1,373,049; Michigan, \$313,072. All but Illinois lost in valuation over 1910, Iowa suffering a loss of over \$1,000,000.

On the preceding page is shown a greatly reduced reproduction of the chart issued by the United States Geological Survey, a careful study of which will give an idea of the importance of the various branches in the several states, and afford a comparison of the prevailing average prices of the various kinds of brick in different localities. Anyone desiring a copy of the chart can obtain one by writing to Mr. Jefferson Middleton, statistician in charge of the Department of the Interior, United States Geological Survey, Washington, D. C.

BRICK NEWS FROM THE NUTMEG STATE.

Cephas Dow, an old-time brick manufacturer of Parkville, Conn., died at his home in that city recently. Mr. Dow was sixty-eight years old, and had been engaged in the brick business nearly all his life. The business will be continued under the management of his son, George Dow.

All of the brickyards of Berlin have experienced an unusually busy season, having run to their full capacity right through the summer.

At the C. P. Merwin Brick Company's plant a new steam shovel has just been installed to take the place of the old one, which has been used for many years.

The Donnelly Brick Company, of Berlin, has just installed a winding drum for the purpose of hauling their clay from bank to machine. Mr. Henry Donnelly, the manager of the plant, says in his opinion this is the best investment the company has ever made.

John H. Connly has sold his interest in the American Brick Company, at Berlin, to his partner, George A. Pickett, and has bought the Crown Brick Company's yards, formerly owned by the Jacobs Brick Company. Mr. Connly has had the machinery all put in good running order, and the plant is now operating to full capacity.

H. D. Paine, who was for a number of years connected with the C. P. Merwin plant at Berlin, is now associated with the Tuttle Brick Co., at Middletown, Conn. NUTMEG.

QUESTIONS OF INTEREST TO CLAYWORKERS.

By JULIUS J. KOCH.

DINAS OR SILICA BRICK.

Can You Give Me Any Information as to What Is Understood by Silica Fire Brick? What is Silica Brick? What are They Made Out Of?

The ordinary interpretation of the word silica brick is erroneous in that a silica brick is made of quartz or silica, mixed with hydrated lime as in England or mixed with clay as practiced in Germany, or is made from Dinas sandstone direct. The beneficial value in a silica brick rests in its high heat resisting quality, even standing up under S. C. 36, and its detrimental qualities consist of its friability or low tensile strength and its inability to withstand corrosion from certain kinds of slags.

It is a well-known fact that silica quartz or sand expand in higher heats (ergo, the higher the heat the more the expansion), it is essential to use silica brick burnt at a higher temperature than that to which they may be subjected to later on, and besides it is not a matter of great moment to take care of the expansion period during the manufacturing stage. All kinds of quartz are not suitable to the manufacture of silica brick, and chemical analysis does not afford any satisfactory data, but it is essential to ascertain the behavior of quartz (silica) during repeated heating periods. In a general way it can be stated that a quartz is suitable for making a silica brick, if:

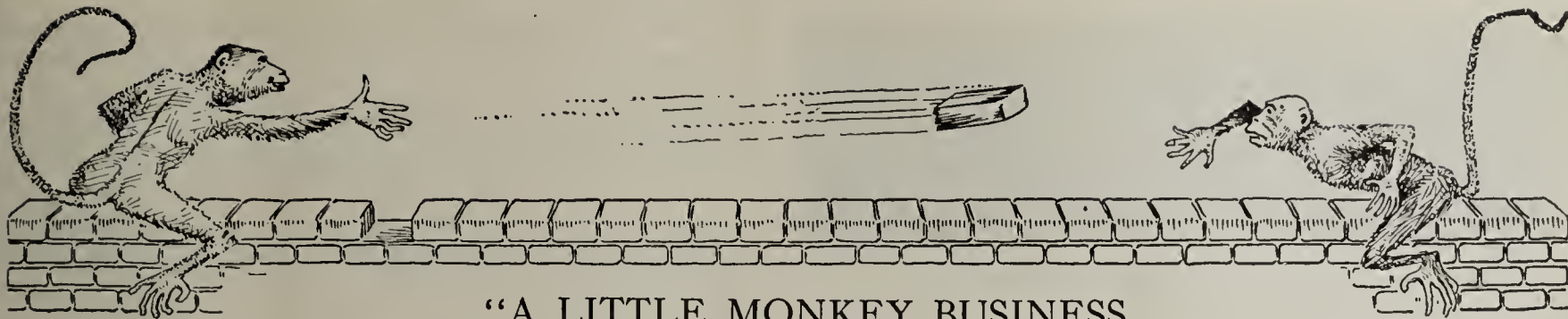
The expansion of the quartz is in close relation to well-known quartzes used in silica brick manufacture (not too much after several high burnings). The mechanical density or strength is not very much reduced.

It may be here stated that the large transparent quartz crystals as a rule are not suitable for making dinas bricks as upon heating the substance gets very porous and has so little bond that sometimes they drop to minute forms. A quartz, however, that retains its bond upon heating is satisfactory, and if the larger part of the expansion is in the first period of heating up, this would also be called a good indication. For instance, a first-class dinas brick showed a shrinkage of 18 per cent in the first burn and a shrinkage of 22-1-10 per cent after the sixth burn. The expansion in burning is best taken care of in small round down-draft kilns, wherein the bricks must be so set that no pressure can be exerted on the body of the kiln even during the long or slow period of burning, entailing maximum expansion. Too much care can not be exercised in cooling, as the least draft of cool air will cause excessive checking.

A number of manufacturers lay stress upon using a certain proportion of different sized grains, but be that as it may, the grinding and crushing of quartz is expensive and hard on the machinery employed, as for instance: Crushers, rollers, stamps and pans. Some manufacturers heat the quartz and shatter it with cold water, but as this breaks the natural grain, the brick made from such quartz will always be of inferior quality.

The percentage of lime used is very small, ranging from one to two per cent, and is generally added to the quartz in the form of hydrated milk of lime. It can readily be understood that extraordinary good mixing machinery must be employed to obtain results.

The more rapid the green brick are dried out, the better will be the results. Generally speaking, dinas brick are moulded in open moulds, but most manufacturers have some little pet scheme of their own. Dinas brick do not trim or chip easily. They are very serviceable for high temperature, especially so where they are subjected to a uniformly high heat, but must be kept away from cold drafts, as they then will spall and crumble very rapidly.



"A LITTLE MONKEY BUSINESS NOW AND THEN IS RELISHED BY THE BEST OF MEN."

REVISED VERSION.

Early to bed
And early to rise
Will make you rich
If you advertise.

—Judge.

CREEDS.

"Have they started a new party, pa?"
"Yes, my son."
"Say, pa, politics will soon be as bad as religion, won't it?"—Judge.

A HOBBLE.

Mrs. Stiles—"How do you like my new gown?"
Mr. Stiles—"Reminds me of a crowded theater."
Mrs. Stiles—"Crowded theater! How so?"
Mr. Stiles—"There seems to be standing room only."—Exchange.

BUT WHERE?

Motorton, Sr.—You kept the car out rather late last evening, son. What delayed you?
Motorton, Jr.—Had a blowout, dad.
Motorton, Sr.—H'm! Tire or roadhouse?
—Exchange.

BOTH NEGLECTED.

There is a saying that a man who squeezes a dollar never squeezes his wife. After glancing over his subscription book, a country editor is led to remark that there are a number of good married women in his county who are not getting the attention they deserve.—Culver, Ind., Citizen.

UNCERTAIN.

"Have you purchased your new car yet, Mrs. Noorich?" asked the visitor.
"No, Mr. Smithers, I ain't. I can't make up my mind whether to get a gasoline car or a limousine car. Maybe you can tell me—does limousine smell as bad as gasoline?" inquired the lady.—Harper's Weekly.

AFFECTIONATE BUT CAREFUL.

A negro woman in Savannah was preparing to get married. For four weeks before the ceremony she saved up her wages; and immediately after the wedding she hunted up her mistress and asked her to take charge of the fund.
"I'll take it, of course," said the puzzled lady; "but, Mandy, won't you be needing your money to spend on your honeymoon?"
"Miss May," said the bride, "does you think Ise goin' to

trust myse'f wid a strange nigger and all dat money on me?"
—Saturday Evening Post.

ONE KIND OF LUCK.

An Indianapolis man who had just returned from a little hunting trip met a friend, who wanted to know if he'd had any luck. "Some," replied the amateur Nimrod; "I found a man who was willing to cash my check when the game warden told me what the fine was."—Book of Smiles.

EXPLAINED.

"Was it a case of love at first sight?"
"No, second sight. The first time he saw her he didn't know she was an heiress."—Judge.

NAILED.

Householder—"Here, drop that coat and clear out!"
Burglar—"You be quiet, or I'll wake your wife and give her this letter I found in your pocket."

UNTIMELY TOMMY.

Mother—"Tommy always eats more pie when we have friends at dinner."
Visitor—"Why is that, Tommy?"
Tommy—"Cos we don't have no pie no other time."

A WISE NON-ADVERTISER.

There was a man in our town
And he was wond'rous wise;
He opened many places, yet
He wouldn't advertise.

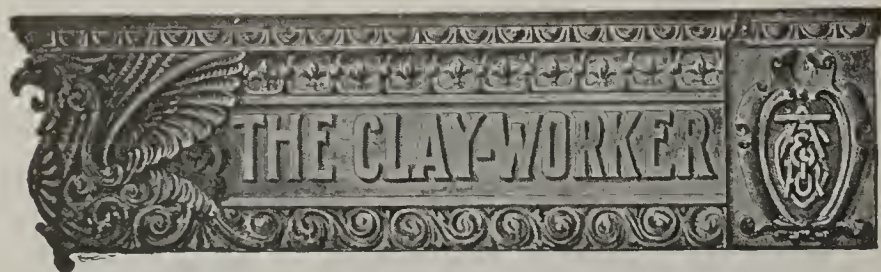
He thought it foolish to announce
His business as some think
They ought to do, and said he had
No need for printer's ink.

Promotion of publicity,
He said, was something which
The more he had of, that much less
His chance of getting rich.

He said he'd studied it and knew
That advertising would,
Beyond the shadow of a doubt,
Do more harm than good.

Indeed, this man in our town
Was truly wond'drous wise;
He was a burglar, which is why
He didn't advertise.

—W. J. Lampton, in Judge.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-NINTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis

Vol. LVIII. September, 1912. No. 3

CURRENT COMMENT.

It ought to be a good year for sewer pipe, and a bully fall for drain tile.

* * *

The latest question in political science is, does it harm a trust to dissolve it?

* * *

Vacation time is a thing of the past; forget about it, and talk about business for awhile now.

* * *

September is a big month for fairs, both big and little. Are you doing any advertising at those in your section?

* * *

The architect is a good man to reach with clay product ideas, but do not forget that the building contractor counts some, too.

* * *

Often a dollar's worth of paint in time will save you the buying of more than nine dollars' worth of new equipment before it is time for you to.

* * *

Reduce the cost wherever you can without impairing your product, but remember that the mainstay of the brick industry is quality—a superior building material, and that is the thing to keep with you always.

* * *

It is a little early yet to figure exact possibilities, but it is beginning to look like the big ditch canal will help the brick trade, too, especially with those so situated that they can use the coastwise transportation to advantage.

* * *

For a brick man to just have a frame shack of an office at his works is not a good way to help his cause. Set a good example by using brick in your own buildings wherever it is possible, even to the building of walls instead of fences. If

you do it right it should help the cause of brick enough to well repay you.

* * *

Great men, like great clay banks, are often the result of a combination of circumstances.

* * *

There is a fairly good number of full dinner pails these days, but there is also a muttering and a grumbling about the amount it takes to fill them.

* * *

A brick well dried may be almost half made, but the other half of the making has to be rightly done or the work of the first half will be labor lost.

* * *

The man that does good work gets his reward in some form even if it does not bring him in as much money as he thinks it ought. There is a measure of satisfaction that counts, and there are other compensations that come in time.

* * *

Some owners trust too much to their superintendents and some don't trust enough. In the one case it may be laziness, and in the other it may be past experiences, but that should not serve to keep either case long in this day of new ideas and swift progress.

* * *

One of the reasons why the central power plant can at times furnish electric power cheaper than a man can make steam power is in the use of turbines as well as steam-producing economy. This steam turbine has made records that makes it look like a good thing to look into.

* * *

Car shortage and annoyance from slow transportation is evidently to be an unavoidable part of the fall business. Railroad managers may be more far-seeing in some things than ordinary mortals, but it takes an actual shortage in cars to make them see the need of more equipment plainly enough to get busy, and that, too, in face of the fact that they lose as much as any one by not being able to furnish and move all the cars needed.

BEN FISHER AN OIL MAGNATE, MAYBE.

Ben Fisher, the genial manager of the Columbus Brick and Terra Cotta Company's plant at Union Furnace, Ohio, who always wears the smile that won't come off, is smiling more broadly than ever, all on account of having struck oil recently. The well is a regular gusher, so it is said. Even if "Ben" gets in J. D.'s class, he will never forsake the face brick business. It is his first love, and we will bank on his remaining true to it.

THE CROP REPORT.

If the corn is not caught by frost, if it ripens up properly, this will prove to be one of the great record crop years, notwithstanding the late start and the poor outlook in the spring. The wheat, while off a little in yield in some of the winter wheat states, has more than made up for this early shortage by a bumper crop in the spring wheat region, so the wheat crop in its entirety is a pretty full one and of excellent quality. Corn was planted late and the crop looked doubtful for awhile, but the unusual amount of late summer rains has brought it out wonderfully, and nothing but failure to ripen before frost can prevent a big yield. Meantime, the cotton crop has been faring the same way, and the South has recovered wonderfully from the big floods of last spring. The acreage is cut down a little in some sections, but it is partly made up for in others, and the general reports are good. The same is true of the tobacco crop, taking it as a whole, and the fruit crop is better than usual. So there is nothing to it but a good bunch of agricultural prosperity,

and it looks like good business all around even if it is a presidential year. General business is in better shape than it has been any time since the 1907 panic, towns and cities are spreading out, building up and improving streets, so this ought to be an excellent fall for all lines of clay products, a fall of busy times and good business.

THE FLOOR TILE.

One sees much more burned clay in floor tiling now than formerly, and in many instances it is evident that it is dissatisfaction with other offerings more than boosting on the part of the clay folks that is responsible. There is both beauty and service qualities about the burned clay tile that appeal. It supplies really attractive color tones, and it has the advantage of either marble or concrete compositions in being moisture proof and more sanitary. In fact, it has enough points in its favor, and is finding enough public favor of itself to make an unusually good opening for successful boosting and the building up of a much wider market. It should enter porch building at least ten times as much as it does today, and on all sides there is a big field for branching out into bigger trade. It looks to be simply a matter of going to it, of getting busy and keeping at it with enthusiastic boosting to make the clay floor tile one of the conspicuous products of the building material world.

INTERNATIONAL BUILDING EXHIBITION.

An International Building Exhibition with special supplementary exhibitions is to be held in Leipzig, under the patronage of His Majesty, King of Saxony, from May to October, 1913. The exhibition is to be broad in scope and include ideas in home making as well as in architecture, building material and the machinery and methods used in preparing the building material for use. In other words, it should be an inviting place for those with machinery or methods to offer, as well as a great place for those to visit who want to get new ideas on all phases of home building, architecture, etc. The time is rather short for those who may want to exhibit in this big show, as the circular matter sent out asks that application for space be in by the first of October of this year. The advertised rate for space in the closed buildings is fifty marks per square meter, with discounts for large spaces. In the open air the space rate base is twenty marks per square meter, with a minimum charge for space of one hundred marks. Any one interested and desiring further information can get it by addressing, the International Exhibition of the Building Trades, Leipzig.

A GOOD RIDER OF A GREAT HOBBY.

Twenty-five years ago, in August, F. W. Fitzpatrick, architect, mounted the hobby of fire prevention, and for a quarter of a century now he has been a persistent rider of this great hobby, doing thereby a great service to humanity, as well as covering himself with a fair share of glory. He was enthusiastic in his hobby riding to the point that years ago people thought him a crank, but public sentiment has undergone changes with the passing of time and the coming of enlightenment, until today, instead of calling Fitzpatrick a crank, many others are seeking a seat on this same hobby. So persistently and so well has he advocated fire prevention by fireproof construction that the subject of fireproofing always brings to mind Fitzpatrick, and it has been driven home in the public mind till today we are witnessing a wide tendency to prevent fires by proper safeguards in construction rather than pay for them through insurance. To the man who has been so long identified as the leader in this movement there must be a good measure of deep satisfac-

tion in seeing the fruits of his work ripen up as they are today, and we tender congratulations to Fitzpatrick on this, his silver anniversary of the great hobby ride, and certainly wish him all sorts of good things for the future, and in this we believe the clay industry as a whole joins, for his work has also been a great work for clay products, the material to build with to prevent fires.

A BIT OF BRICK HISTORY.

A press bulletin of the U. S. Geological Survey, on the Hudson River brick-making industry, tells of a bit of brick history that Jefferson Middleton has included in his report of this famous brick-making region. He gives to James Wood, an English brickmaker, credit for starting the business, back in 1817, that has grown to such proportions. Other prominent pioneers in that field were the Allison and David Munn, while credit is given to Richard A. Ver Valen for inventing, in 1852, a brick machine that gave great impetus to the industry. Another interesting feature of this report is in the estimation, that notwithstanding the great quantity of brick that has already been made and sent out of that region, and the present enormous rate of production, there is clay there yet to serve for a half century.

THOUSANDS TO ONE.

Here is a good suggestion borrowed from a live wire brick booster: There are thousands of people called on to pass judgment on the architectural beauty of a house to where there is one goes inside to see the fine floors, rugs and furnishings. This is one of the strongest talking points for brick, the object being to impress the prospective builder that most of the world will see and judge his house from the outside appearance. Only a small number are invited to enter, when compared to the multitude that pass by and observe the outward appearance of the structure. There is plenty of convincing argument for brick as the material with which to work out the architectural beauty of a home, and do not forget that the brick itself, whatever may be the color or design, carries with it a solid suggestion of quality and permanence in a building. It is an idea that may be taken and dressed up in a variety of forms, and in all of them made to do good and useful service in brick boosting.

THE YEAR IN IMPORTS AND EXPORTS.

Clay products are not big items in the international trade as compared to other lines, but there are both imports and exports, and they are worth keeping up with, and they give promise of growing larger on the export side. Our imports are mainly chinaware, which was once a very important item, and is still the biggest item in the international trade in clay products, but not nearly so large as it once was. The imports of earthen, stone and chinaware for the fiscal year ending with last June, according to the figures of the Bureau of Statistics, just now available, amounted to a total of \$9,997,698, which was nearly two million dollars less than 1911. Over eight and one-half millions of this was decorated or ornamental ware. This included vases as well as what we class as ornamented dishes. About half of it came from Germany, a fourth from the United Kingdom, and most all the balance from France, Japan, Austria-Hungary.

Of raw clay we imported during the year \$2,036,261. The bulk of this was china clay or kaolin, but there was also some blue clay for crucibles and a few other purposes.

The biggest item in our export trade was brick, which, counting fire brick and all others, amounted to nearly three million dollars, while the china and stoneware trade only amounted to about a million and a half. The total figures for all are \$4,481,382. This is more than double what the

trade was in 1910 and more than a million above the export trade of 1911, which shows pretty good development, even if the export trade does not look like a very important item yet. It suggests that there may be rapid growth in the future, especially with increased ocean-going facilities, between the manufacturers here in close touch with coast shipping points and the coast cities the world over. And the progress is in brick as much as in the chinaware, and in other brick as well as fire brick. Our first important export trade was in fire brick, and this trade is still growing, but there is also growing up a trade in other brick, perhaps face brick, though the statistics do not say, which looks like a mighty good future for those in position to cater to it. The trade in chinaware is growing right along, and in the course of a few years our exports in this should equal the imports.

NEW RECORD FOR SEATTLE FIRM.

The Denny-Renton Clay and Coal Company, of Seattle, Wash., recently established a record at their Renton factory when they shipped 335,000 brick in twenty-four hours. The brick, all of which were vitrified pavers, were shipped to different points, including Missoula, Mont., various towns in Washington, Portland and Salem, Ore., and Vancouver and Victoria, B. C.

CHAMBERS MACHINERY FOR FIRE BRICK MANUFACTURERS.

J. H. Chambers, president of the Chambers Brothers Company, Philadelphia, Pa., writes that they are much gratified at the increased interest manifested in their machinery by the manufacturers of fire brick and furnace block. Among their recent customers are the Chicago Retort and Fire Brick Company, which ordered machinery for the Ottawa (Ill.) plant, and the Kentucky Fire Brick Company, which has ordered an equipment for their Haldeman (Ky.) works during the past summer. Chambers Brothers recently shipped an outfit of heavy machinery to the Pacific coast, and also some machinery to Edmonton, Alberta, Canada.

A BULLETIN ON THE CERAMIC COURSES AT RUTGERS.

The Ceramic Department of Rutgers College has published a bulletin on the school showing views of the ceramic building and laboratory and a brief description of the department and the courses in ceramics, which consist of a short one of two years and the full course of four years. The average college expenses, as outlined in this bulletin, are estimated at \$310 to \$364 a year. Prof. C. W. Parmalee, director of this ceramic school, is well known in ceramic circles and has graduated many excellent ceramists at Rutgers. better known as the New Jersey State School for Clayworkers at New Brunswick, N. J. He will be pleased to correspond with any of our readers desiring further information in regard to the school and its work.

CERAMIC MATERIALS.

The above is the title of the latest book issued by the Roessler-Hasslacher Chemical Company, and is very valuable to all persons interested in ceramics, for it contains a price list of all ceramic materials used today and sufficient space for notations, formulae, etc. The book has a marginal index, so that prices on different coloring materials, chemicals, etc., can be found quickly. At the back of the book is a table of international atomic weights 1912, information as to various weights and measures, convenient multiples for conversion and directions for the use of sulphate of cobalt and green gold paste. If you are using ceramic materials in your work, you should not be without this book. A free copy will be mailed to you upon request. Write the Roessler-Hasslacher Chemical Company, 110 William street, New York, N. Y.

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"GETTING THE MOST FOR A DOLLAR" has been given as a definition of good engineering such as is done by

The Richardson-Lovejoy Engineering Company.

[See page 332.]

FOR SALE, WANTED, ETC.

WANTED—A man of extended and varied experience, at present in charge of a large face and paving brick plant in northwestern Ohio, would like to change; am capable of designing and erecting complete plants and have operated some of the largest in the country; none but those needing the services of a high class man need answer; highest testimonials. Address

BOX 8—OHIO,
8 tf d Care Clay-Worker.

For Sale, Wanted, Etc., Ads Continued
pages 321 and 322.

A QUALITY OF MACHINERY ABOVE ALL OTHERS.

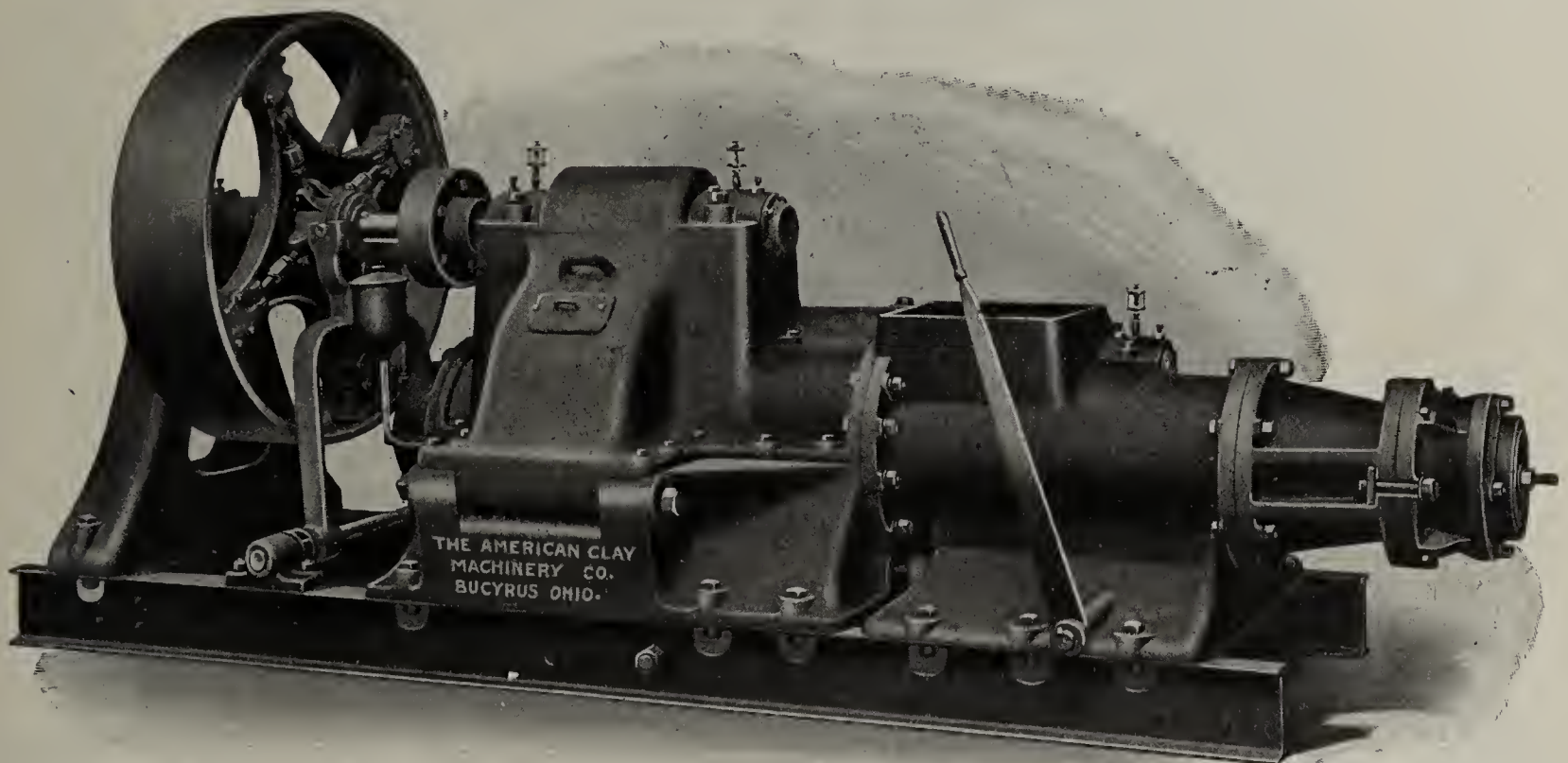
World's Record Broken

We've told you a few things before about what the 218 machine will do. Down at Woodland, Ill., it has been turning out tile so fast they can't take care of them and they have had to cut down the speed of the 218 machine.

Some people may say, "The Woodland clay is easily worked. How about some other clay?"

Here's the answer, and it comes from an outsider. A man of experience. A man seeking information on the quiet without our assistance. What he found out will interest you. Listen

Gentlemen:—In looking for information regarding the best machine for making hollow ware I got into the plants of the Mason City Brick and Tile Co., Mason City, Iowa. I found them using three of the No. 218 auger machines made by The American Clay Machinery Co., of Bucyrus, Ohio. One of these machines was making twelve by twelve-inch fire-proofing blocks. I counted the number the 218 machine was turning out and each time I counted I found it was making thirty-two perfect blocks a minute. The blocks weigh at least 17 pounds each, which would make a daily capacity of 160 tons for this one machine. This is a most remarkable performance. The Mason City people express themselves as well pleased with the No. 218 machine



The Mason City Brick and Tile Co. is one of the largest producers of hollow ware in the country and they make a mighty fine grade of ware at that. The above outside statement of what they are doing ought to interest you.

We will be pleased to give any information desired regarding this or other Clayworking Machinery.

The American Clay Machinery Co.
Bucyrus, Ohio, U. S. A.

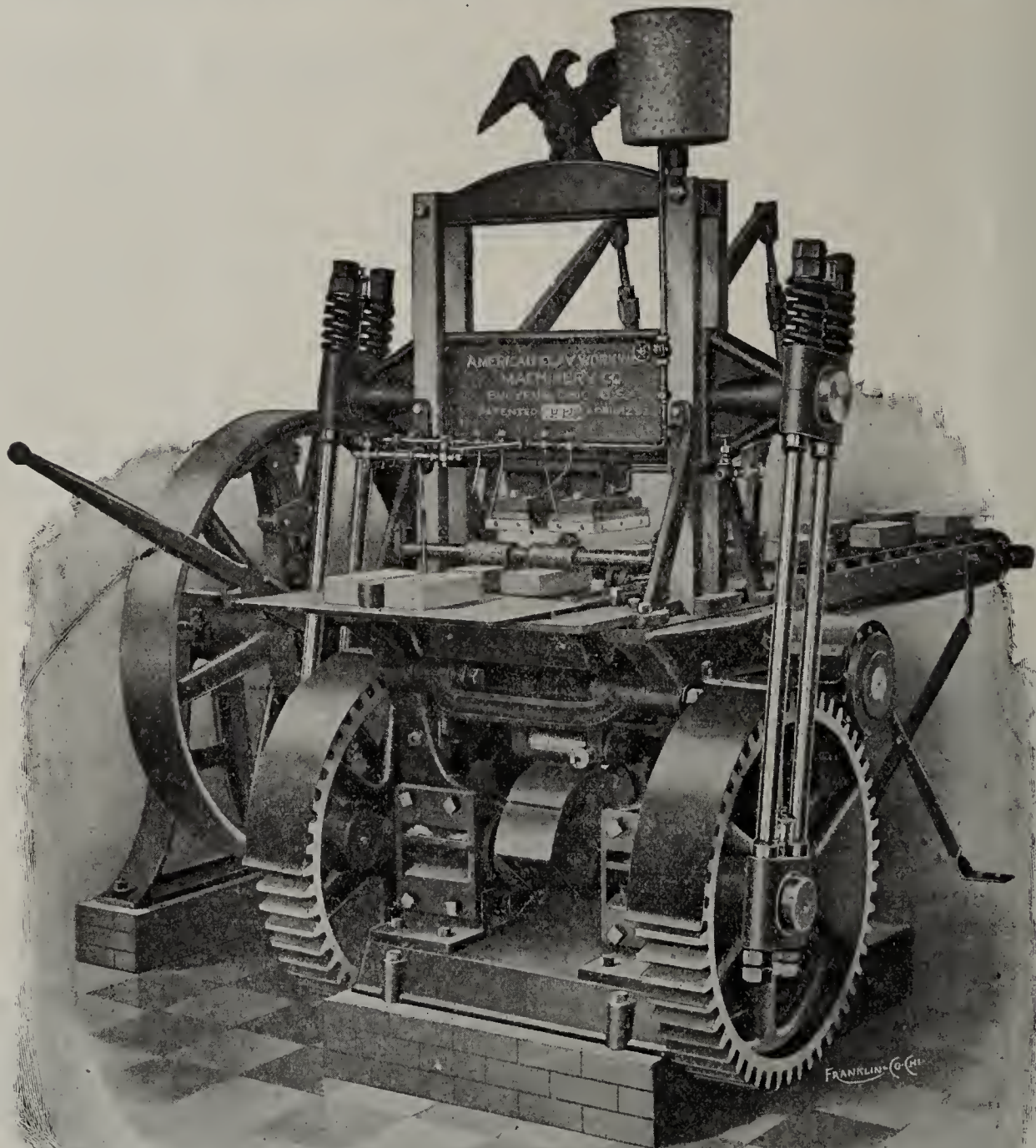


Much the largest manufacturers of Clayworking Machinery in the world. And much the best.

Mention THE CLAY-WORKER.

A QUALITY OF MACHINERY ABOVE ALL OTHERS.

Hold Your Watch and Count



Do you own a watch?

Suppose your watch was to tick off a few seconds and then skip a few. Suppose it lost a minute now and then.

How long would it take you to get disgusted with such a watch? The loss of the minutes and seconds and the general lack of reliability in that watch might not be vital, but it would be annoying. Even if it wasn't of great importance, you'd want your watch reliable and you'd make it so or give it away and get a new one, a regular regulator.

How about your Repress? It's really vital that the repress is right and reliable. If it stops, your production stops, too, and that means loss of time, money and patience.

What you need in a repress is a "regulator" and that's only another name for the Eagle Repress. The Eagle will prove the steadiest machine in your plant. Its constant "tick tock, tick tock" will be steady and reliable enough to set your watch by. Moreover, every time the Eagle "ticks" you get two perfect bricks. There is no guess work about the Eagle Repress. All you have to do is to see that the blanks are delivered to the press and the bricks come out "as swift as the lightning and sure as the sun."

It's the way the Eagle has. It's built to perform properly and does it. We want to tell you more about the Eagle Repress and other Clayworking Machinery. Write us.



The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.

Much the largest manufacturers of Clayworking Machinery in the world. And much the best.

Mention THE CLAY-WORKER.

A QUALITY OF MACHINERY ABOVE ALL OTHERS.

Do You Want an Automobile?

If you own an automobile and use five gallons of gasoline a day, we have a way of giving you free gasoline for life.

Every day, at every fire hole in your kiln, you are using more fuel than five gallons of twenty-cent gasoline would cost.

Every day we can save you half of that fuel. Just count the fire holes and you'll see what you are wasting.

If you saved this waste you could afford to pay a dollar a gallon for your gasoline and still be money ahead.

If it were gasoline you'd count it an awful waste even though you had a lot of fun wasting it.

Just because it's coal or other fuel and just because the waste is going on steadily, silently, but relentlessly, and just because you *think* it's necessary, you let it go, but it's none the less serious. It's almost a criminal piece of carelessness.

We would like to save you this waste—if you can use the money we save you.

The Haigh Kiln gives the highest per cent of marketable product.

The Haigh Kiln has the lowest per cent of fuel consumption.

The Haigh Kiln gives the highest per cent of first class ware.

The Haigh Kiln requires the least burning time.

The Haigh Kiln possesses the greatest conveniences and the greatest simplicity.

The Haigh Kiln gives you the highest per cent of profits.

The Haigh Continuous Kiln has other merits besides economy, all of which we will be pleased to explain to you if we have an opportunity. May we?

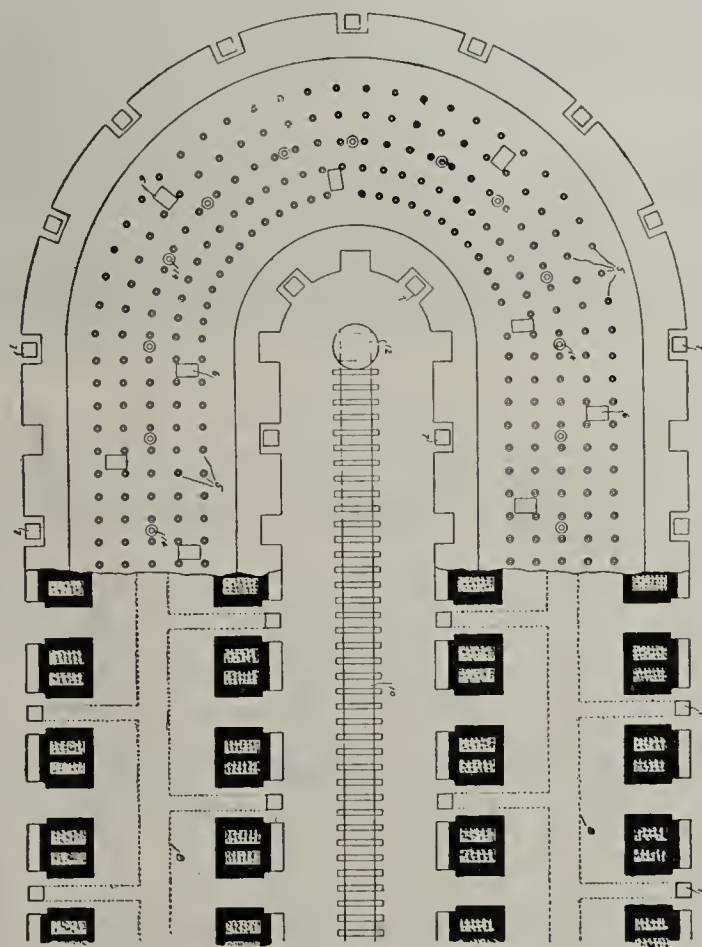
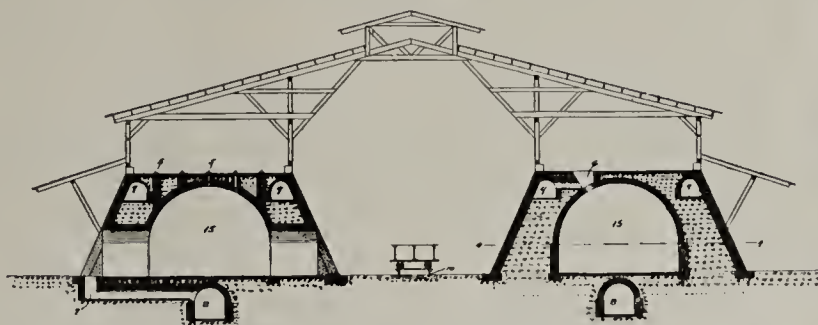


Fig. Plan View With Part in Section on Line A-A



Transverse Section Through Side Door

Transverse Section Through Waste Heat Connection

1-Top Firing Holes
2-Waste Heat Connections
3-Smoke Duct Connections
4-Main Smoke Duct
5-Route Heat Duct

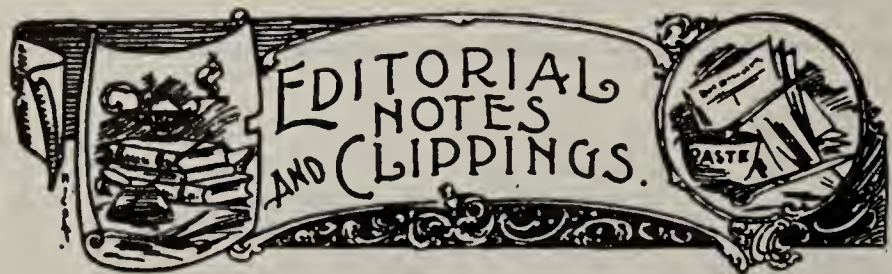
6-Transfer Tract
7-Turn Table
8-Earth Filling
9-Measuring Hole
10-Burning Chamber

The American Clay Machinery Co.
Bucyrus, Ohio, U. S. A.



Much the largest manufacturers of Clayworking Machinery in the world. And much the best.

Mention THE CLAY-WORKER.



John Cheschern has started a small brick plant at Springfield, Ore., which he will operate with electric power.

The United Brick and Clay Products Company, of Philadelphia, has recently been incorporated, with \$50,000 capital stock.

W. C. Haviland, of Fort Dodge, Iowa, has purchased twenty acres of clay land near that city, on which he will erect a sewer pipe and drain tile factory.

The Northwestern Clay Machinery Company, of Minneapolis, Minn., recently opened a sales office in Davenport, Iowa, in order to enable it to take better care of its trade in that vicinity.

The plant of the Illinois Drain Tile Company, at Albion, Ill., has been purchased by Elbert Epler and L. W. Wilson. The company is to be reorganized and a number of improvements made in the plant.

The Consolidated Coal and Clay Products Company, of Wilmington, Del., has been incorporated, with \$500,000 capital stock, by R. Boyd, C. J. Jacobs and Harry W. Davis. The company will manufacture press brick, terra cotta and roofing tile.

George Bucur, of Akron, Ohio, has filed suit against the Robinson Clay Products Company, of Akron, Ohio, for \$10,000 damages. The plaintiff alleges that his body was crushed and several ribs broken by a cave-in of a clay bank owned by the company, March 9.

William Wiegand, night watchman for the Richards Brick Company, at Edwardsville, Ill., was found dead by an employe of the company early in the morning of August 27. It is supposed that he had been struck by lightning, as there had been a severe storm the previous night.

Frank Pratte has purchased the old brick plant at Paynesville, Minn., which he will put in shape for operation at once. The plant has been idle for nearly three years, and it will take Mr. Pratte some time to get it in condition for operation. He will manufacture both brick and drain tile.

By the consolidation of the plant of the Shenango China Company and the New Castle China Company, at New Castle, Pa., under the management of President Joseph Smith, of the former company, the New Castle company will become, it is said, the largest producer of vitreous hotel and restaurant pottery in the United States.

It is possible that the Mattoon Tile Co., of Mattoon, Ill., which was purchased by H. W. Clark, will change its product within a few months and manufacture brick. The corporation has been reorganized, with Mr. Clark as the head. The plant has been put in working order, and, while there is a large amount of tile material on hand, more will be manufactured.

A petition in bankruptcy has been filed at Utica, N. Y., by the Stuyvesant Brick Company, of Mechanicsville, N. Y. Business has been run at a loss for several months, with no prospects of improvement, and as the concern has no money to pay creditors, the directors authorized the president, C. P. Scheffer, to file a petition, showing liabilities of \$24,886 and nominal assets of over \$38,000.

The Roux Composite Brick Company, of Plant City, Fla., which was capitalized recently at \$30,000, has taken over the plant of the Plant City Sand-Lime Brick Company, and, under the direction of W. J. Carmichael, of Willoughby, Ohio, has installed sand-lime brick machinery of the latest type, and is now turning out a very superior grade of sand-lime brick. The plant has a capacity of something over 50,000 brick per day.

The clay pit of the Banner Clay Works, at Edwardsville, Ill., was out of commission for ten days because of a cloudburst which struck southern Illinois. The water was thirty feet deep in places, and the pumps were run night and day in order to dry it out. The reserve shale kept the plant going. This company is using advertising space in cities where pav-

ing contracts are being let, showing the merit of their brick and the number used in the different Illinois cities.

B. A. Lewter has purchased the interest of Alexander and Robert Dyas, of the Huntsville Brick Company, at Huntsville, Ala.

The Thomas Moulding Company, of Chicago, has certified to a change of name, and will hereafter be known as the Thomas Moulding Brick Company.

The Silica Brick and Clay Company, of Denver, Colo., has been incorporated, with \$25,000 capital stock. Those interested are T. H. Fault, Joseph Mitchell and John Carruthers.

The Bloomington Press Brick Company is making a number of improvements at its plant at Bloomington, Ill., including the erection of an additional kiln and the installation of new machinery.

W. R. McPherson, manager of the Bloomdale (Ohio) Tile and Brick Company, had a slight stroke of apoplexy recently while at work in his office. At last report his condition was much improved.

The Glasgow Grand Island Brick Company has a new industry started at Grand Island, Neb. P. C. Hanson, of McAllister, is at the head of the concern. The plant will turn out a high grade of sand-lime brick.

Isaac T. Williams, an employe at the Brush-McCoy Pottery Company, at Roseville, Ohio, was crushed to death when he attempted to step from a moving elevator and was caught between the floor of the elevator and the door sill.

S. E. Vance, president of the Crookston (Minn.) Brick and Tile Company, has been investigating the plant of the Moorhead Brick Company at Fargo, N. D., with a view of purchasing same and operating it in connection with his present plant.

The Kittanning Clay Products Company, of Bradford, Pa., has enjoyed an unusually brick trade during the past season. The company has received extensive orders from southern points for their "Kittanning Buff" brick, of which they have been making a specialty.

August Benson, of Streator, Ill., is interested in a movement to establish a small plant at that point for the manufacture of white enamel brick. Mr. Benson is a practical enamel brickmaker, and is anxious to use the Streator clays for making these high-grade brick.

The new brick plant of the Thomas Dea Brick Company, at Greensboro, Ala., has been completed, and they are now turning out a first-class building brick. The first kiln of brick was sold long before completed, and they have orders on hand that will take their output for some time to come.

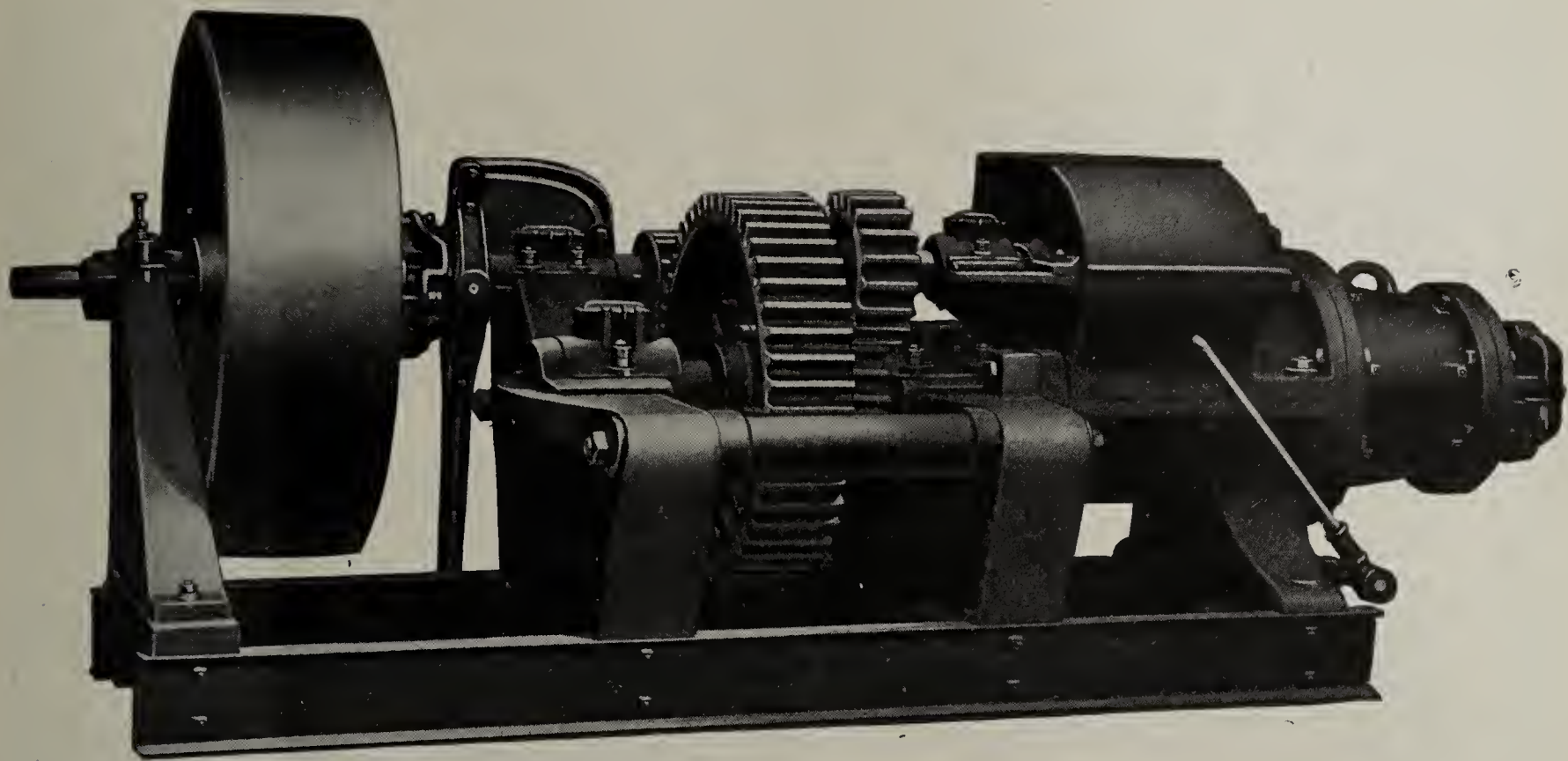
The Brazil Hollow Brick and Tile Company has begun the manufacture of a special vitrified clay block at its plant at Brazil, Ind., for use in the construction of silos. The design for the block was made by Prof. J. B. Davidson, of the Agricultural Engineering Department of the Iowa State College at Ames.

James F. Freeman, of Lawrence, Mass., has secured a patent of a brick cleaning machine which it is claimed will clean 20,000 brick per day, scraping all of the mortar off of the brick and damaging comparatively few of the brick. The machine is operated by a gasoline engine, and requires but two workmen and a helper.

The Fitchburg Brick Company, at Fitchburg, Mass., has experienced an unusually busy season, turning out almost double the usual capacity nearly all summer. The plant is operated throughout by electricity, which lightens the labors of H. E. Doty, the superintendent, to no little extent. Mr. Doty's chief trouble this summer has been in getting enough workmen to keep the plant running to full capacity. Besides taking care of the local trade, the brick are shipped to many points outside of Fitchburg. The present owners have only been in charge about a year, and feel very much encouraged

(Continued on page 314.)

F. JULIUS FOHS
Mining Geologist and Engineer
EXAMINATIONS of CLAY PROPERTIES
LEXINGTON, KY.



Model "GA" Auger Brick Machine

In general design, this machine is similar to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and avoiding the use of high speed gears. The result is less wear and tear on gearing, less noise, less power lost through gear friction and consequently less expense for maintenance. Owing to the slow speed, the operation is unusually smooth and quiet. There is very little vibration to work loose nuts and keys. It is a reasonable conclusion that an almost noiseless machine will require less care and last longer than one which is continually shaking itself to pieces.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled for the foundation bolts, thus providing a very rigid construction. The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

This type of machine is built in several sizes—further particulars on request.

E. M. FREESE & COMPANY, Galion, Ohio

See additional ads on pages 352-355.

EDITORIAL NOTES AND CLIPPINGS—Continued.

over their season's business, and expect to make still greater movements the coming year.

The New York Coal and Iron Company will erect a paving brick plant at Nelsonville, Ohio, of 60,000 daily capacity. Work on the plant will be started in the very near future.

The Bladen Brick and Tile Company, of Elizabethtown, N. C., has been chartered, with \$50,000 capital stock. Alex. Newton, J. Sprunt Newton and others are interested.

The Vancouver Clay Products Company have under way plans for the erection of a brick plant at MacLeod, Alberta, Canada. Work on the plant will begin in the very near future.

The Frazier Brick Company, of Ginger, Texas, has recently been incorporated, with \$50,000 capital stock. The incorporators are W. D. Frazier, O. B. Breem and J. H. Payne, of Dallas.

The Paducah Clay Products Company is a new Kentucky incorporation recently organized, with \$250,000 capital stock. Those interested are J. W. Pryor, Thomas L. Walker and A. Traliet.

A brick plant of 20,000 daily capacity is to be established at the state prison at Jackson, Mich. Contracts for the making of the machinery have been let to the J. D. Fate Company, of Plymouth, Ohio. It is expected the plant will be ready for operation in about ninety days.

Otis L. James, former superintendent of the American Refractories Company at Joliet, Ill., has recently organized the Illinois Clay Products Company, which is now erecting a large plant at Oglesby, Ill. Mr. James expects to have the new plant ready for operation in the very near future.

The Lemmon (S. D.) Brick and Tile Company has been organized, for the purpose of manufacturing brick, tile and hollow block. The company is to be capitalized at \$200,000 by O. S. Quammen, G. E. Lemmon, F. A. Finch and T. O. Ramsland, all of Lemmon, and A. C. Brennock, of Mason City, Iowa.

The new plant of the Vogle Clay Products Company, of Weir, Kans., is almost completed, and Messrs. Vogle and Allen, proprietors, expect to have things in full working operation by the first of October. The plant will be equipped throughout with modern machinery, and will manufacture paving brick and drain tile.

J. P. Stillwaugh has sold his entire holdings in the Hamilton Brick Company, of Hamilton, Ohio, to Major Bender. Mr. Stillwaugh has been in Canada for some time, where he is general manager of the immense plant of the Canadian Clay Company at Pictou, Nova Scotia. Now that he has sold his interest in the Hamilton company, he will move his family to Canada, where he has taken up permanent residence.

S. J. Spencer, vice-president and general manager of the Garrison (Texas) Brick Company, reports that his firm is having an unusually busy season, the town of Garrison having been awakened to the necessity and importance of building with brick, and during the past season many fine residences and business houses as well as school buildings have been built of that material. In addition to the furnishing of home trade, his company ships brick to adjacent towns.

The Oklahoma Press Brick Company is the name of a new concern recently organized at Kiowa, Okla. The officers of the company are C. W. Crum, president; T. B. Edwards, vice-president; J. W. Culbertson, secretary, and H. B. Rowley, treasurer. J. F. Waymeir will be general manager and superintendent of the plant. The company has a fine bed of very deep clay which is suitable for a high-grade brick and drain

tile. Work on the plant has been started, and it is expected they will turn out brick by the middle of October.

The Corsicana Brick Company, of Corsicana, Texas, has been incorporated, with \$50,000 capital stock, by C. A. Benton, C. W. Kerr and Milton Hill.

A. Zorn has purchased the Tillbury (Ill.) Brick and Tile Yards, and will make a number of improvements on same preparatory to running same to full capacity in the near future.

The Binghamton Paving Block Company, of Binghamton, N. Y., has recently been incorporated by Lloyd I. Charles E. and George W. Foster. The company is capitalized at \$50,000.

The Palestine Brick Company, at Palestine, Texas, is owned altogether by colored people. The plant has a capacity of 700,000 brick per year, for which there is a good demand.

William F. Odom, an employe of the Cherokee Brick Company, at Macon, Ga., was overcome by heat while at work, and died within a short time. A wife, one daughter and six sons survive.

The brick yard of Jacob Pontz at Lancaster, Pa., was badly damaged by fire last month. Most of the damage resulted from the burning of the stables, which were completely destroyed, together with two valuable horses.

A factory is to be erected at Paris, Tenn., for the manufacture of chinaware, to be known as the Southern China and Pottery Company. The clay owned by the company has been thoroughly tested and proven unusually desirable for the manufacture of pottery.

A new company to be known as the Modern Tile and Manufacturing Company has been organized at Knoxville, Tenn., by S. J. Davis, A. G. Bigley and R. A. Mouron. The latter gentleman is an expert in the manufacture of tiling. He will have entire charge of the plant, the product of which will be floor tiling and wainscoting tile.

Martin Roche, president of the Northern Brick and Supply Company, of St. Paul, Minn., has sold his third interest in the company to E. J. Donahue, secretary of the company. Mr. Roche has taken over the company's business in Minneapolis, where he will open up an office and operate in that city under the name of the Martin T. Roche Brick and Supply Company.

Felix Guignon, formerly superintendent of the Chicago Retort and Fire Brick Company, has leased the plant of the Swift Terra Cotta, Brick and Tile Company at Ottawa, Ill., which has been in operation for a number of years, confining its product principally to drain tile. Mr. Guignon will take charge of the plant at once, and will make arrangements for the manufacture of brick as well as tile.

The Black Hills Press Brick Company, at Rapid City, S. D., which closed down its plant in the spring, has been reorganized and a new set of officers elected. They have orders enough on hand to keep the works running to capacity until cold weather. The newly elected officers are R. B. Hughes, president; C. W. Todd, vice-president; C. M. Caton, secretary and treasurer, while C. W. Sheriff, formerly of Luverne, Minn., will have charge of the management of the plant.

The Lexington Brick Company, of Lexington, Ky., had a very fine and interesting display at the Kentucky State Fair in August. Over the entrance to the tent in which the display was made was an immense sign bearing the slogan "Back to Brick," and beneath it a smaller sign, "Something New in Brick," which seemed to attract the attention of the visitors, for the tent was well filled most of the time, and Mr. H. C. Cramer, the general manager of the company, who was in charge of the exhibit, was kept busy explaining the merits of the different varieties of brick to his visitors.

PACKING HAY ^{WE} SELL PACKING STRAW

Have shipping points in Illinois, Wisconsin, Ohio, Michigan and Indiana. Can ship to you from nearest point, therefore can deliver to you at low prices. Get our prices when you are in the market.

Write us today and we will put you on our regular quoting list and keep you posted on prices.

INTER-STATE HAY CO.

Goshen, Ind.



Barrett's PAVING PITCH



Fifth Avenue, North, Nashville, Tenn., Granite Pavement Filled With Barrett's Paving Pitch in Spring of 1892.

A Story of its Wonderful Durability

In 1892 Fifth Avenue, North, between Church and Cedar Streets, Nashville, Tenn., was paved with Granite, the joints of which were poured with Paving Pitch.

An excavation for laying an electric conduit necessitated a trench the full length of the pavement. This gave an opportunity to observe the condition of the filler.

It was found that the 20 years of service had not impaired it in the slightest. It has never been renewed or given any attention. It was found by physical test and examination to be as pliable and plastic as when originally poured in 1892. In fact, if it had not been for the ex-

pense of scraping it off the blocks, the pitch could undoubtedly have been heated up and used over on a new job.

Can any other filler on the market show 20 years of durability?

The best Paving Pitch, the kind we have always made, and which was used 20 years ago in the above instance, is Barrett's Paving Pitch.

Paving Pitch has many other merits besides long life. It provides for expansion and contraction, makes cracks and breaks impossible and gives perfect waterproof protection to the foundation.

Booklet on request.

BARRETT MANUFACTURING COMPANY

New York	Chicago	Philadelphia	Boston	St. Louis	Cincinnati	Cleveland
Pittsburgh	Minneapolis	Kansas City	New Orleans	Seattle	London, England	

POLITICS!

PLAY SAFE.

You can vote for only one party and your favorite may not win.

As you represent the (paving brick) **"INTERESTS"** you were wise in being a **"CONSERVATIVE,"** but our campaign is advancing and you had better join the **"PROGRESSIVES"** listed on the opposite page.

You can then be a **"FREE TRADER"** and you can still make the old repressed or stamped blocks when required by the **"STANDPATTERS"** who are not awake to the superiority of

WIRE-CUT-LUG BLOCK

Patented in United States and Foreign Countries.

240,000,000

WIRE-CUT-LUG BLOCK

The Metropolitan Paving Brick Co., Canton, Ohio, and The Bessemer Limestone Co., Youngstown, Ohio, two of the biggest and best known manufacturers of paving brick, have joined the family of Wire-Cut-Lug Licensees.

The licensing of these two companies, whose combined annual output is 150 million blocks, fulfills a prediction, made two years ago, that the Wire-Cut-Lug process would revolutionize the paving brick industry.

The affiliation of the METROPOLITAN and BESSEMER companies with the Wire-Cut-Lug licensees is complete recognition of the Wire-Cut-Lug block. All of our licensees are permitted to continue the manufacture of repressed blocks as formerly, but the earlier licensees have abandoned it entirely, owing to the superiority of their Wire-Cut-Lug product.

Would the METROPOLITAN and BESSEMER companies have made this change from the old repress method of making paving brick had they not been fully convinced, to the minutest detail, that the Wire-Cut-Lug process is the final word in paving brick manufacture?

Could they afford to take this step without satisfying themselves that Wire-Cut-Lug block is the future paving material?

During the year 1910	{	Corry Brick & Tile Co.,	Corry, Pa.
		United Brick Co.,	Conneaut, Ohio.
During the year 1911	{	Sterling Brick Co.,	Olean, N. Y.
		Reynoldsville Brick & Tile Co.,	Reynoldsville, Pa.
		Danville Brick Co.,	Danville, Ill.
		Paterson Clay Products Co.,	Clearfield, Pa.
During the year 1912	{	Wabash Clay Co.,	Veedersburg, Ind.
		Clinton Paving Brick Co.,	Clinton, Ind.
		Alton Brick Co.,	Alton, Ill.
		Deckman-Duty Brick Co.,	Cleveland, Ohio.
		Tuna Valley Pressed Brick Co.,	Bradford, Pa.
		Foster Paving Block Co.,	Bradford, Pa.
		Metropolitan Paving Brick Co.,	Canton, Ohio.
		Bessemer Limestone Co.,	Youngstown, Ohio.

WATCH THIS LIST OF MANUFACTURERS GROW.

The combined product of these companies will be 240 million blocks annually, or enough to pave a sixteen-foot roadway 650 miles long.

Hundreds of cities already have admitted Wire-Cut-Lug blocks in their specifications, and the number of city engineers recognizing their merit is growing. You cannot afford to defer action in the consideration of the Wire-Cut-Lug proposition.

Write us for further evidence.

The Dunn Wire-Cut-Lug Brick Co.
CONNEAUT, OHIO.

Patented in the United States and Foreign Countries.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



HE BRICK MARKET, which was so lively last month, is a little duller now, but business holds up satisfactorily and the volume of sales for the summer will undoubtedly be much ahead of a year ago. There is no more talk of raising the price on common brick, but the prevailing rate of \$7.50 per thousand is very firm. In spite of the lateness of the season new brick plants are being started with much frequency up and down the coast and the amount of new capital invested in the industry is very large. There are reports of but few failures, and in almost every case the established plants are operating full capacity. Some of the newer companies are experimenting with new materials and methods, thus seeking to develop along original lines, and in several instances at least new products of great potential value have been turned out. The large brick manufacturers who have headquarters in San Francisco look for a big development in the industry in the next few years and expect to see the business become adjusted on a more profitable basis. By the valuable work of the Contractors and Dealers' Association, the new state organization which has for its main object the harmonizing of interests among building contractors, material dealers and labor, and the effective publicity work of the Brick Builders' Bureau, great changes must take place in the status of the clay products industry on the coast. Nat Ellery, manager of the bureau, does much personal missionary work in the interest of clay products, and it is his purpose to bring to bear practical scientific data in support of his brick propaganda. Just recently he gave expert advice to the local board of supervisors relative to the use of brick for the arches and portal faces of the new tunnels to be built here. It is most likely that much brick will be used in the tunnels, as Mr. Ellery has demonstrated by careful figuring that many thousands of dollars could thus be saved to the municipality. He also cited instances where concrete had proven inadequate in tunnels and pointed to the success of the brick arches in the tunnels in Los Angeles.

The terra cotta situation on the coast remains about the same as usual. Figuring is close and the demand is far short of the capacity of the factories, but there is no apparent falling off for the past month. The plants are quite busy turning out products for large contracts on hand, but only a few large new contracts have been announced. The tendency is to use more tile and terra cotta in all important structures and the future of this department is indeed hopeful. The sewer pipe plants continue to run full force for the most part, and in view of the heavy demand from the smaller cities of the coast country, there will be plenty of work in this line for months to come.

The United Materials Company, Monadnock building, have several large new contracts in immediate prospects, and have already been given the order for supplying the brick for two new garbage incinerators in the city, one in the North Beach section and the other at Army and Kansas streets. The management states that business is very fair, especially in common brick. The Port Costa plant alone shipped more brick in the past two months than for any similar length of time since the plant was started. Howard Frost, of Los Angeles, vice president of the Los Angeles Pressed Brick Company, whose products are handled here by the United Materials Company, recently paid a short visit to this city, and he stated that their plants were running double shift in order to meet the calls for material.

The First Methodist Church job of Oakland, calling for about one million common brick and 300,000 face brick, is being refigured, as the previous bids were found to be excessive.

The Steiger Terra Cotta and Pottery Company report sev-

eral new contracts of not very large amounts for the past month. The company has not yet commenced delivering terra cotta for the Crocker Estate building on Market street. Their plant at South San Francisco is busy turning out sewer pipe and fire brick as well as terra cotta.

The general contract for the new San Francisco armory has been awarded to the Lewis A. Hicks Company. Common brick is to be used.

Gladding, McBean and Company, whose plant is in northern California, were the successful bidders for the terra cotta work on the Bilicke-Roman building at Broadway and Fifth streets, and the Hollingsworth building on Hill street, in Los Angeles. The amounts are \$20,000 and \$24,000, respectively.

W. H. Sullivan, the new superintendent of the reorganized Oakland Paving Brick Company, has the sympathy of the local trade in his grief over the loss of his son, Neil, who was killed in an automobile accident near Decoto, Cal., on August 15. Neil Sullivan was acting as his father's assistant in the Oakland plant and was but twenty-three years old.

E. W. Gillette and Theodore Dittell, of Los Angeles, were recently at Anaheim, Cal., conferring with members of the Board of Trade, with the view of securing subscriptions to their newly-organized chinaware manufacturing enterprise. If the inducements are sufficient the company will locate the plant at Anaheim. It is proposed to erect a \$150,000 plant.

Judge Wallace, of Visalia, Cal., has acquired from H. W. Lobb, of Porterville, forty acres of foothill land which includes valuable shale deposits. It is understood that Judge Wallace will form a company for manufacturing clay products building materials of some kind in the near future.

The Silica Brick Company, of Sacramento, Cal., now reorganized under the name of the Sacramento Clay Products Company, is about to enlarge the plant and engage in manufacturing of wall tile on a more extensive scale. The company has orders on hand which will insure steady work for several months.

The Redding Lime and Brick Company is the name of a company which is preparing to start a tile and brickmaking plant at Redding Cal. The capacity of the plant will be 40,000 bricks a day and will give employment to forty men.

The H. A. Janson hydraulic pressed brick plant, at Medford, Oregon, has been sold to Schrupp brothers, of Minneapolis, Minn., and the new firm will increase the capacity for making pressed cement brick and add other staple articles to their output.

Peter Tracy, who recently dismantled his old plant at Arcata, Cal., is installing modern machinery, powered by electricity, for the manufacture of brick and tile.

The old Schrood brick yard, Arago, Ore., has been purchased by B. L. and J. W. Tracy and Richard Buell, and is being rehabilitated.

The Fairmount Brick and Tile Company, capital stock \$5,000, has been incorporated at Portland, Ore., by M. E., J. E. and Evelyn Field.

R. H. Garrett, of Santa Fe, New Mexico, has secured land near the city and is to erect a brick manufacturing plant in the near future.

SUNSET.

San Francisco, Cal., September 8.



PULSOMETERS

consume no more steam than a duplex pump and have no cylinders, pistons, or sliding valves, therefore they can handle water containing up to 40% sand or solid matter and require no lubrication nor foundation. Over 26,000 in use.

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The BOSS TEN HOUR DRYER

is completed and has proven to be what every brick-maker is striving for:

A DRYER THAT WILL DRY BRICK IN TEN HOURS.

Your brick are dried exclusively with the exhaust from the engine that makes the brick. No extra fuel and no extra power required.

A dryer that does not have to be operated at night time.

Requires no expensive dry kiln, and no iron cars.

Cost of drying reduced to less than 4 cents per thousand.

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Do you want to burn hard coal, culm, lignite, slack or screenings? There is just one way to do it, and that is by using air under pressure, which is

The BOSS System of Burning Brick

Burns all kinds of Brick and Clay Wares.

Applies to both Up-draft and Down-draft Kilns and

Will reduce your fuel cost fully 40% over the old way of burning.

Kilns last longer and give better service when equipped with the BOSS SYSTEM.

Try it.

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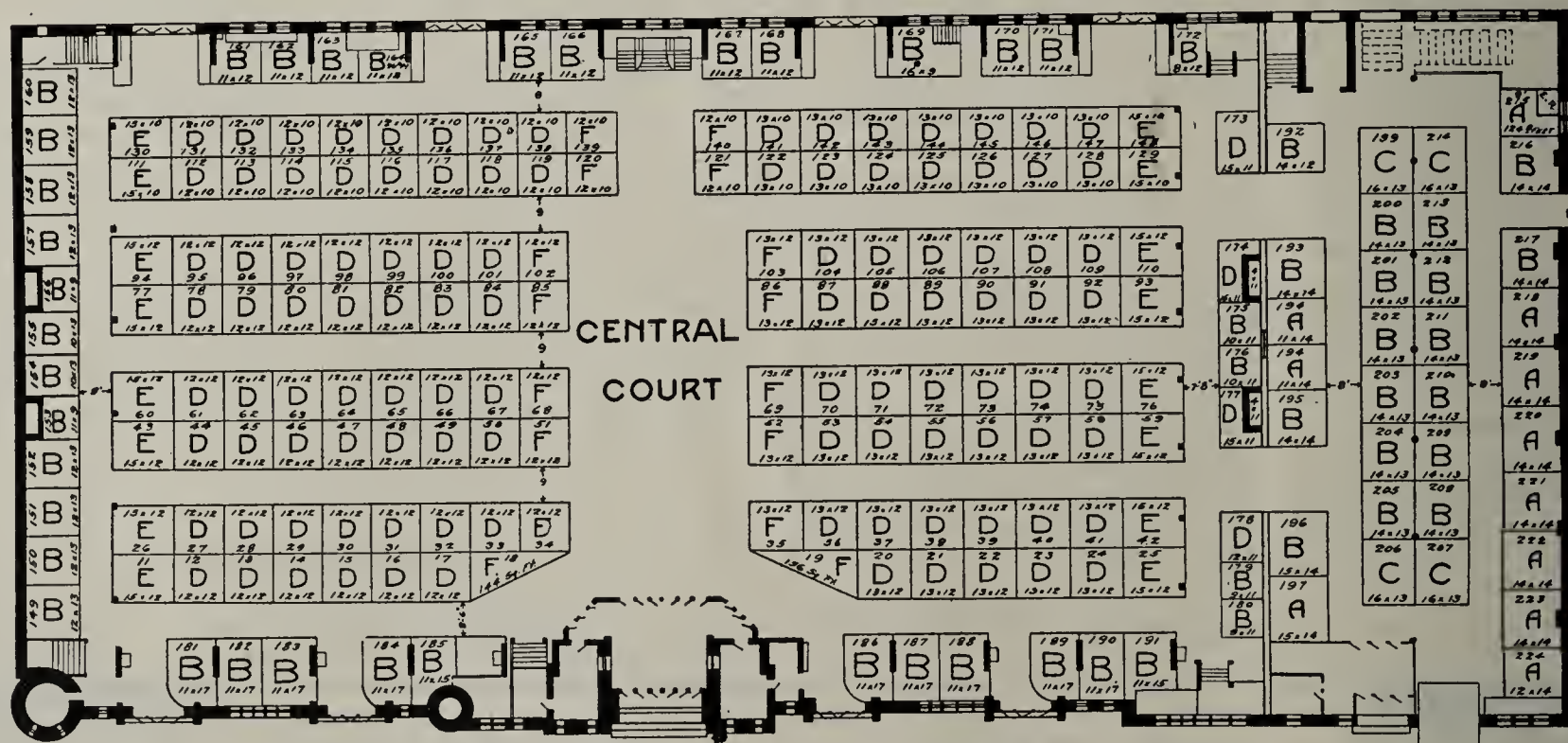
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Here's a Means of Boosting Your Business.

Place an Exhibit of Your Products in the Great Clay Products Show--To be Held at the Coliseum, Chicago, February 26 to March 8, 1913.



Floor Plan of the Coliseum.

The Architects and Contractors Will be There.
The Prospective Builders Will be There.

Thousands of people who will sooner or later be in the market for YOUR PRODUCTS will attend this great exposition, and will be directly or indirectly influenced by the exposition as to the character and kind of material which they purchase.

You Cannot Afford to Stay Out—This is YOUR Show

It will benefit your interests and help in increasing your sales anyway, but it will be doubly valuable if you have your products properly displayed in suitable exhibit space for the inspection of

100,000 PAIRS OF EYES

Write NOW for floor plan and particulars regarding reservation of space. You cannot afford to wait until the last minute.

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Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

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FOR SALE—Eighty single deck cars, 30 inch gauge, 480 capacity, with rack. Address, C. CLOSE, 8 3 cm Matawan, N. J.

FOR SALE—Atlas slide valve engine in good condition. Cylinder 13" by 18", rated 80 H. P.

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FOR SALE.

One good 75 H. P. Atlas slide valve engine, in good condition. Complete with all fittings. Too small for our use.

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Fifteen acres red shale, fifty feet deep. Machinery, engines, boiler and sheds. Five miles from center of Syracuse, N. Y. Price, \$3,000.

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1—12 ft. Raymond pug mill.

2—Double die Victor represses.

All in first-class condition. Cheap.

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Pipe rack dryer with conveyor system. Steel pallets, etc. Capacity, 30,000. Also Martin letter "A" machine and pug mill. GEO. W. SCHMIDT, 9 2 d 180 Linwood Ave., Buffalo, N. Y.

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1—E. M. Freese "GA" Brick Machine, with new tile and brick dies.

1—Kells Tile & Brick Machine, dies 3 to 10", Hollow Block and Side Cut Brick Dies. Hand cut-off table for tile and brick.

1—Madden No. 5 Tile & Brick Machine.

1—Madden No. 5-C Tile & Brick Machine. ARBUCKLE & CO.,

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FOR SALE.

Four-mold Fernholtz dry press in first-class condition. For particulars address

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Sand-lime brick plant, capacity 25,000 brick per day, ten hours. Price very reasonable.

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FOR SALE.

Two hundred steel brick cars, 20,000 foot pallets, three boilers and stacks, 20 tons of T iron.

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Forty acres of good brick clay land at Riverdale, Illinois. Frontage on Belt railroad and street, 1½ miles from depot. 35 minutes service from Chicago. Price reasonable.

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FOR SALE—Complete brick plant, good as new. Located in Morton, Minnesota. Good clay and good market.

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On account of death of owner I offer one new Bonnot thirty-thousand capacity brick machine, with pug mill and hand cutting table for less than half the original cost. There is a good opening for the right man to operate this outfit right here, as we have a town of five thousand inhabitants and three railroads. No other brick works in operation here. Address,

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Engines—Throttling.

18x24 Atlas, 14x18 Sinker-Davis, 14x14 Lewis vertical, 12x16 Reed, 12x14 Brownell, 10x16 Bass, 10x12 Atlas, 9x14 Lane & Bodley, 8x10 Erie, 6x8 Industrial.

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72x18, 66x16 high pressure, 72x18 standard, 72x16, 66x18, 60x16, 60x14, 54x14, 48x14, 44x14, 44x12, 42x12, 36x16, etc.

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100, 80, 60, 50, 40, 35, 25, 20, 16, 12, 10 and 8 horsepower, etc.

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All sizes, open and closed.

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All sizes, single and duplex.

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30 k. w. generator, direct connected to 8x10 Skinner engine; 20 k. w. generator, direct connected to 8x10 Economic engine; 18 k. w. belted generator.

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Saw mills, lath mills, edgers, cut-off saws, resaws, blowers, exhaust fans, tanks, etc. Write for list. Also a full assortment of new machinery. Sole manufacturers of the celebrated "Leader" injectors and jet pumps. Send for circular.

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Position as general manager of soft or stiff mud brick plant. Have grown up with the business. Experienced kiln builder. Am married and strictly sober. Address, LOCK BOX 521,

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Superintendent for a plant of 100,000 capacity stiff mud brick. Good salary for capable man; must be high class and making good. Best of references required. Address,

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(Continued on next page.)

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Position as director of glaze department in an art tile, terra cotta or brick plant. Many years experience in the manufacture of art pottery. Best of references. For particulars, address
CHARLES VOLKMAR,
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WANTED—By a gentleman, half interest or whole in a brick plant. (Just out of the brick business.) Age 49. Been in the brick business all his life and has had large experience, both with the manufacture and selling of all kinds. Address,
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Clay Hollow Block Manufacturing Plant needs practical men, both in office department and at manufacturing end. One with money to put into one of the best growing plants of its kind in the United States. An opportunity seldom offered. Address,
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The owner of two of the best paying brick works in the East is anxious to retire from active work, and therefore wants two competent brick makers to join him. A fine opportunity to get in the game on the ground floor. Don't answer this ad unless you are strictly temperate and in a position to show a clean sheet in every respect. Address,
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We have a rare opportunity for a man thoroughly experienced in the manufacture of Face Brick, as Manager of our new and modern brick plant in the Middle West, to take full charge of the operation of the plant and the disposal of the product. The Company is engaged in the manufacture of other building materials on a large scale, and a free hand and a liberal salary will be given the right man, but he must be able to guarantee his ability by a reasonable investment. Reply to
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MISCELLANEOUS

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No matter where located. If you want to buy, sell or exchange any kind of real estate or business anywhere, at any price, address
FRANK P. CLEVELAND,
 965 Adams Express Bldg.,
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FOR SALE.

Books for brickmakers. Inexperienced workmen will find them a source of valuable information. "Brickmakers' Manual," \$3.00; a practical treatise on the every-day details of brick-making. "Clay Glazes and Enamels," \$5.00; tells how to glaze and enamel brick and gives valuable recipes. "Analyses of Clays," \$2.00; a valuable reference book, giving analyses of well-known clays of this and foreign countries. "The Clayworkers' Handbook," \$2.00; a manual for all engaged in the manufacture of articles from clay. "Clays," \$5.00; their occurrences, properties and uses, with special reference to those of the United States. Any or all of these books mailed postage prepaid on receipt of price. Write for list of other valuable books for clayworkers. Address,
T. A. RANDALL & CO.,
 Indianapolis, Ind.

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"STAG" BRAND
 Manganese
 Steel
 Castings.

**Edgar Allen American
 Manganese Steel Co.**
 CHICAGO, ILL. NEW CASTLE, DEL.

WANTED—Position by a thoroughly progressive man familiar with the brick industry. Can build up the sales end of your business. Are you looking for a general manager to put your plant on a paying basis? Address
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WANTED—An experienced sewer pipe pressman, capable of turning out the average quantity of good pipe daily and able to take good care of his press. Pay \$3 per day of ten hours. Ideal climate in the Southwest. Address
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 The "Red Brick" brand. Brilliant in tint; easy to mix, go farther than any other and none like them
 Cement, etc. Red, Brown, Purple and Black.
RICKETSON MINERAL PAINT WORKS,
 MILWAUKEE, WIS.

Columbia Clay Works For Sale.

Sewer Pipe or Drain Tile Plant, near Columbia, Ill., on the Mobile & Ohio R. R. Good Mine and three varieties of Shale, covering 82 acres. Equipped with American Clay Machinery Co.'s machinery—Six 25-ft. down-draft kilns—Private spur, track and locomotive—Advantageous freight rates—Fuel, water and labor all cheap. Offered at a Sacrifice Price. Address

COLUMBIA LOAN CO.

109 St. George St., St. Louis, Mo.



Machine=Molded Gears

One to 6-inch pitch and larger. Our machine-molded gears last longer than others, give higher efficiency under actual scientific tests, and in many cases cost no more than inferior gears. Send for Catalog No. 34.

H. W. Caldwell & Son Co.

17th St. and Western Ave.

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NEW YORK CITY

Fulton Bldg., Hudson Terminal
No. 50 Church Street.

MOUNTAIN OF CLAY FOR SALE.

160 acres of Vitreous and Tile Clay, known as Mt. Collason or White Banks, at Elk Neck, Md., near mouth of North East River. Also near Chesapeake & Delaware Canal. Property is a bluff, 200 feet higher than the river, and has half a mile of water frontage, with a depth of 12 to 20 feet. It is covered with timber, and the water facilities make it easy to ship either the lumber or the almost inexhaustible supply of clay to any desired point. Only 70 miles from Philadelphia; 40 miles from Baltimore. Address

Dr. T. T. T.,
606 Bulletin Bldg., Philadelphia, Pa.

OF INTEREST TO CLAYWORKERS.

The Land and Industrial Department of the Southern Railway has just issued a booklet on the possibilities for the establishing of various clayworking industries in the Southeastern States of Virginia, North and South Carolina, Georgia, Florida, Alabama, Mississippi, Tennessee and Kentucky.

This booklet tells about the great varieties of clays, their extent and location, the cheap fuel supply, low-priced electric power, transportation facilities, markets, etc., and other information relative to the establishing of clayworking industries.

If you are interested in any way whatsoever in the clayworking industry, you should by all means have a copy of this booklet.

And what's more, do not overlook our willingness to co-operate to any reasonable extent with you in assisting to find a favorable location where production costs are low and market conditions most promising.

Our confidential services at all times are at the command of clayworkers and other manufacturers, and will be given without charge.

A copy of the booklet will be mailed on request. Please mention this paper.

M. V. RICHARDS,

Land and Industrial Agent Southern Railway, Room 1369, Washington, D. C.

BOOKS FOR BRICKMAKERS.

"CLAY GLAZES AND ENAMELS," H. R. Griffen.....	\$5.00
"BRICKMAKERS' MANUAL," Morrison and Reep.....	3.00
"CLAYWORKERS' HANDBOOK," by Author of "Chemistry of Clayworking"	2.00
"CLAYS," Heinrich Ries	5.00
"VITRIFIED PAVING BRICK," H. A. Wheeler, E. M.....	2.00
"BRICKLAYING," Owen B. Maginnis.....	2.00
"KILN RECORDS," W. D. Richardson.....	1.00
"PRACTICAL FARM DRAINAGE," C. G. Elliott.....	1.50
"ENGINEERING FOR LAND DRAINAGE," C. G. Elliott..	1.50

Mailed, postage free, on receipt of price.

T. A. RANDALL & CO., Publishers, Indianapolis.

The Department of Clayworking and Ceramics

Established by the Legislature
in 1902 at the

New Jersey State College,

RUTGERS COLLEGE.

NEW BRUNSWICK, N. J.

Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

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Kilns Driers Processes

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Consulting Engineer

for

Clayworking Industries

3325 Caroline St. St. Louis, Mo.

If...

**You Want
to Sell
or Buy...**

Second-hand Clayworking Machinery, Tile Mills, or anything pertaining thereto.

**If...
You Want
a Man**

for any position or a position in any connection with the Clayworking Trades use the

**For Sale
and Want
Columns
of...**

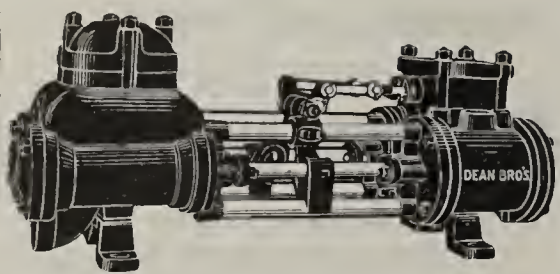
The...

Clay=Worker.

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**The Best, Quickest, Cheapest
Method of Securing Results.**



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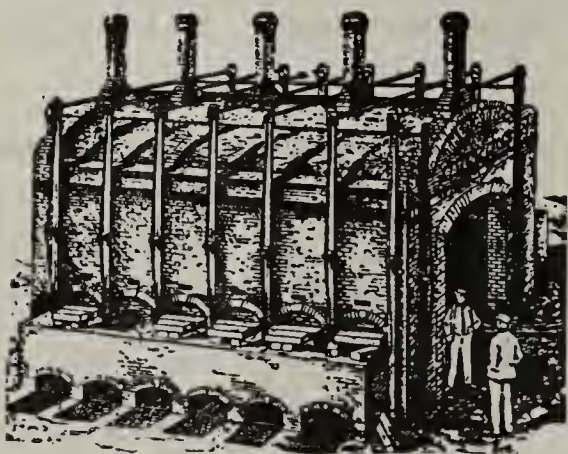
PUMPS FOR ALL SERVICES
AND ALL PRESSURES.

JET AND
SURFACE **CONDENSERS**

Send for Catalogues.

DEAN BROS. STEAM
PUMP
WORKS.
INDIANAPOLIS.

NOT IN THE PUMP TRUST.



The Yates Patent Down-draft Kiln. Also Continuous.

If you want to pay dividends, build modern kilns as good burning is the keynote to success. Sixteen of my kilns are in operation at the Shawmut Vitrified Paving Brick Works, Shawmut, Pa. Come and examine results for yourself. Also refer you to D. W. DeRosay, General Manager Corry Brick & Tile Co., Corry, Pa. Other references given if desired.

ALFRED YATES,
SHAWMUT, PA.



Newton Portable Brick Handling System

This system gives you the advantage of three men taking the place of nine, as here shown. Above is a photograph of elevator and staging in operation, saving you six men over old way of passing and tossing brick; same advantage taking brick out of kiln. Send for circular and special information.

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Pat. Aug. 9, 1909. CRESCENT, N. Y.

MANGANESE.

BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

NATIONAL PAINT AND MANGANESE CO.,
LYNCHBURG, VA.

MINERS AND GRINDERS.

ANTON VOGT TO BRICK AND TILE MAKERS

I correct faults in burning and change old defective kilns. Twenty-seven years' experience in American practice.

I sell plans and plain details of construction, for my down-draft, 30 ft. Combination Brick, Drain Tile and Sewer-Pipe Kiln. I refer to satisfied Users.

For my special Cheap Brick kiln, I do not sell plans, but will lay it out, you build it and I will oversee the setting and burning, showing you

Satisfactory Results Before You Pay Me.

Both kilns have my Novel, Cheap and Indestructible Removable Grate, making a grateless coal-saving furnace. You can use it on any Down Draft Kiln.

Inquire about my labor-saving, patented Sewer Pipe Turner and Device, increasing capacity of press, making large pipe.

ANTON VOGT, Lewis, Iowa, U. S. A.

Chicago Retort & Fire Brick Co.

"AJAX"
**Fire Brick for
Building Kilns**

GENERAL OFFICE:

837-839 Commercial National Bank Bldg.

'Phone
Randolph 3601.

CHICAGO, ILL.

KILN FLOOR TILE

THE RECOGNIZED STANDARD OVER 50 YEARS.

ANY **FIRE BRICK** ANY
SIZE SHAPE

Write Us
Now

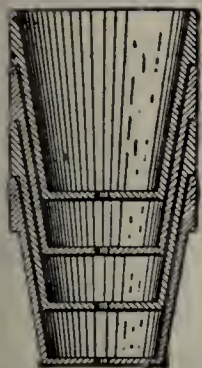
Evans & Howard Fire Brick Co.

St. Louis, Mo.

\$2.00

THE CLAY-WORKER
ONE YEAR (IN ADVANCE)

\$2.00



Make Money

WITH THE ONLY SUCCESSFUL

Flower Pot Machine

(PATENTED.)

No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "

Write for Circular and prices.

The Rockwood Mfg. Co.,

1801 English Ave.

INDIANAPOLIS, IND.



Dennis Improved System of Double Chamber and Double Arch Down Draft Kilns.

Patented April, 14, 1903 and September, 8, 1903.

THESE KILNS BURN ALL HARD BRICK.

Three of these Double Chamber Kilns will burn as many brick in a year as four single arch kilns the same size, because as soon as one side is unloaded you can set green brick, and so have the kiln half set by the time all the burned brick are unloaded. These kilns burn the brick hardest on the bottom. This feature is something new for Down Draft Kilns.

Burn soft mud, stiff mud or dry pressed brick. In proportion to capacity this is the cheapest and strongest kiln on the market and will give better results than any other known kiln.

Plans for Round Kilns, also Single Arch Down Draft Kilns. Plans for taking the heat from a cooling to a green kiln for drying off or water smoking.

Write for printed booklet and testimonials.



Double Chamber Down Draft Kiln

ADDRESS

F. W. Dennis

188 Bermuda St.,

NORFOLK, VA.

PHILLIPS & McLAREN CO.

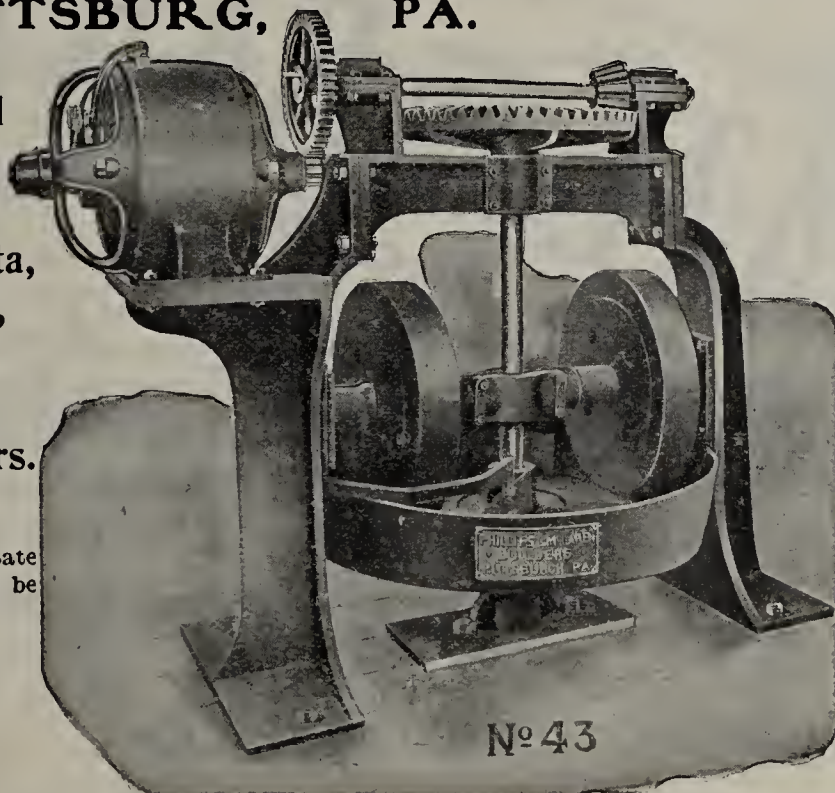
PITTSBURG, PA.

Builders of
Pittsburg Standard
Dry and Wet
Grinding Pans
for Brick, Terra Cotta,
Sand, Cement, Ore,
Refractories, etc.

Also
Rock and Ore Crushers.

When writing for Prices state
kind of Clay or Material to be
ground and capacity desired.

Eastern Office,
Stephen Girard Bldg.,
Philadelphia, Pa.



Nº 43

Anchor Brand Colors

For Mortar Cement and Brick.

BROWN, BLACK, RED AND BUFF.

Strongest and Most Durable.

Manufactured by

C. K. WILLIAMS & CO.

EASTON, PA., U. S. A.

Correspondence solicited.

Chattanooga Paint Co.,

Chattanooga, Tenn.

Manufacturers of

Red Oxides for Brick-
makers' Use.

Eclipse
Mortar Colors,

Red, Brown, Buff, Black.

Clinton Hematite Red

The highest grade of
Red Oxide of Iron for

BRICK COLORING

Also all shades of
MORTAR COLORS

Get the genuine, with the
"Little Yellow Side-Label"

Clinton Metallic Paint Co.,

CLINTON, N. Y.

GABRIEL & SCHALL

P. O. Box 1712. 205 Pearl Street.

NEW YORK.

Sole Importers in the United States of the

Precipitated **G & S** Carbonate
of Barytes

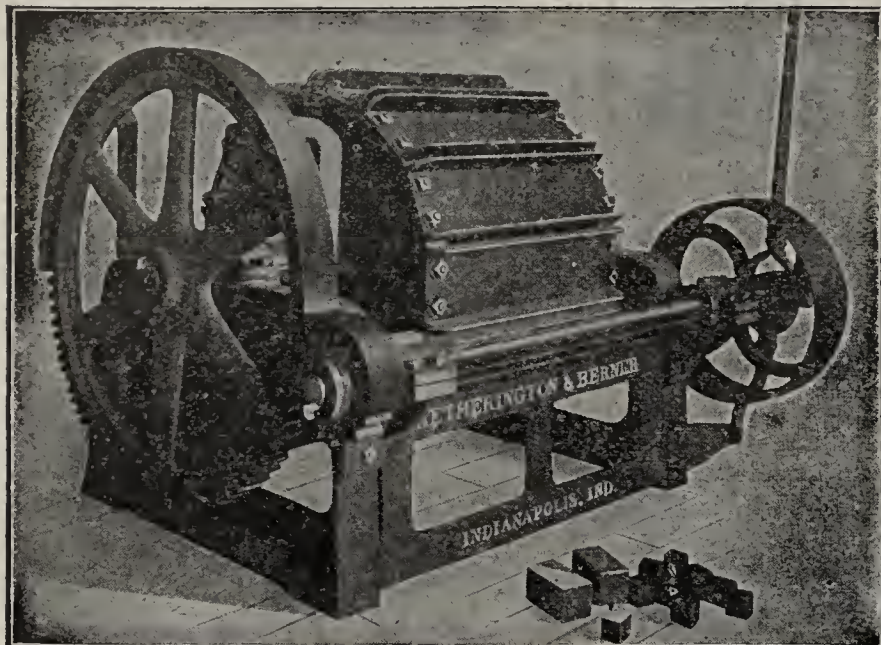
The only preventative for scum and discoloration on Facing Brick and Terra Cotta, neutralizing the Sulphate of Lime in the Clay and Water.

Circulars and Particulars on Application.

Mention The Clay-Worker
When Writing to Advertisers.

The STANDARD RATTLER FOR TESTING PAVING BRICK.

Every municipality and every manufacturer of paving brick should have a Standard Rattler and thus be able to make frequent tests of brick and block.



This Rattler is designed in accordance with the requirements of the National Brick Manufacturers' Association's specifications, and is skilfully constructed of the very best materials for the purpose, insuring the greatest efficiency and durability. It meets every requirement.

Easy to Operate, Easy to Fill, Easy to Empty, and is in fact *The Standard Rattler*. For prices, etc., write

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Indianapolis, Ind.

Books for Brickmakers

These Books Will be Mailed, Postage Prepaid, to Any Address
in the United States or Canada,
on Receipt of Price.

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BRICKLAYING	Owen B. Maginnis	2.00
VITRIFIED PAVING BRICK	H. A. Wheeler, E. M.	2.00
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BRICKLAYING SYSTEM	Frank B. Gilbreath	3.00
KILN RECORDS	W. D. Richardson	1.00
PRACTICAL FARM DRAINAGE	C. G. Elliott	1.50
ENGINEERING FOR LAND DRAINAGE	C. G. Elliott	1.50
TILE UNDERDRAINAGE	J. J. W. Billingsley	.25

Sold By

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INDIANAPOLIS, IND.

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ROESSLER-HASSLACHER
CHEMICAL COMPANY,
100 William Street,
NEW YORK.

As a Preventative of Scums Use
CARBONATE OF BARYTES
R. & H. PRECIPITATED.

Oxide Tin,
Oxide Cobalt,
Red Oxide Iron,
Green Oxide Chrome,
White Oxide Antimony,
Black Oxide Manganese, and
all Chemicals used by the Clay Trades.

Mention THE CLAY-WORKER

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Mention THE CLAY-WORKER.

SUBSCRIPTION TIME.

Do you know, dear reader, that when you buy magazines from month to month you are paying from one-fourth to one-half more than you need to? See our money-saving club offers on page 343.

	Our Price
CLAY-WORKER	\$2.00
The Mantel, Tile and Grate Monthly	1.00
McClure's	1.50
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Address all orders to **T. A. RANDALL & CO., Inc., Indianapolis, Ind.**

The profits on your investment—your dividends—depend as much, if not more, on the result-producing merits of your kilns as upon your material, your machinery or freight rate.

We have been in the kiln building business for over twenty years; six years ago we perfected and marketed

The Improved Flue System Kiln

and have been busy ever since, winter and summer, building it for progressive BRICK, SEWER PIPE and DRAIN TILE firms.

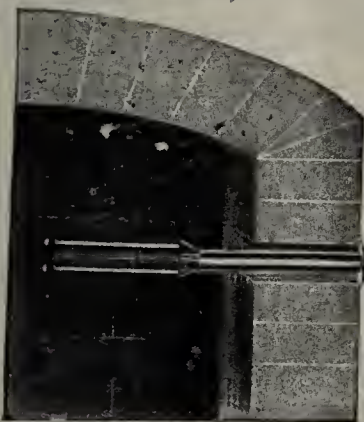
It has burned every class of clay goods, and has SATISFIED (get that?) every patron.

We will construct new kilns, remodel unprofitable kilns to our plans; or we will sell working plans and specifications on very reasonable terms.

Inquiries solicited, promptly and cheerfully answered.

GEORGE E. SNOWDEN & COMPANY
New Cumberland, West Virginia

PYROMETERS



For measuring the temperature of kilns, do away with guess-work. For temperatures to 3000° Fahr.

The Brown Instrument Company,

311 Walnut St.,
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Pittsburg. Chicago.



Oil Burners

Kilns, dryers, etc., equipped with our oil burners give a very uniform product due to close regulation and good distribution of the heat. They save labor and cut down cleaning and repairs to kilns.

Write for catalogs.

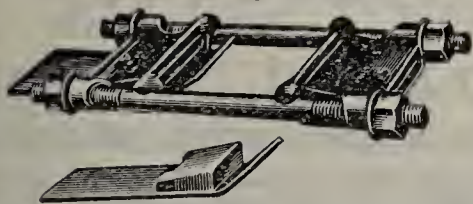
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SEE WHERE THE ARROW POINTS—

It Shows the Simple, Effective Door Frame Connection of the

TECKTONIUS LUG

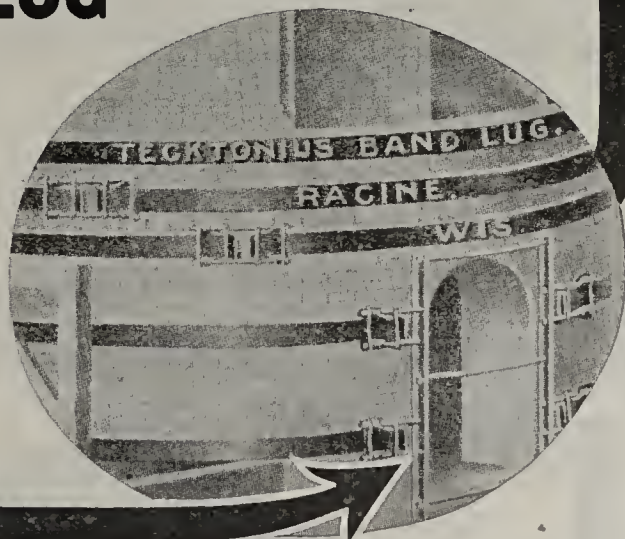
It is "penny wise and pound foolish" to try and adapt someone made, troublesome, unsafe, makeshift for banding your kilns. The Tecktonius Lug is



**Cheaper, Stronger,
Safer, Neater,
Easier Attached and
Lasts as Long as the Bands**

Write for our booklet "Lug Facts"

E. C. TECKTONIUS MFG. CO.
Racine Junction, Wis.



MENTION THE CLAY-WORKER,

WHEN WRITING TO ADVERTISERS,

MENTION THE CLAY-WORKER.

AN OIL BURNER FOR YOU



No. 10

THE NEW SCHURS IMPROVED

DOUBLE ATOMIZER

Latest and Most Perfect Water Smoker
and Brick Burner

MOST { EFFICIENT
ECONOMICAL
DURABLE

Send for catalogue.

SCHURS OIL BURNER CO.

1007 N. Main St., Los Angeles, Cal.

WE CAN SAVE YOU MONEY

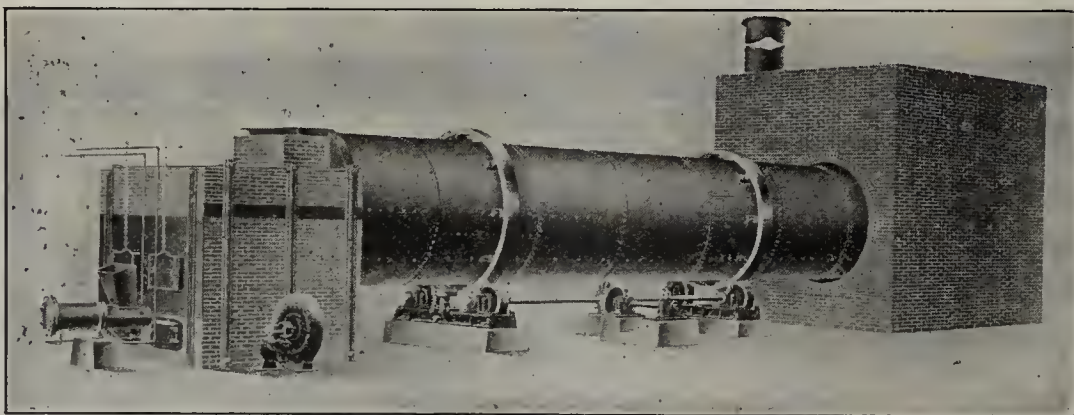
FIRST, by actual test, at our expense, **WE PROVE** that we can **SAVE MONEY** for you. **THEN** we license you to use our patented System of **BURNING BY FORCED DRAFT**, charging as royalty a few cents per thousand on your output—a mere **FRACTION** of your **SAVING**. **FINALLY** you apply to us for an exclusive license for your territory (just as the New England Brick Company did) for obvious reasons.

POSITIVE Mechanical **CONTROL OF DRAFT**—Economical to install.

"First come—first served."

Full information upon request.

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50 Church St., New York City,

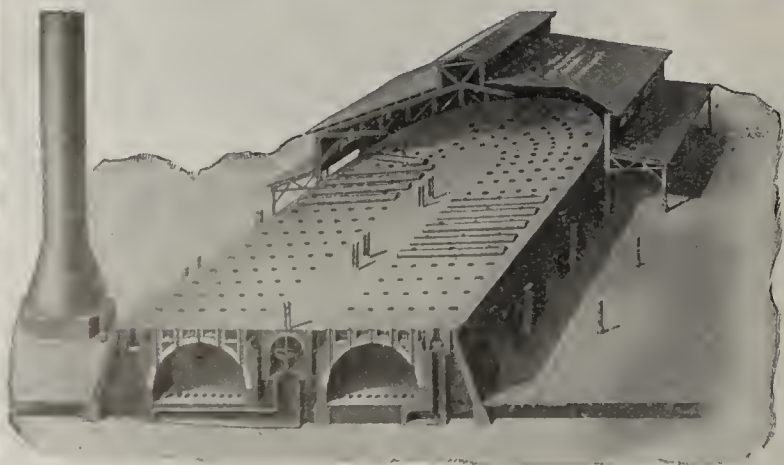


CLAY DRYERS

Increase Capacity of Dry Pan.
Produce Uniform Brick.

Send for Catalog C. B.

AMERICAN PROCESS CO., 68 William Street, New York

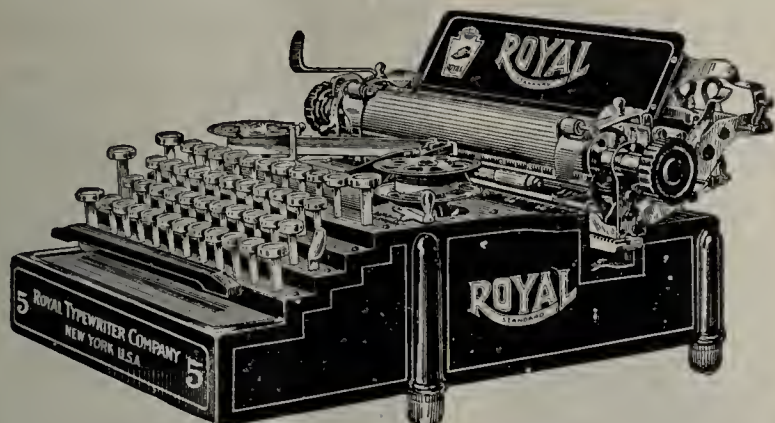


REGENERATIVE CONTINUOUS TUNNEL KILN for CLAY PRODUCTS.

The Gas Machinery Company
Cleveland, Ohio

NEW MODEL OF THE ROYAL STANDARD TYPEWRITER

The LATEST Model of ANY Typewriter on the Market.



HAS TWO-COLOR RIBBON, BACK-SPACER, TABULATOR and many new and valuable patented features that other typewriters do not have.

PRICE, \$75

Send for "The Royal Book," 32 pages of typewriter information—the finest typewriter catalog ever issued. Yours for a postal card.

ROYAL TYPEWRITER CO.

Royal Typewriter Building, New York
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Single
Double
and
Triple
Deck
Dryer
Cars
Transfer
and
Dump
Cars
Turn-
tables
Switches
and
Trackage



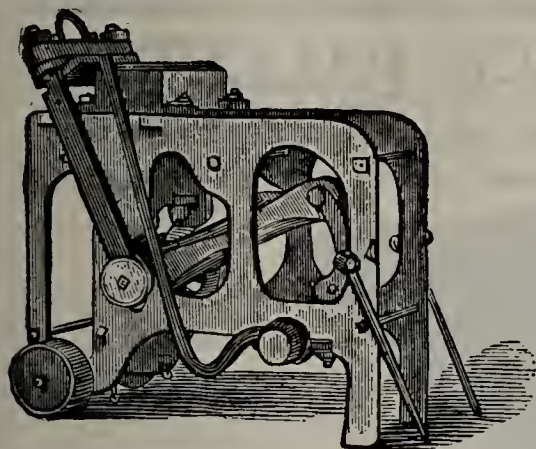
With Chase Flexible and Reversible Bearing and Folding Deck

The Chase Foundry & Mfg. Co., Columbus, O.

Philadelphia Brick Machine Works.

Fire and Red Brick Presses All Sizes. Machinists and Engineers.

Manufacturer of All Kinds of Machinery Used in the Manufacture of Fire and Red Brick.



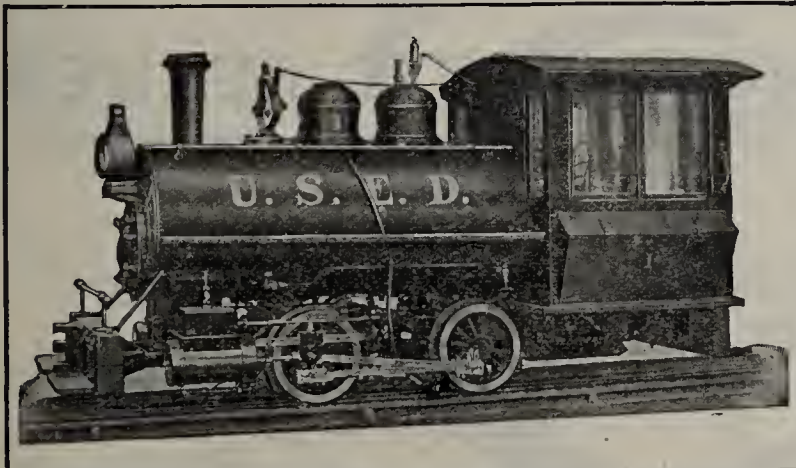
RED BRICK PRESS.



These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

Send for Circular and Price List.

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DAVENPORT LOCOMOTIVES

For CLAY HAULAGE.

Small Size Reasonable Cost

Built especially for the use of clay-products manufacturers, for hauling clay or shale from pits or mines to plant.

Write for particulars.

Davenport Locomotive Works

Davenport, Iowa

BRANCH OFFICES

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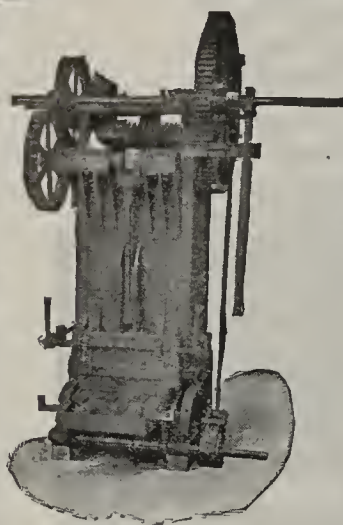
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F. H. Hopkins & Co., Montreal, Que., Canadian Representative.

MODERN CLAY- WORKING ENGINEERS



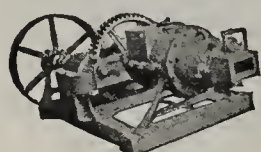
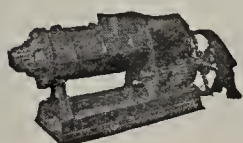
And Builders
of Complete

BRICK MAK- ING PLANTS

For Either
Soft or Stiff-Mud
Processes.

Steam Power
50 Thousand
Animal Power
20 Thousand

We Build the
Most Complete
Line of Yard
Supplies and
CRUSHERS



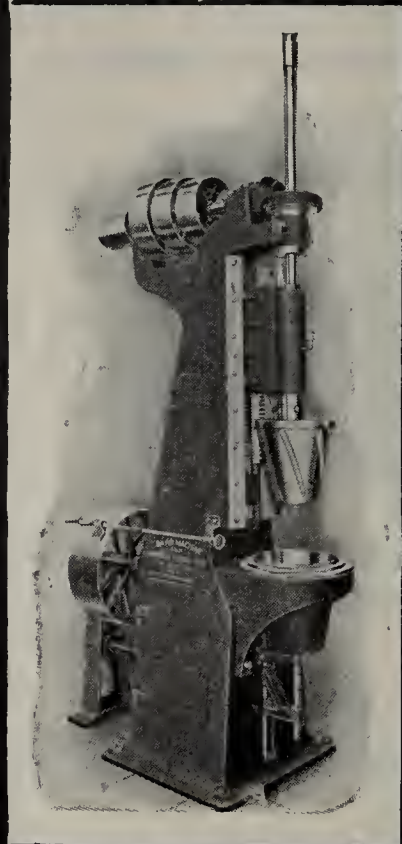
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Get Our Big Catalog.

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AUTOMATIC POTTERY MOLDING MACHINE



**WILL MAKE FLOWER
POTS, COOKING WARE,
STONEWARE, ETC.**

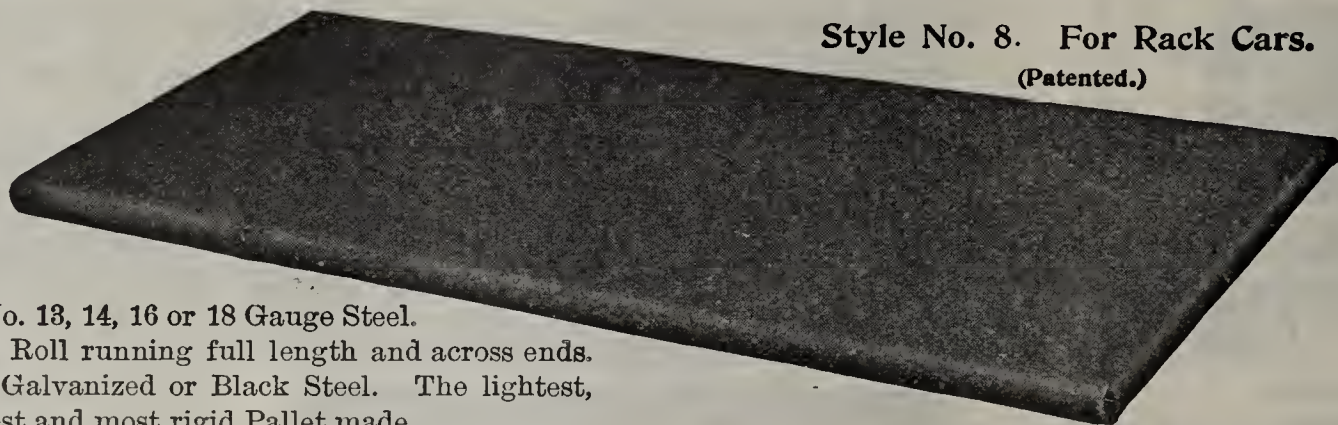
**YOU CAN INCREASE
YOUR OUTPUT
WITHOUT INCREASING
YOUR LABOR AND
POWER EXPENSE
IF YOU INSTALL THIS
WONDERFUL MACHINE**

WRITE TODAY

BAIRD MACHINE & MFG. CO.
GOEBEL BLDG. DETROIT, MICH.

"OHIO" ROLLED EDGE STEEL BRICK PALLET.

Style No. 8. For Rack Cars.
(Patented.)

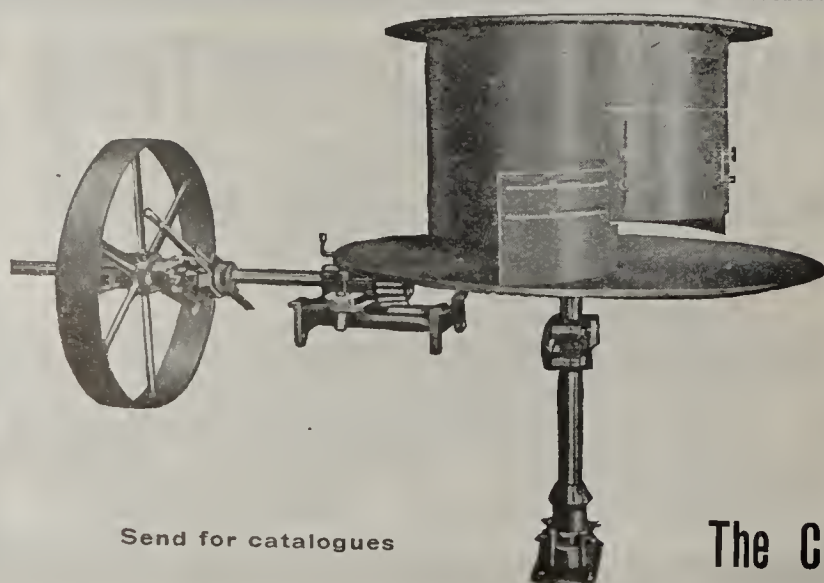


Made from No. 13, 14, 16 or 18 Gauge Steel.

$\frac{5}{8}$ -inch Roll running full length and across ends.

Either Galvanized or Black Steel. The lightest,
strongest and most rigid Pallet made.

THE OHIO GALVANIZING AND MANUFACTURING COMPANY, Niles, Ohio.



Send for catalogues

COLUMBUS AUTOMATIC FEEDER

INCREASES CAPACITY—IMPROVES PRODUCT

Let us explain!

PIANO WIRE SCREENS

Improved Elevating & Conveying Machinery

For Clay Industries

The Ceramic Supply & Construction Co., Columbus, O.

FOR SALE

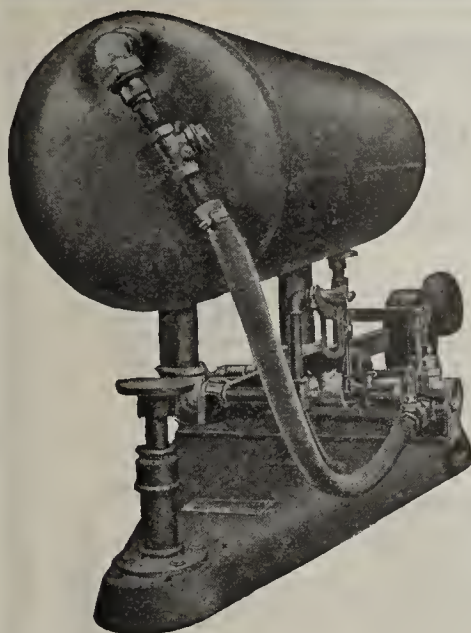
We offer for sale for a limited time only a list of 1,500 Tile Contractors of the United States and Canada, typewritten and alphabetically arranged. This list if circularized properly by Brick Contractors and Manufacturers of Fireproofing will bring splendid returns. Price of List \$3.00.

Order at once.

Address

EDWARDS BROTHERS

407 Arcade Bldg., Utica, N. Y.



The
**Morehead
Condenser
Trap makes
its own
Vacuum**

and PULLS the accumulated water and air out of your steam lines, insuring rapid circulation. Enables you to cut down your boiler

pressure on direct heating systems.

Particularly adapted for use in connection with reduced pressure and Exhaust Steam Heating Systems, Dry Kilns, Dryers, Fan Stacks, Etc.

Write for Particulars and Trial Trap.

Morehead Mfg. Co.

Dept. 10

Detroit, Mich.

STOCKS CARRIED IN

New York	Philadelphia	Chicago	San Francisco	Los Angeles
Wichita, Kan.	Memphis, Tenn.	New Orleans, La.	Chatham, Ala.	
Birmingham, Ala.				

A Complete Line of Clayworking Machinery

INCLUDING

STEAM SHOVELS AND DREDGES.

Ask for our latest Catalog, and write us or wire us for anything you need on any kind of Brick or Tile Plants.

Scott-Madden Iron Works Co., 404 S. Fourth, Keokuk, Ia.

IN DRYING CLAY
WARES WE HAVE
HAD THE LARGEST
AND MOST VARIED
EXPERIENCE OF
ANYONE IN
AMERICA.

OUR DRYERS
GET RESULTS.

**TRAUTWEIN DRYER
AND
ENGINEERING CO.**



WE MANUFACTURE
COMPLETE, EVERY-
THING NEEDED
FOR DRYER
INSTALLATIONS.

WE ARE ENGINEERS
FOR CLAYWORKING
PLANTS.

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CHICAGO.

The Richardson=Lovejoy Engineering Company

Columbus, Ohio

CERAMIC ENGINEERS FACTORY ARCHITECTS.

Geological Examinations of Properties.

Clay Testing.

Investigations of Manufacturing Propositions.

Plants designed.

Construction superintended.

Operations directed.

Plans for Dryers, Furnaces, Kilns.

Especial attention given to problems in Fuel Economy.

Old plants remodeled and put on an Economic Basis.

New Lines of Products developed.

Pamphlet "CERAMIC ENGINEERING" Free.

Mentz Moulds Are the Best

What One Who Knows Has to Say.

GREEN BAY BRICK CO.

Manufacturers of

Sand Mould Brick.

Green Bay, Wis., Mar. 22, 1912.

G. B. Mentz Co., Wallkill, N. Y.:

Gentlemen—Your favor of the 20th is at hand. You may make us 24 of your best moulds of sizes as follows: 5 brick $8\frac{3}{4}$ in. x $4\frac{1}{4}$ in. x $2\frac{7}{16}$ in.; $\frac{5}{8}$ in. partitions. We want them of the best, at the price you name, \$2.25 each. We can buy moulds for \$1.50. but we buy yours because they are the best. We would like to have the moulds here by May 1st.

Yours truly,
J. W. HINKLEY, Sec'y.

The G. B. Mentz Co.
Wallkill, N. Y.

THE GAS-FIRED
FIRE-BRICK

HOFFMANN KILN

Burns 1,000 Fire-Bricks

With 5 Cwt. of Slack

and also largest Blocks.



50%

LABOUR
SAVING
GUARANTEED

HAS IT EVER OCCURRED TO YOU
THAT ALL WORKS POSSESSING GENUINE
HOFFMANN KILNS PAY HANDSOME DIVIDENDS?

The same applies to Hoffmann Continuous Tile, Pottery, Lime
and Cement Kilns.

HOFFMANN

CONSTRUCTION CO.,

FINSBURY PAVEMENT HOUSE,
LONDON, E. C., ENGLAND

1896

1912

14 Years of Constant Satisfactory Service In Many Clay Plants

Is the Record of the PERFECT CLAY SCREEN

Why continue with your old clay screen from which today the product is entirely too coarse, tomorrow too fine, next day scarcely anything, and always requiring constant attention.

FIGURE up the cost and let us quote you on a PERFECT CLAY SCREEN that will give you ABSOLUTE CONTROL OF YOUR CLAY. The same fineness every day in the year and you get every pound of clay that is fine enough for your product.

Just think what it costs to have a man cleaning and breaking up your screen, and then not get capacity or proper fineness. THE PERFECT CLAY SCREEN is automatic, self cleaning, and the plates last many times as long as do plates on an ordinary screen. Increased and improved output at less cost, is our GUARANTEE. Let us try, if we don't do it IT WON'T COST YOU ONE CENT.

DUNLAP MFG. CO.

Bloomington,

=

Illinois

After 6 Years Continuous Operation These Big GANDY Belts Are As Good As New

Columbia Power, Light and Railways Co.
Bloomsburg, Pa.

The Gandy Belting Co.
Gentlemen:

We have two 20" 10-ply belts transmitting power from a pair of Hydraulic Turbines to a line shaft, over 60" and 72" pulleys. These belts have been in continuous operation for the past six years, and I am pleased to advise you that they are practically as good as new.

Yours very truly,
B. O. ELLIS,
Gen'l Mgr.

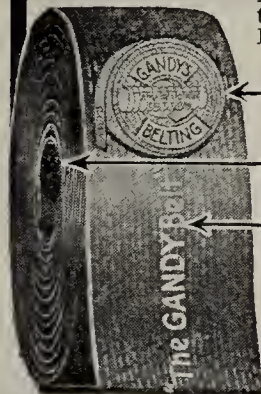
Still another letter showing how completely successful THE GANDY BELT is for almost any kind of hard service.

One more reason why it is so successful in the BRICK INDUSTRY.

For more than thirty years the sales of

THE GANDY BELT

have been constantly increasing until we now have the largest factory in the world devoted exclusively to the manufacture of Stitched Cotton Duck Belting.



While the first cost of THE GANDY is only about one-half that of leather belting, and very much less than that of rubber belting, it will give you equally as good results at a big reduction in your belt expense. Drop us a postal for samples, prices and booklet. Do it now.

THREE IDENTIFYING MARKS:

- 1st. The Trade Mark
- 2nd One Green Edge
- 3rd. The Brand "The Gandy Belt"

Gandy Belting Co.

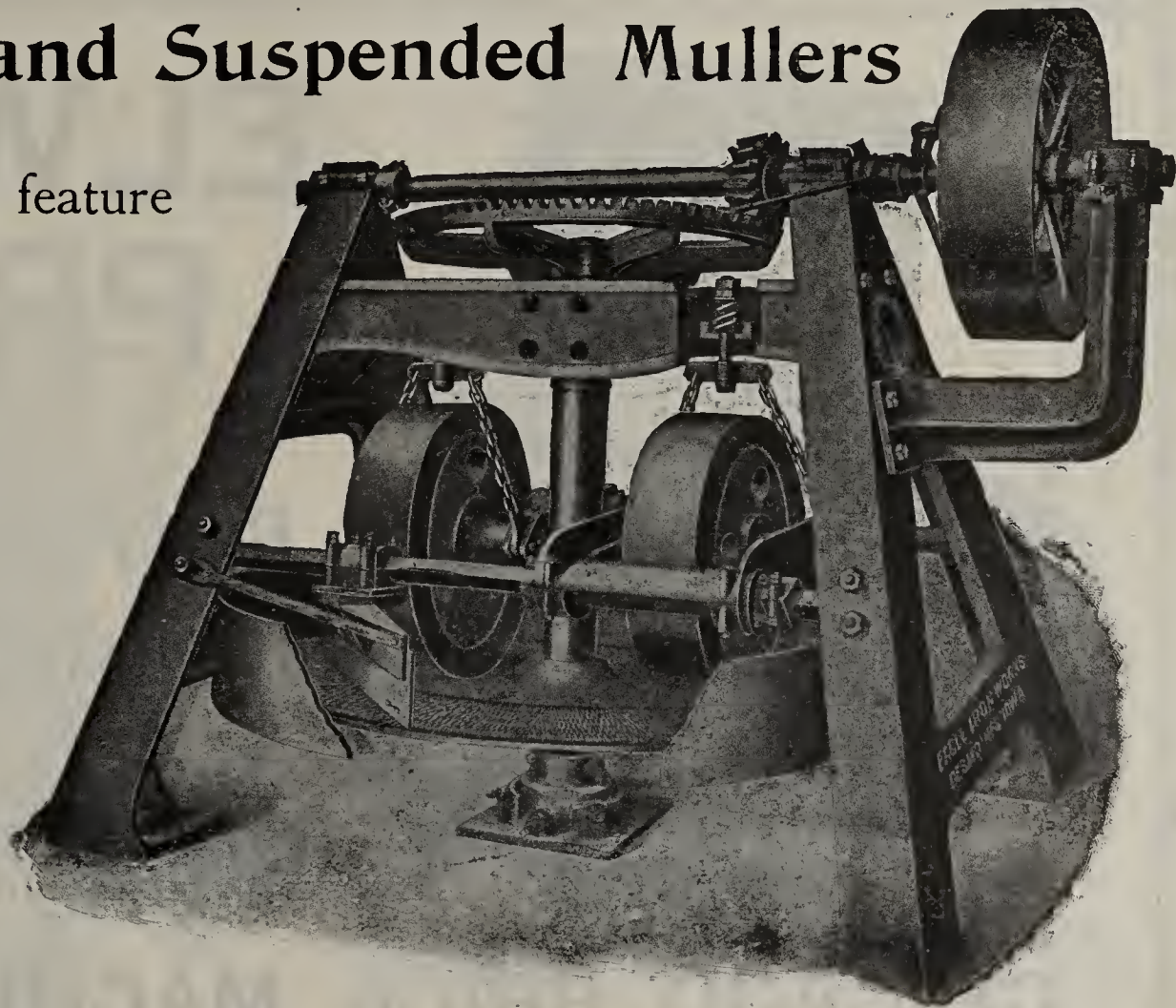
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Independent and Suspended Mullers

the distinguishing feature
of our

DRY PANS.

Other valuable features which our catalogue fully describes.



EAGLE IRON WORKS, Des Moines, Ia.

Mention THE CLAY-WORKER.

The Buhrer Kiln and Dryer

With Fan Draught



1560 Million Brick are yearly dried and burnt in Buhrer System Kilns and Dryers worked by 370 Buhrer Fans.

already in operation throughout the Continent and in **South India and Ireland**, yields far the greatest output in first-class goods, such as all kinds of Bricks and Tiles, Lime and Cement, in the shortest possible time, with great economy of fuel, the waste heat being used either for drying or foreheating.

TESTIMONIAL.

J. BUHRER, Esq., Constance (Germany).

Youghal, Co. Cork (Ireland), 30th April, 1912.

Dear Sir—Your Instructor Burner is leaving here on tomorrow, having completed his work, and we have much pleasure in stating that under his instructions our burners have done remarkably well.

On the last burning round of our new 16 Chamber Buhrer Kiln he made a further fuel test and we are much pleased to inform you that the results are very much below your guaranty of 160 kilos per 1,000 bricks, and the output is considerably in excess of your estimate. The actual figures are as follows, viz.: The bricks set in kiln contained 11 per cent of moisture, and the burning was at the rate of 32,800 bricks per 24 hour. Coal consumption was 92 kilos or 208 lbs. per 1,000. The temperature in kiln was 1830 degs. Fah. The heating value of coal used was 11,680 B. T. U.

The burned bricks taken from the kiln were first-class in every respect.

We are much pleased with the manner in which the Instructor Burner carried out his work, which was in every way creditable to himself and the firm he represents.

Yours faithfully,
For the YOUGHAL & MONARD BRICK & TILE CO., LTD.
(Signed) J. R. Smyth, Managing Director.

For five years Mr. Smyth has been making inspection trips in England and Germany to find out the best kiln before he decided to erect a Buhrer-Fan-Draught-Kiln.

Write for more information to

Jacob Buhrer's Technical Bureau

at

CONSTANCE, GERMANY



ELWOOD PRESS

BUILT FOR HEAVY DUTY. ALWAYS MAKES GOOD.

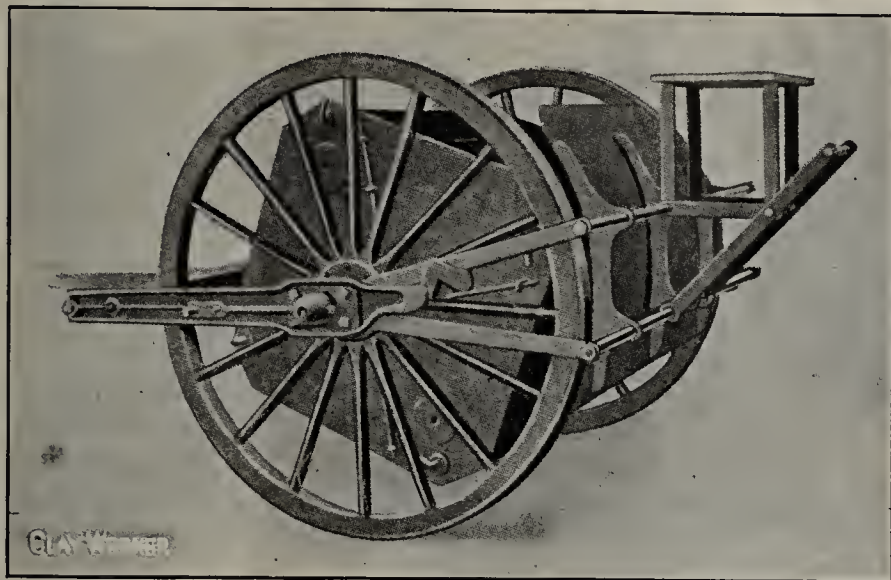
WE ALSO HANDLE EVERYTHING
USED ON A BRICKYARD.

CHICAGO BRICK MACHINERY CO.

Sold Also by
MANUFACTURERS EQUIPMENT CO.
Dayton, Ohio.

20 W. Jackson Blvd., Chicago

OUR IMPROVED CLAY GATHERER



Is being used by a large number of brickmakers and all say with it they can gather clay from the field at one-half the cost of any other method. Capacity one yard.

We also manufacture a Special Clay Plow and by using the two your field is always level, well drained and free from holes.

We manufacture a complete line of brickyard supplies. Write us.

The Fernholtz Brick Machinery Co.

Boyle and Vandeventer Aves.

ST. LOUIS, MO.

WALTER E. HILTON'S IMPROVED MOLD SANDER

(PATENT PENDING.)



No Chains, Belts or Gears.

No Shifting Lever.

No Extra Moulds.

Mould always ready to be taken out at the proper time.

Impossible to break a Mould.

Light running, almost balanced in all positions.

For circulars and prices explaining it more thoroughly, write

Hilton Sanding Machine Co.

DUNKIRK, N. Y.

THE CLAY-WORKER'S POCKET KIT.

Worth its Weight in Gold to Every Factory Superintendent and Foreman.

EMBODIES

1. Pocket Knife.
2. Leather Punch.
3. Swedging Awl.
4. Wire Cutter.
5. Wire Pliers.
6. Alligator Wrench.
7. Hoof Hook.
8. Screw Driver.
9. Screw Bit.



INVALUABLE TO
Yard Superintendents,
Factory Foremen,
Mechanics, Miners,
Farmers, Horsemen,
Sportsmen and
ALL WORKINGMEN.

This is Not a Cheap Knife, But a First-Class Combination Tool Built for Practical Use.

CUTS OFF BARBED FENCE WIRE AS EASILY
AS AN ORDINARY 8-INCH PLIER.

Can be carried in the pocket and used as an ordinary knife, but is far stronger and more useful.

"A Stitch in Time Saves Nine."—So it is about a clay plant, a bolt tightened at the right time may save a serious breakdown, causing loss of time and money. How often would this be avoided if the superintendent or foreman had the right tool within reach when wanted. How often are these little, but very important details neglected because the necessary tool is not convenient, or has been mislaid, and how much time is lost in consequence. Avoid all this by carrying in your pocket the C. W. Pocket Kit. You will find use for it a hundred times a day.

One Tool Does Not Interfere With the Free Use of
Another. Each One Works Independently.

A Great Premium Offer.

This POCKET KIT, which is a marvel of mechanical ingenuity, will be mailed to any address, postage prepaid, for \$1.50.

Or we will mail this POCKET KIT and THE CLAY-WORKER for One Year to any address in the United States or Canada for

\$2.50

THE C. W. Pocket Kit is built for practical use, and is not filled with knickknacks or flimsy makeshifts as is the case with ordinary combination knives. Instead it is a practical, efficient combination. Its workmanship is first-class. All rivets are countersunk. The temper is drawn in Screw Driver, and Point of Awl to prevent either from breaking. It is no more clumsy or awkward to carry in the pocket than an ordinary three-bladed knife. The blades are made of the best 85 carbon cutlery steel, and tempered to withstand hard usage.

The Pliers and Wire Cutters are Drop-Forged TOOL steel (not steel castings), and tempered especially to do the work required of them, and give entire satisfaction in handling and cutting fence wire, baling and binding wire, harness rivets, etc.

The Leather Punch will be found indispensable for making various sized holes in leather for buckles, rivets, belt lacing, etc.

The Leather Punch acts as a wedging awl or marlin spike WHEN TURNED TO THE LEFT; especially adapted for use in LACING BELTS, untying knots, etc. Besides being a perfect leather punch and swedging awl, this tool is a perfect screw bit, making a tapering hole in wood for various sized screws WHEN TURNED TO THE RIGHT.

The Screw Bit and Screw Driver features of this knife are perfect in their operation.

The Lace Hook and Hoof Hook formed on end of plier handle will be found convenient in many ways.

T. A. Randall & Co., Publishers The Clay-Worker, Indianapolis:

You will please send me THE CLAY-WORKER POCKET KIT and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued,

beginning with the issue. Enclosed find \$.

Name

Postoffice

Street and Number

County State

The Claycrafter

Supplement

IRON

GREAT POSSIBILITIES

You know a good brick machine,—after trying it out thoroughly.

Can't tell much by appearances,—you know that.

This led us to the idea "possibly better grades of metal."

Meant much research,—many analyses,—myriad tests.

The results are almost incredible.

An instance,—lately we were called upon to furnish roof truss bars for a double tunnel dryer.

Our usual books of reference were consulted,—likewise a leading architect, also a competent structural engineer.

All figures practically agreed on a certain section to support a weight of 350 pounds each, with safety factor at 4.

The cut shows two of these bars, with two-inch bearings at the ends, supporting a load of 8,000 pounds of pig iron. (They broke at 8,500 pounds.)

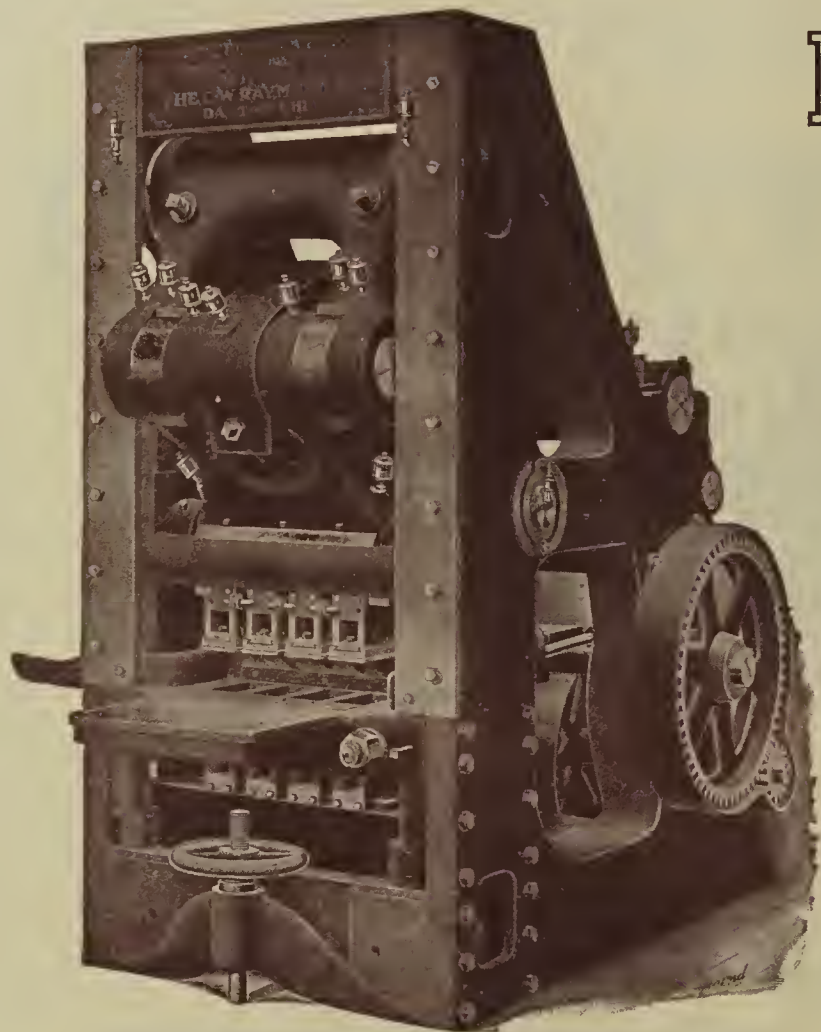
Three times the technical strength of metal of this class.

Think what this means in the make-up of our machinery,—or rather **your machinery**, for we have no idea of keeping it.

What is true of our cast iron, is equally true of our cast steel, rolled steel, hammered steel, bronze and bearing metals, that enter into the make-up of **Your Machinery**.

Always good,—Raymond Machinery and Equipment is **better today**, in design and **quality and efficiency**, than at any time during the thirty-two years of our progressive growth.





Better Buy Best B E R G

Others measure by it.
None measure to it.

SIMPLEST STRONGEST

Most Dependable
Dry Press Brick Machine
in the World

Not enough space here to **even start** to tell you of its wonderful advantages and surpassing **money making qualities**.

Write for full particulars.

SUCCESS in BUSINESS

Is **never attained** by letting the other fellow "grab off the good things" either in the way of **trade**, or in the **mechanical** and **economical improvements** of the times. This is doubly true when applied to so great an **improvement** in **method** and **economy** as exhibited in the

Raymond Producer Gas Fired Continuous Kiln.

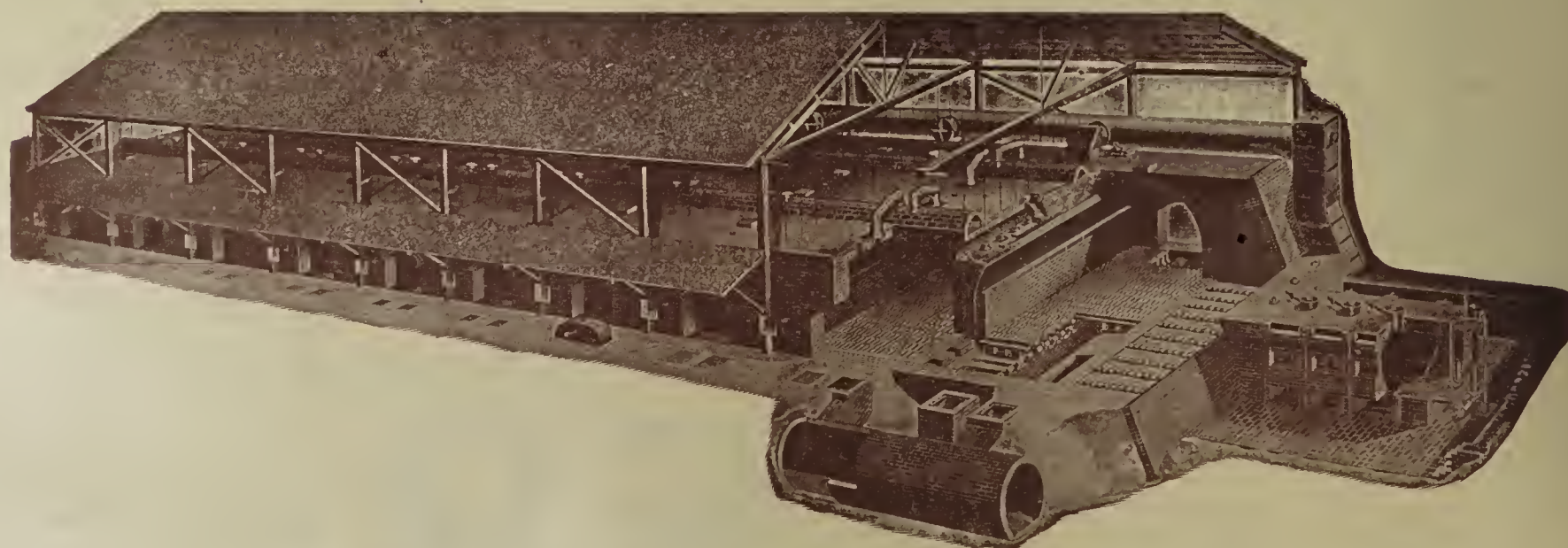
Hundreds of inquiries,—and almost every week another enlightened brother "in line." Write for full information to

THE C. W. RAYMOND COMPANY,

Dayton, Ohio,

The Strongest Power In the World of Clayworking Machinery

U. S. A.

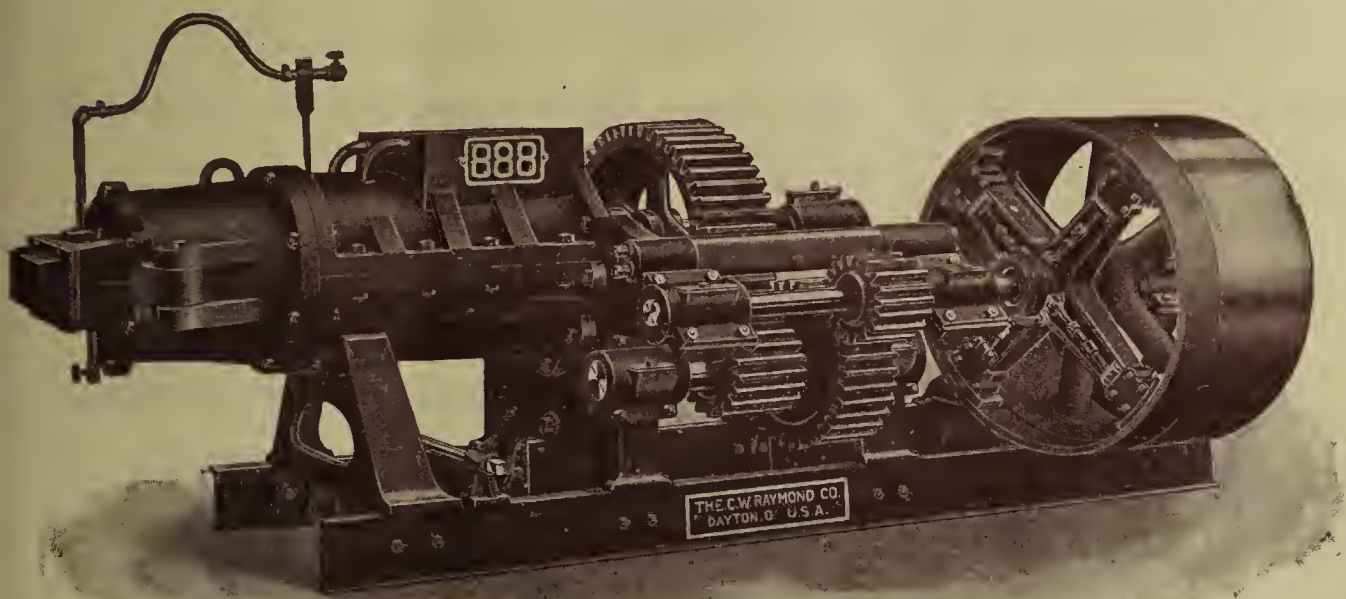


Mention THE CLAY-WORKER.

A Couple of Timely Suggestions

It's now coming the time of year when you are thinking of kissing the old machine "Good-bye,"—She's probably been a good old Friend but you know "There are Others,"—and then, there's such a thing as the "Procession having passed Her."

This is the Machine that was Built to Relieve Her.



The
RAYMOND
"888"

Brick Machine

Extra Heavy Shaftings.
Massive Gearings.
Extra Wide Bearings.
Reduced Barrel Resistance.
Marked Power Saving.
"A Strictly Up to the Minute"
High Grade Machine for
Severe and Steady Service.

THE C. W. RAYMOND COMPANY,

The Strongest Power in the World of Clayworking Machinery

Dayton,

Ohio,

U. S. A.

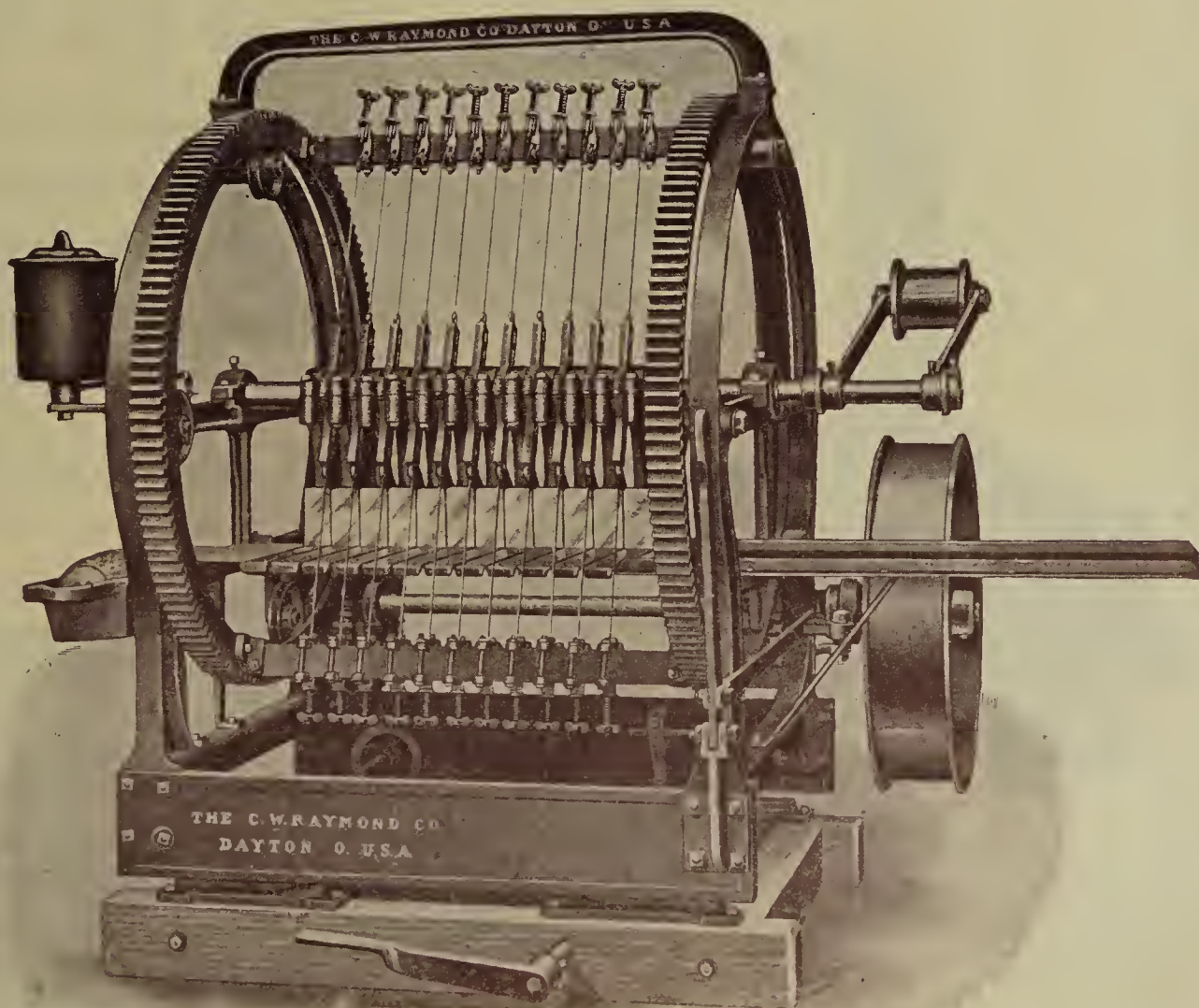
The
RAYMOND
UNIVERSAL
Cutting Table

A High Class, Semi-Automatic cutter, suitable for Common or High Grade Face Brick.

Platen easily and quickly changed to cut any size brick.

Operated direct from line or counter shaft,—with positive belt drive.

An Excellent Machine
for Medium Capacities
and
Most Perfect Brick.



Mention THE CLAY-WORKER.

Our Customers

wrote this "Ad"

They did it gratuitously, cheerfully.—There's where

THE STRENGTH IS.

They said:—

"For eight years has proved eminently satisfactory."

"More than the rated number of brick and at as low cost."

"Find it to be perfectly satisfactory."

"Has surpassed our expectations."

"Does the work claimed for it, and up to date no repairs."

"Has operated very successfully this year."

"We take pleasure in recommending as a good, safe, permanent investment."

"Six track Dryer easily gives us 35,000 dry brick per day."

"We seldom find a checked brick . . . making a superior face brick."

"Giving very satisfactory results."

"Drying is now the least of our troubles."

"We consider it a decided success."

"Does all that we expected."

"Are satisfied with results."

"Very much pleased with its work."

"Requires no more fuel than would keep up boiler and waste heat fan."

And a whole lot of others—All concerning this Dryer.

Could You Say as Much?

Let us tell you how to join the **Happy Brigade**

These Men Have "Seen the Light"

Why not you? Write today, asking about the

Raymond Metallic Radiation Dryer

The Greatest Clayware Dryer in the World.

THE C.W. RAYMOND COMPANY

The Strongest Power
in the World of Clay-
working Machinery

Dayton, Ohio,
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Mention THE CLAY-WORKER.

ONE HUNDRED BUNGALOWS

A beautiful book issued by the Building Brick Association of America that will bring you business if properly circulated.

This book was gotten up at a very large expense at the earnest solicitation of a great many members of the Building Brick Association of America, who felt that the thing they needed most in their business was a book illustrating small houses. This book has now been placed on the market, and we trust it will appeal to you as just the thing to help you sell brick.

While one Bungalow does not use many brick, still, the rapid displacement of wood and cement which is going on will, in time, afford a very large market to the brickmaker.

The average house in America is a small house. If wood could be entirely displaced in favor of brick, it would increase the face brick business to several times its present volume and would add more than 50 per cent to the common brick business. These figures may seem startling, but they are correct, and it is worthy of a great effort on the part of every brickmaker to secure the construction of small brick houses.

Upon request we will send you a brief review of this book.

It will pay you to purchase a number of these books and place them in the hands of your architects and prospective builders.

The price is 50 cents. Special prices will be made for orders of over twenty-five.

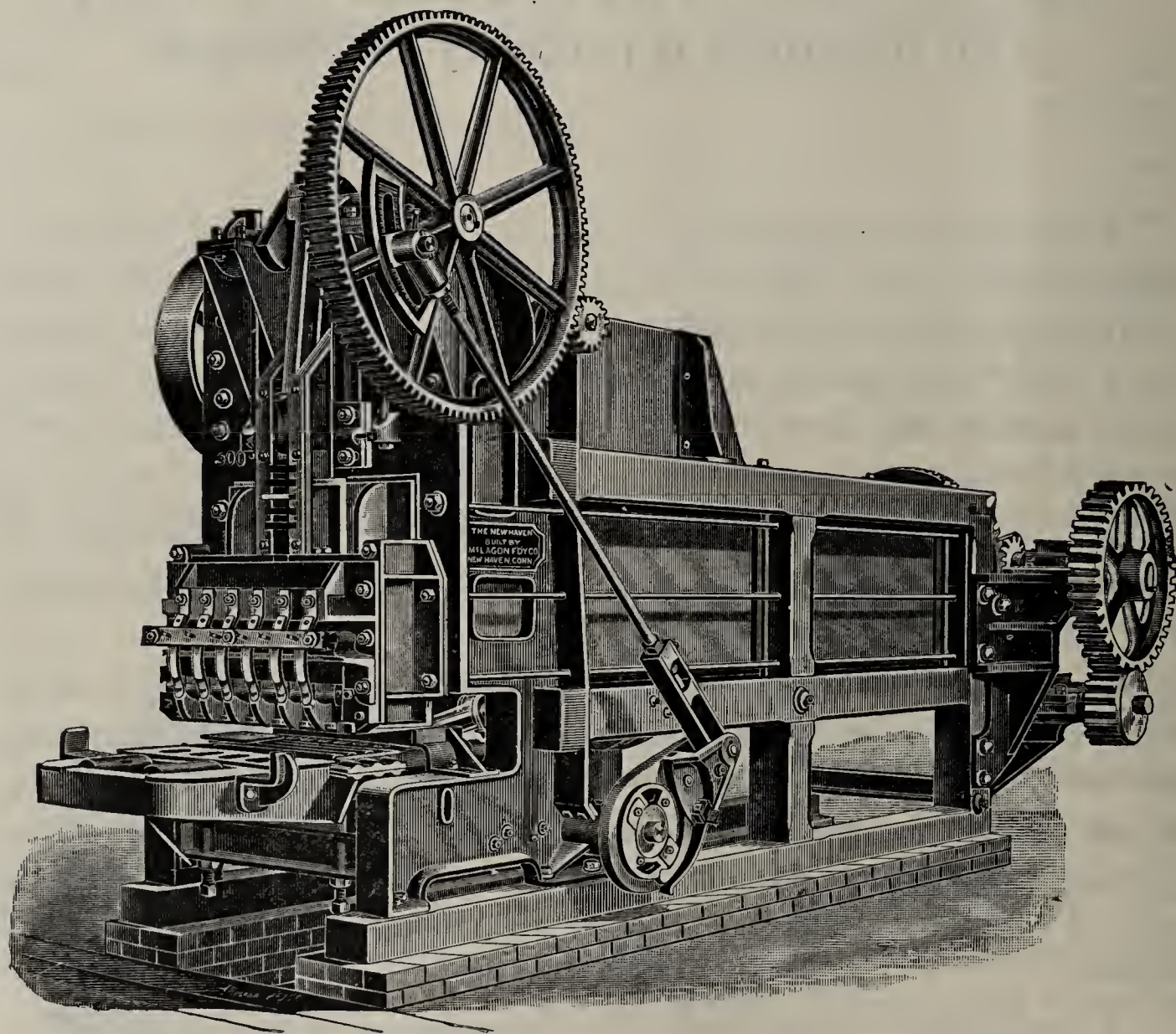
T. A. RANDALL & CO.

211 Hudson Street.

INDIANAPOLIS, IND.

CHARACTER and REPUTATION.

"Character is what we are. Reputation is what people think we are." A happy combination is when character and reputation agree, as is the case with the New Haven Soft Mud Brick Machines. They are built so strong and so well that the character and reputation both are unquestioned.



"NEW HAVEN" HORIZONTAL BRICK MACHINE

The enduring qualities of the New Haven Machines have won for them the approbation of soft mud brick manufacturers generally, and the New England brick manufacturers in particular. If you want a soft mud brick machine that will insure steady operation, high-class products and regular dividends, buy a New Haven.

Catalogue for the asking.

The EASTERN MACHINERY CO.

NEW HAVEN, CONN.

YOU CAN SAVE MONEY

Time and Trouble

By making your choice of magazines for coming year and ordering them all at once through THE CLAY-WORKER.

Knowledge is Power

The best way for clayworkers to get trade knowledge is through the columns of the best clay journal, THE CLAY-WORKER. The up-to-date, successful manufacturer usually keeps posted on current events through the current magazines. The home should be provided, and usually is, with journals devoted to domestic interests and to the welfare and pleasure of the women and children. All of these, whether literary or technical, we offer at prices that will net a saving of 25 to 50 per cent on your magazine purchases for the ensuing year.

(These prices are good only in the United States. Special prices will be quoted to points beyond the United States covering additional postage required.)

The Clay-Worker Clubbing Offers:

	OUR PRICE
CLAY-WORKER	\$2.00
Mantel, Tile & Grate Magazine.....	2.00
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Brickbuilder	5.00
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CLAY-WORKER	\$2.00
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If none of the foregoing combinations is just what you want, write us for special prices on any magazines or papers desired and we will quote you equally low prices.

Send all orders to THE CLAY-WORKER.

T. A. Randall & Co., Publishers Clay-Worker, Indianapolis:

You will please send THE CLAY-WORKER and the other magazines named below to me for the ensuing year beginning with the next current issue of each for which

I enclose \$.....

Name.....

Postoffice.....

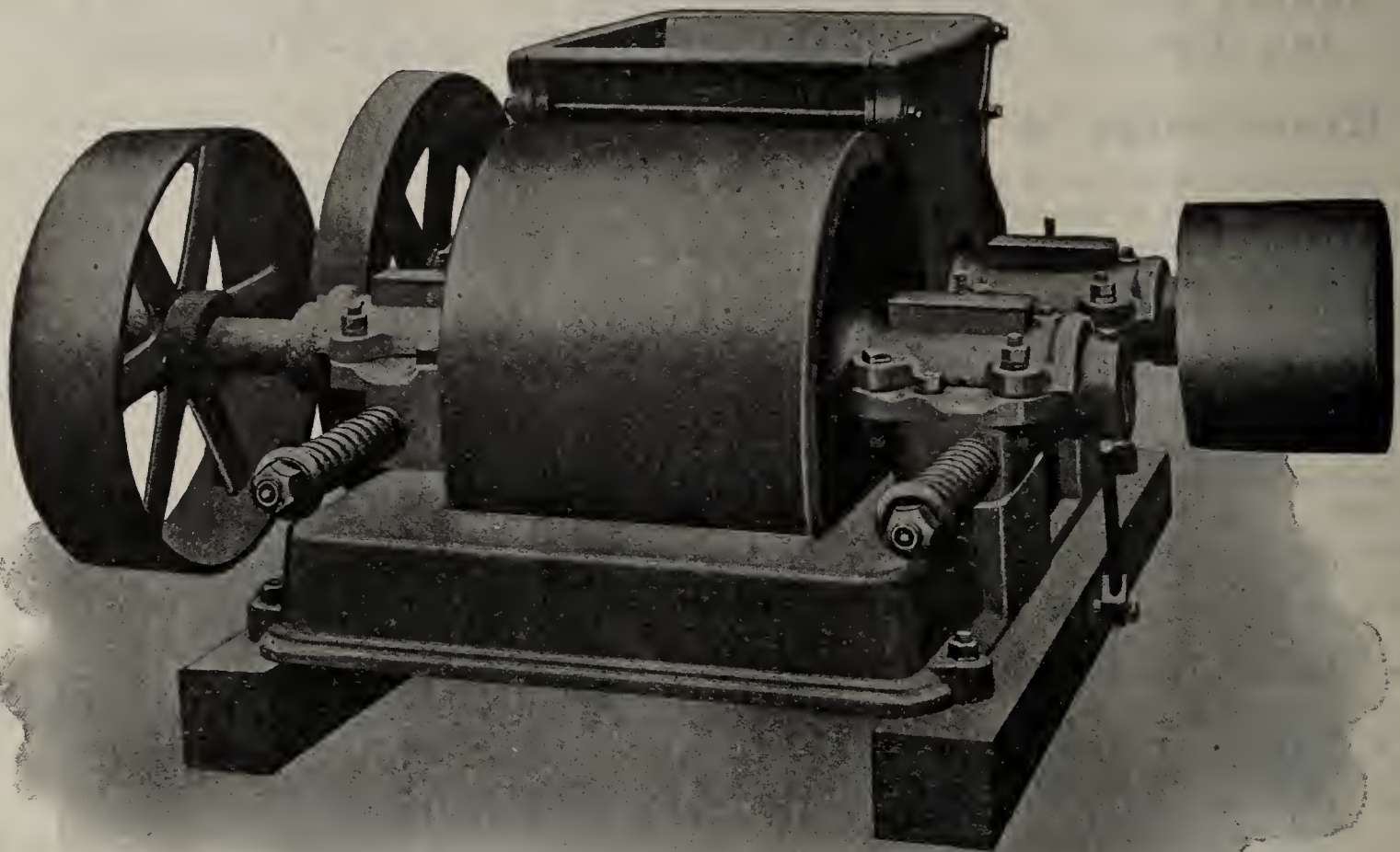
Street and No.....State.....

Names of magazines desired.....

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33⅓ % Saved on this Disintegrator if you buy of us.



WHAT

All the good features and more than some machines that sell for one-third more money.

Journals, 10 inches long.

All bearings have ring oiling boxes.

Both rolls deeply chilled.

Fast roll fitted with adjustable, reversible special tool steel cutting bars, and machine is constructed so that knives may be changed without removing hopper.

Safety springs (at the front in cut) have saved half the price of the machine in averting big smashups. Our Disintegrator eats up anything from a spike to a shovel, and is none the worse for wear.

HOW

By a close economy of shop cost and overhead expense we can furnish this Disintegrator for the above low figure and give you the benefit of the price.

WHY

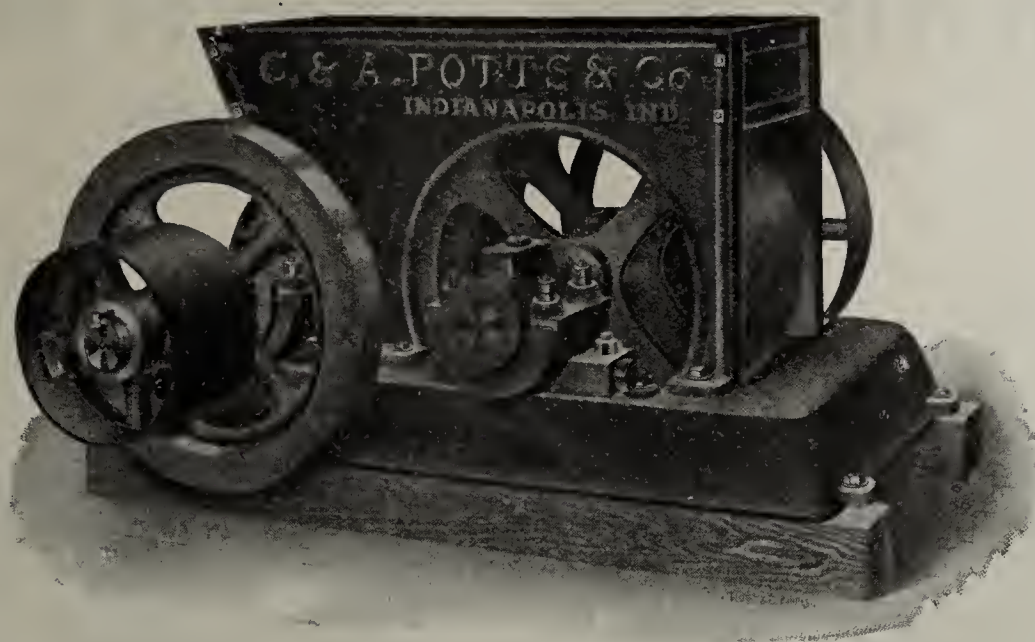
Because large sales with small profits are better all around than small sales with large profits.

NOW

Write for further information and catalogue.

The Wellington Machine Co., Wellington, Ohio

POTTS
DISINTEGRATOR



STYLE
2 "P"

We Recommend THE POTTS DISINTEGRATOR

because we know it will give you just the service you want. Simple in construction, easy of operation and built to stand the hardest usage. All rolls are made of heavy chilled castings. Heavy steel shafts running in ring oiling bearings. Insures the best results at any speed in any clay. Durable, economical and one hundred per cent efficient; especially adapted for grinding dry, lumpy clay.

Made in four sizes—No. "1A," No. "2P," No. "3P," and No. "4P." All the above sizes made with compound disintegrator and roller crusher.

Write today for literature.

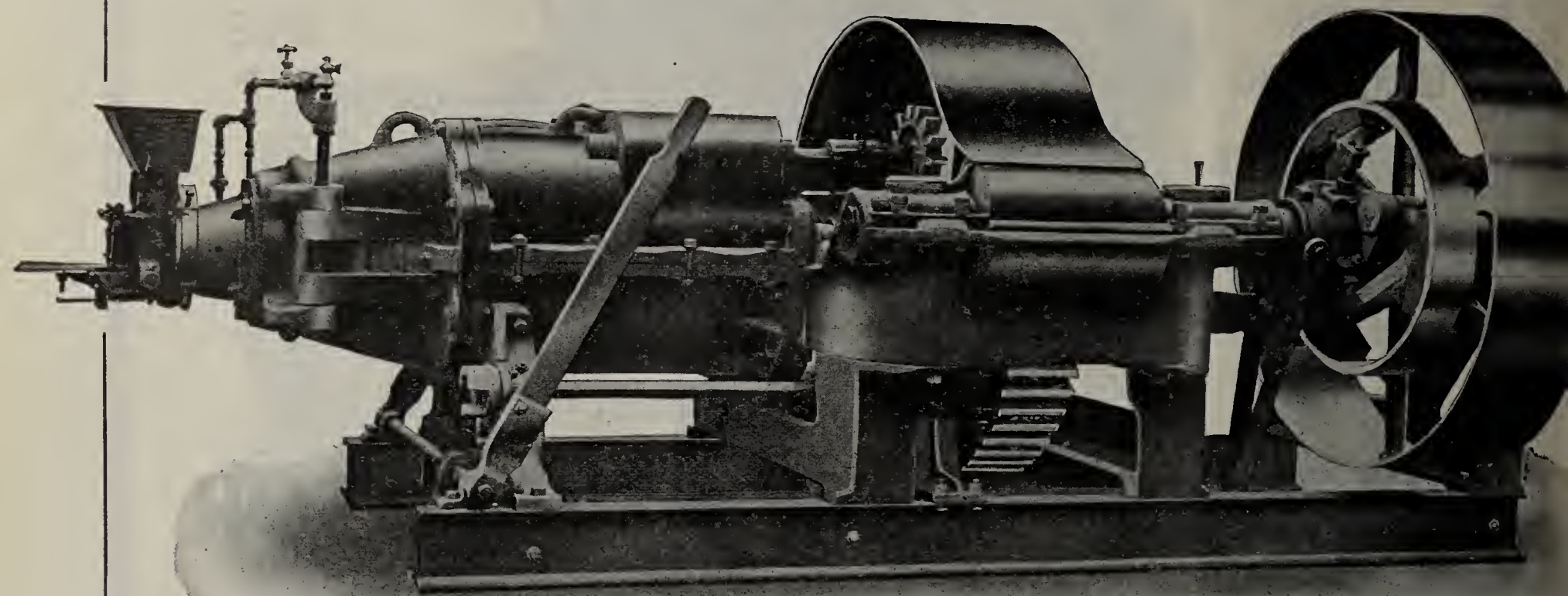
C. & A. POTTS & COMPANY

The Best in Brickmaking Machinery

Indianapolis

Indiana

Special Attention Given to Medium and Small Plants



Our machines for small capacities receive just the same attention as our larger machines. We know the requirements of the small brick-maker by long experience, and have given special attention to simplifying and improving these machines.

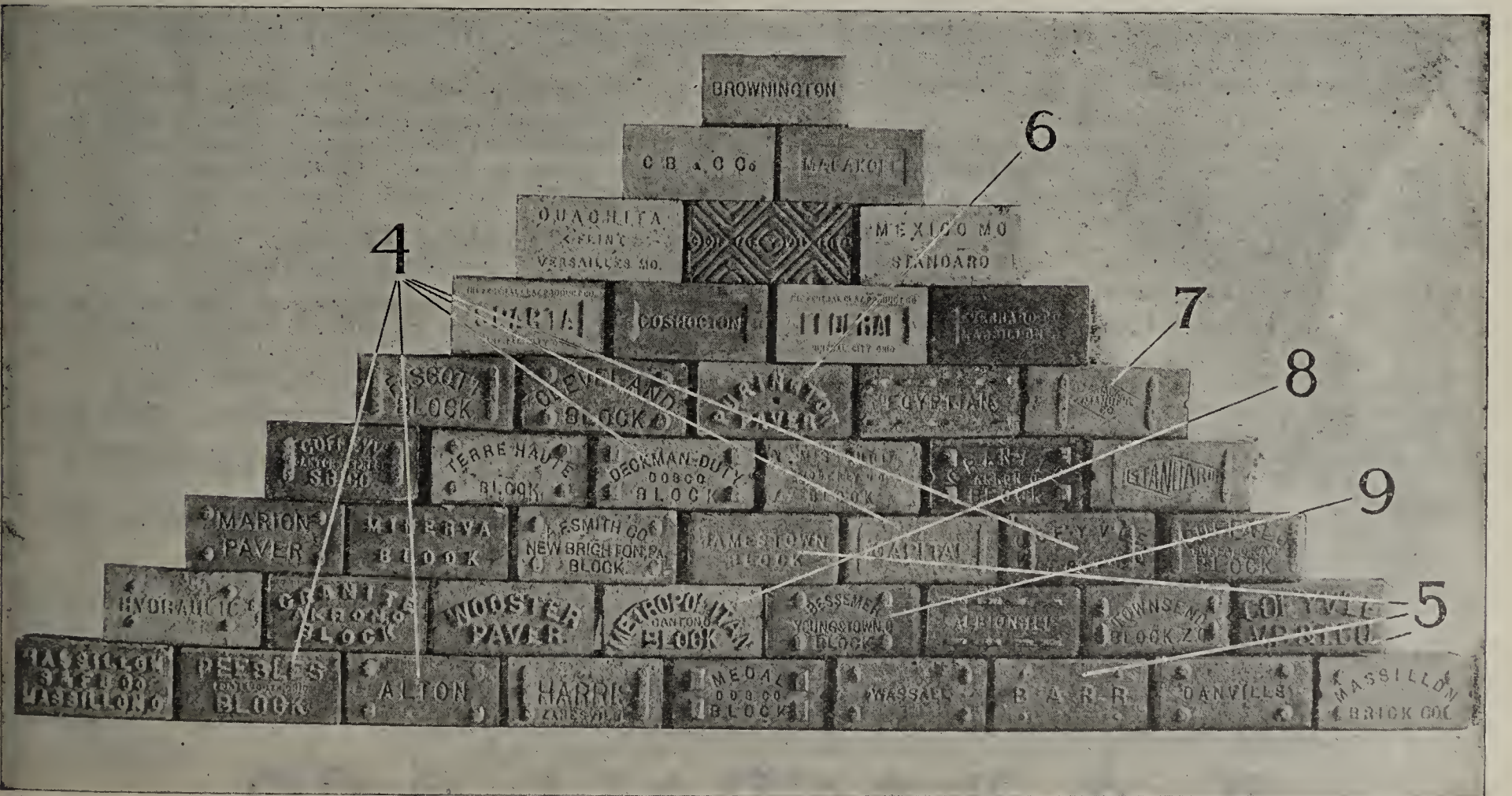
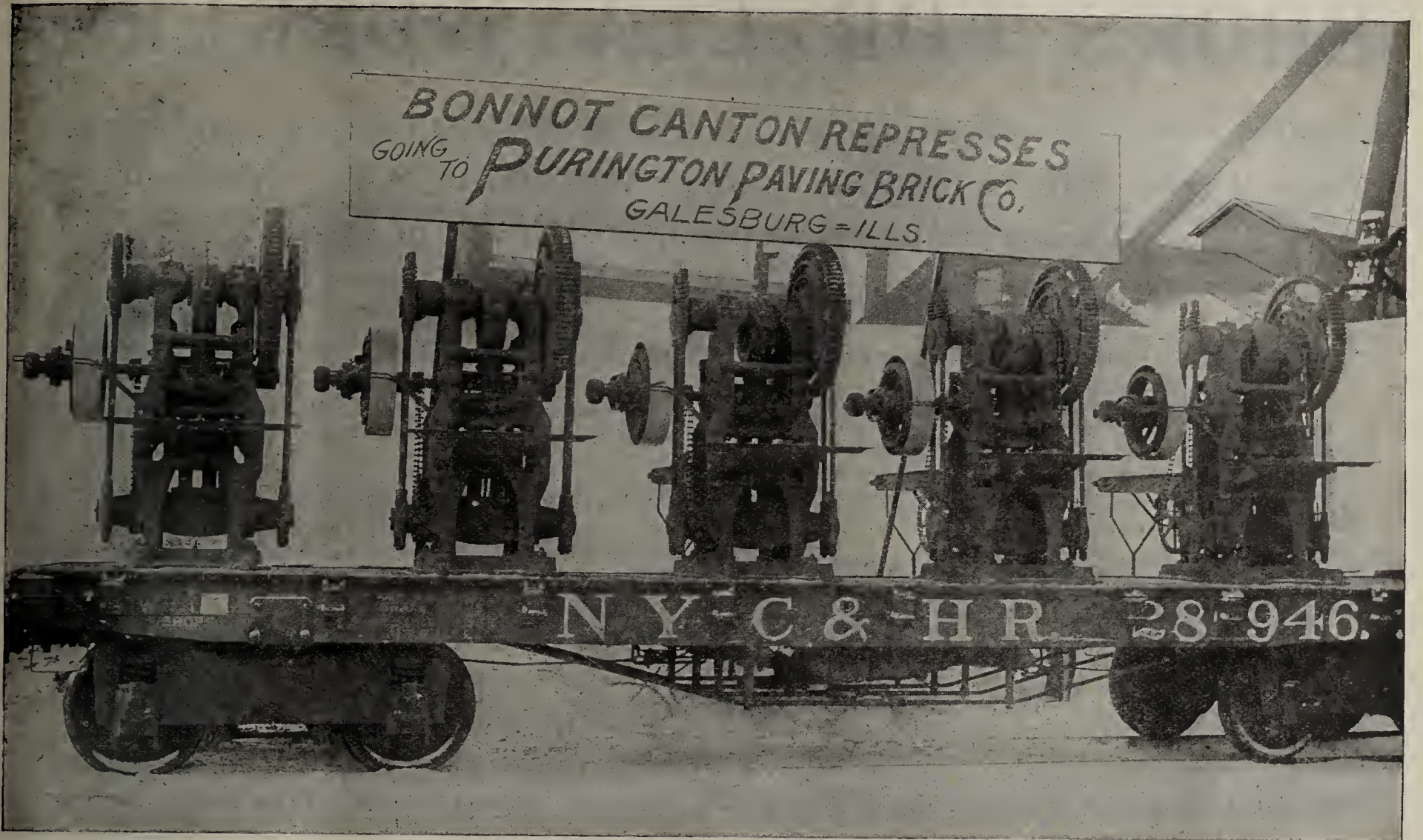
We think it better policy to carefully consider the necessities of our customers rather than to load them up with machinery not suited to their conditions. With our machines, you are at no disadvantage with the large plants.

We will be glad to help you if you are having any kind of troubles.

J. C. STEELE & SONS
STATESVILLE, N. C.

Manufacturers of the Better Kind of Brick Machinery.

Bonnot Repress has been Adopted by Purington Paving Brick Co.



A study of this cut will show the class of brickmakers who use BONNOT REPRESSES and the number of machines some of them are using.

909 N. Y. Life Bldg., Kansas City, Mo.
631 Higgins Bldg., Los Angeles, Cal.

THE BONNOT COMPANY, Canton, Ohio

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BOOKS FOR CLAYWORKERS.

These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

The Brickmakers' Manual, by R. B. Morrison and J. A. Reep. Price \$3.00.

An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryers, kilns, etc.

The Clayworkers' Handbook, by the Author of "The Chemistry of Clayworking." Price \$2.00.

A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport, Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting or Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

Modern Brickmaking, by Alfred B. Searle. Price \$5.00.

It contains well-written chapters on the nature and selection of clays and other materials used, general brickmaking, the different processes, machinery, kilns, setting and burning, various products and uses, and sources of difficulty and loss.

Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

Clays: Their Occurrence, Properties and Uses, by Heinrich Ries. Price \$5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

Bricklaying, by Owen B. Maginnis. Price \$2.00.

This book contains extensive explanations of the most improved modern methods of bricklaying, and is the current practice and experience of the best authorities, making an invaluable work of reference for architects, engineers, contractors, builders and mechanics.

The Effect of Heat Upon Clays, by Prof. A. V. Bleining. Price \$2.00.

A book of valuable information on burning and drying, told in a plain, practical way, and invaluable to the burner or superintendent.

Bricklaying System, by Frank B. Gilbreth. Price \$3.00.

A book whose 330 pages are filled with rules and hints for the foreman and bricklayers, designed to increase the output of the workmen and enable them to do difficult work in the best manner.

Vitrified Paving Brick, by H. A. Wheeler, E. M. Second Edition. Price \$2.00.

A review of present practice of the manufacture, testing and uses of vitrified paving brick.

Tables of Analyses of Clays, by Alfred Crossley. Third Edition. Price \$2.00.

Including analyses of chemically pure clays, well-known common and pressed brick clays, paving brick clays, fire clays, shales, etc., both in this country and abroad. A valuable book for those desiring to compare their clays with well-known and standard clays.

Kiln Records, by W. D. Richardson. Price \$1.00.

To establish a successful system of burning, observations and records should be made regularly, carefully and conscientiously, and this can be done to best advantage by the use of Mr. Richardson's Kiln Records.

Engineering for Land Drainage, by C. G. Elliott. Price \$2.00.

Giving instructions for laying out and constructing drains for the improvement of agricultural lands intended for the use of those who are charged with the responsibility of making plans for and executing drainage improvement.

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(Incorporated)

MANUFACTURERS OF

DRAIN TILE

Hollow Building Blocks and Common Brick
Fireproofing and Silo Blocks

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We beg to remain,

Very respectfully yours,
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Are you satisfied with cost of upkeep and repairs?

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We satisfy by giving customers the right sort of machine for the work he has to do. We see it is put in right and at a satisfactory expense for labor and power.

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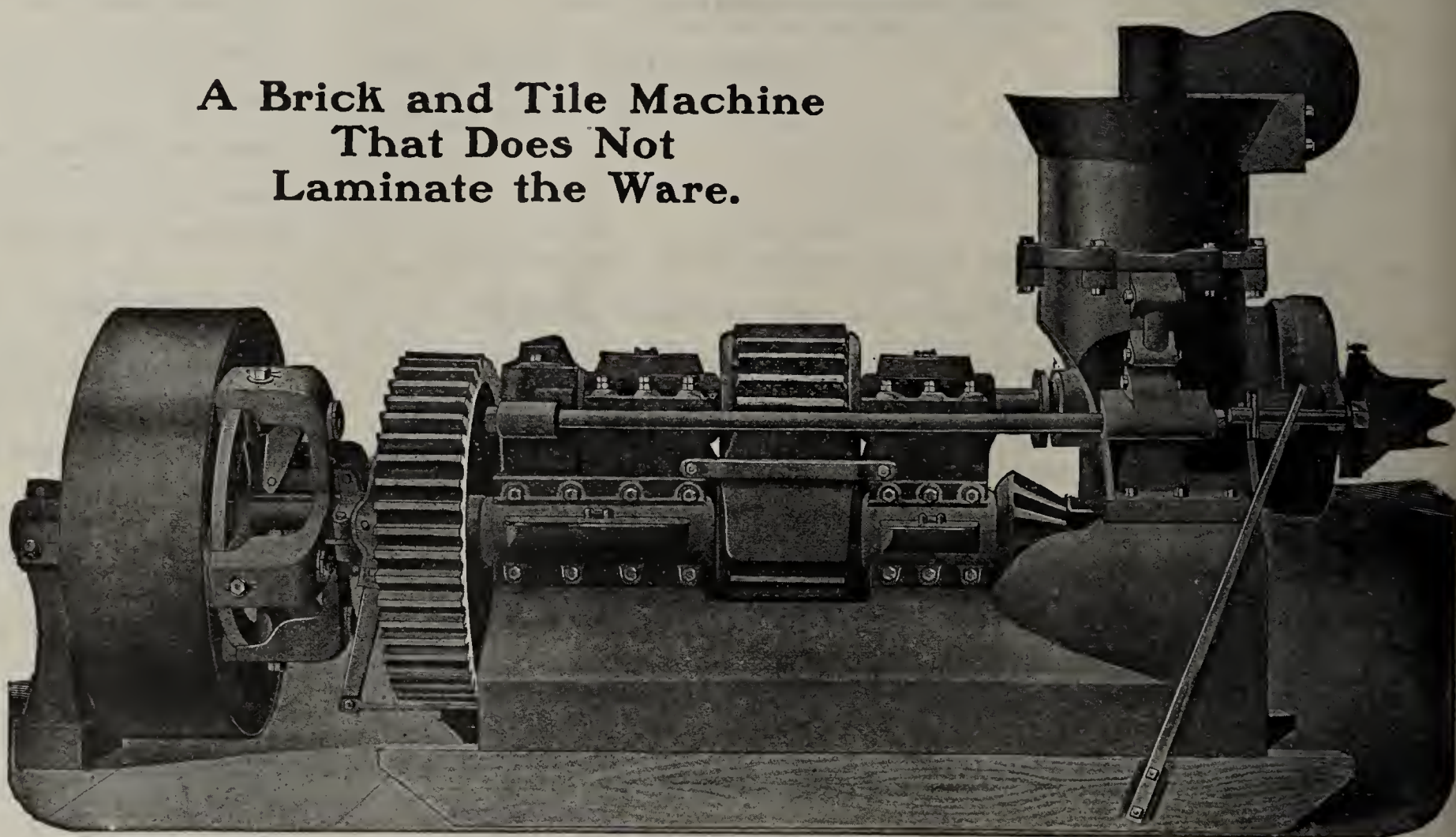
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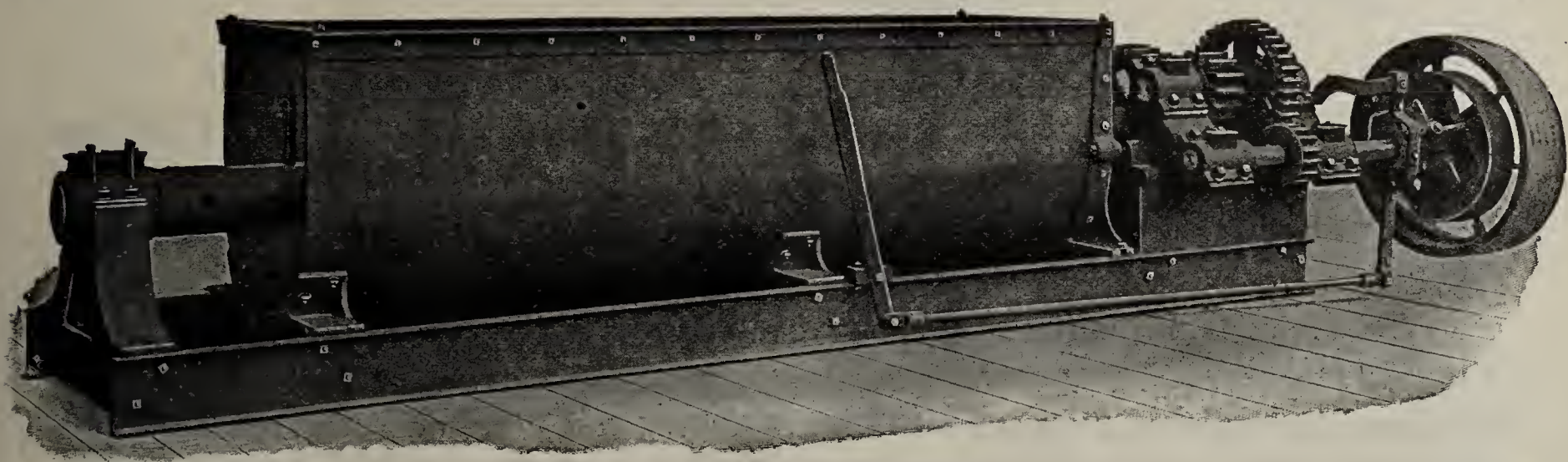
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Here are some pug mills which are different from the ordinary. They are different in their design, in their construction and in their operation. While of the open top, open front pattern, they possess all the advantages and none of the disadvantages of either the open or the closed mill. We have them in spur-gearred and bevel-gearred, single-gearred and compound-gearred, pushing and pulling patterns; large and small sizes.



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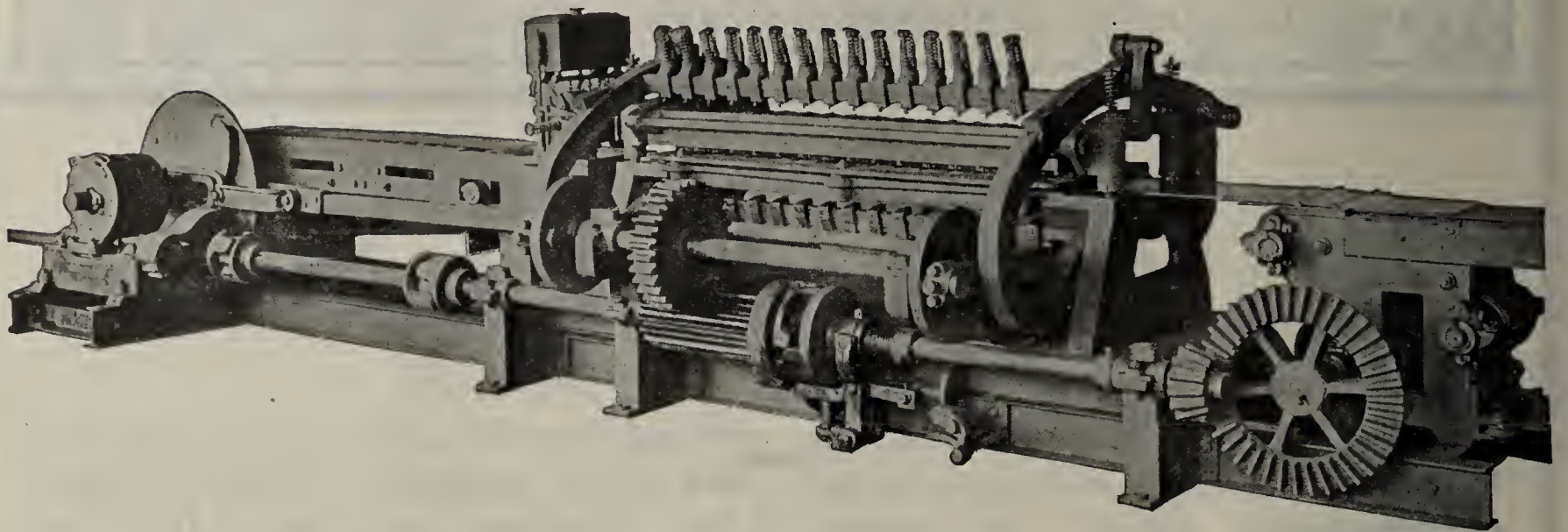
The top and front end are open but each knife being independently adjustable for pitch, a few front knives are set flatter than the others. This holds the clay in the mill a length of time proportional to the difference in pitch of the front and rear knives. You can set the knives so that the mill will run over at the discharge end if you want to.

The clay is delivered in a loose, granular form, easily fed to other machines; not in large irregular shaped chunks which clog the hoppers and chutes.

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It Explains These Pug Mills Fully

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This cutter, which is of the reciprocating type, is built in two Models "T 50" and "T 60" for capacities up to 12,500 brick per hour or more. The design is extremely simple and substantial. It embodies many of the well tried features of our Rotating Automatic Cutters.

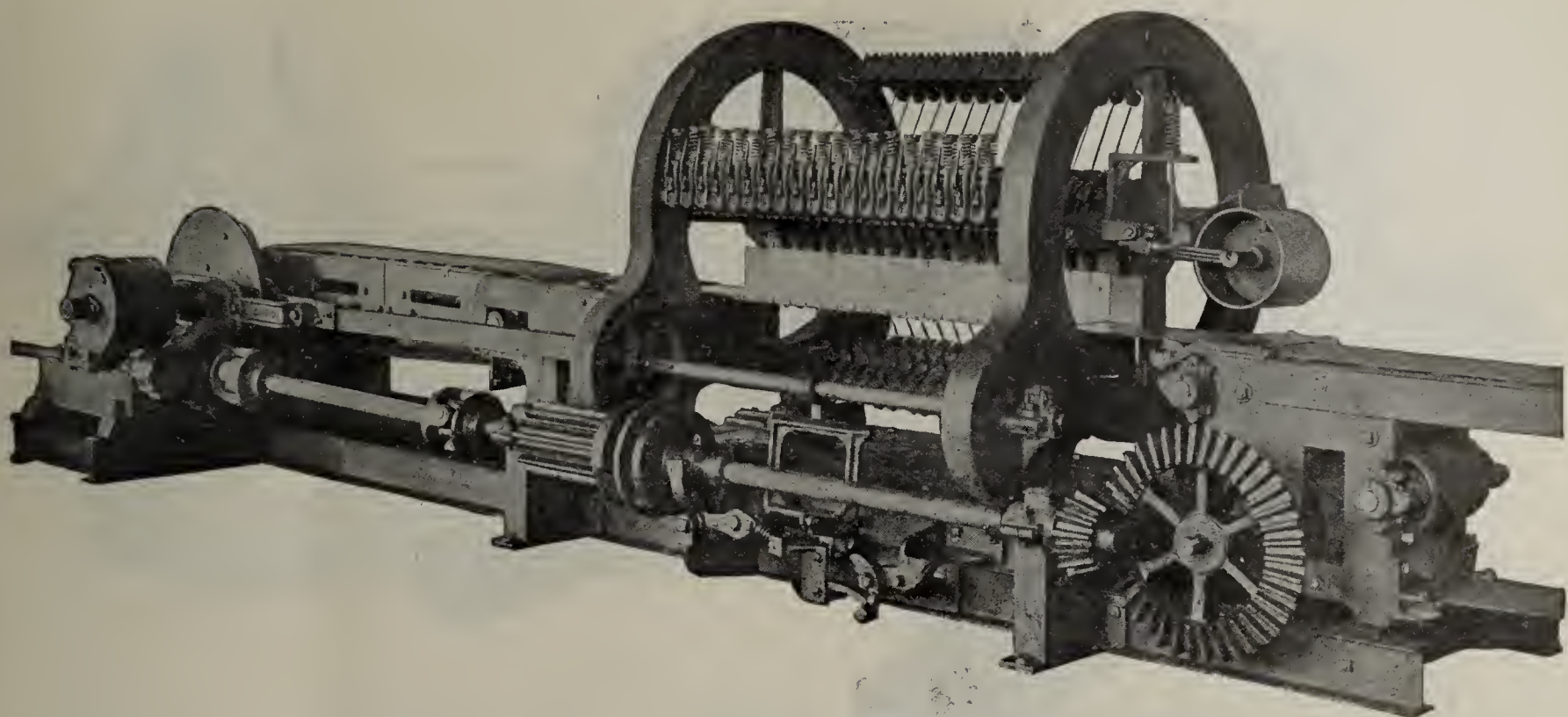
The cutting frame carries only one set of cutting wires and has a swinging movement, avoiding the wear and play common to sliding parts. It is actuated by cranks, driven by a single gear and pinion, giving a smooth, quiet starting and stopping of the cutting stroke. The frame remains stationary between cuts, affording ample time to renew broken wires.

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E. M. FREESE & COMPANY, Galion, Ohio



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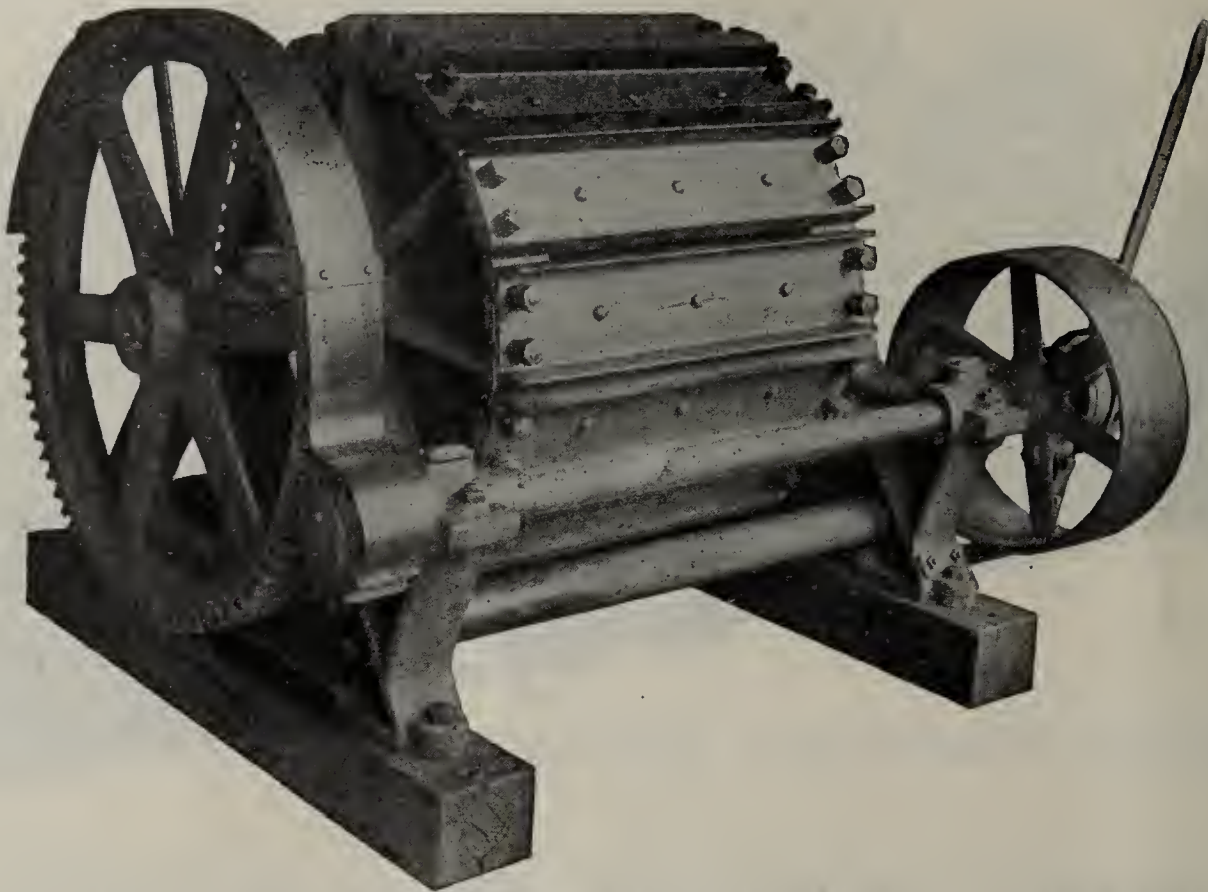
The above illustration shows the Model C 20 Cutter, which is an improved model of our well-known Size 16. It is intended for capacities up to 7,500 standard size brick per hour—18 brick are cut at each cut. At this speed the cutting reel makes only a little over two revolutions per minute, remaining stationary between cutting strokes. It is not necessary to stop the brick machine to renew broken wires, as this gives ample time.

The cutting apparatus, including drive for separating belt, is entirely self-contained, being mounted upon one set of I-beam sills, assuring permanent alignment of all parts. The measuring and separating tables are built with iron or steel sides.

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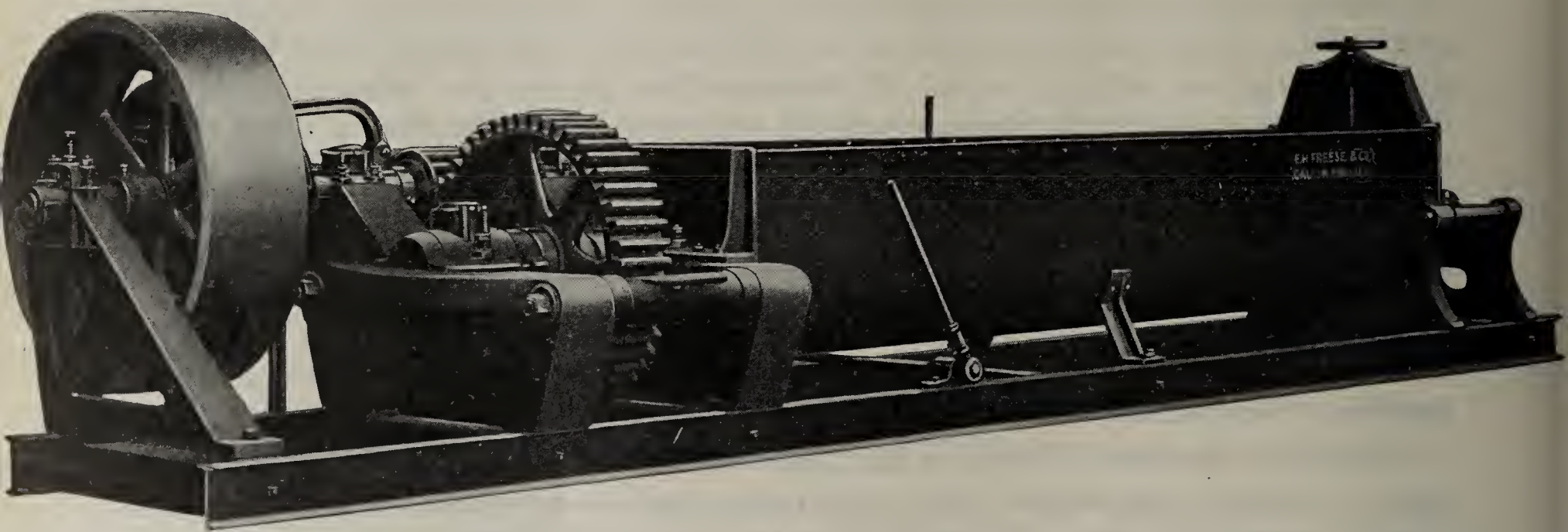
Particular attention is called to the platen construction. The platen is cast in one piece of tubular cross section and is very rigid. Surfaces covered with renewable steel plates, insuring fine slots. The angle of the cutting wires has been changed to give perfect edges on the brick. Built to give long service without skilled attention. Complete description will be furnished on request.

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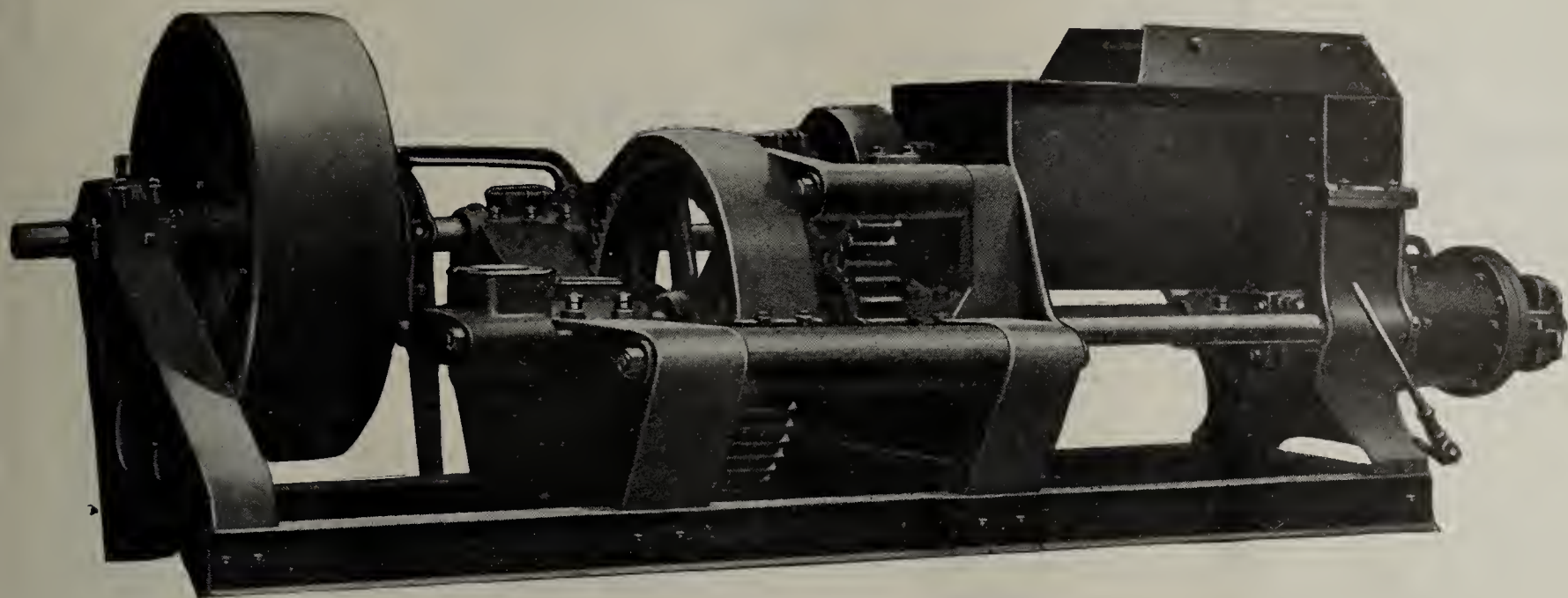
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Model "KC" Auger Brick Machine

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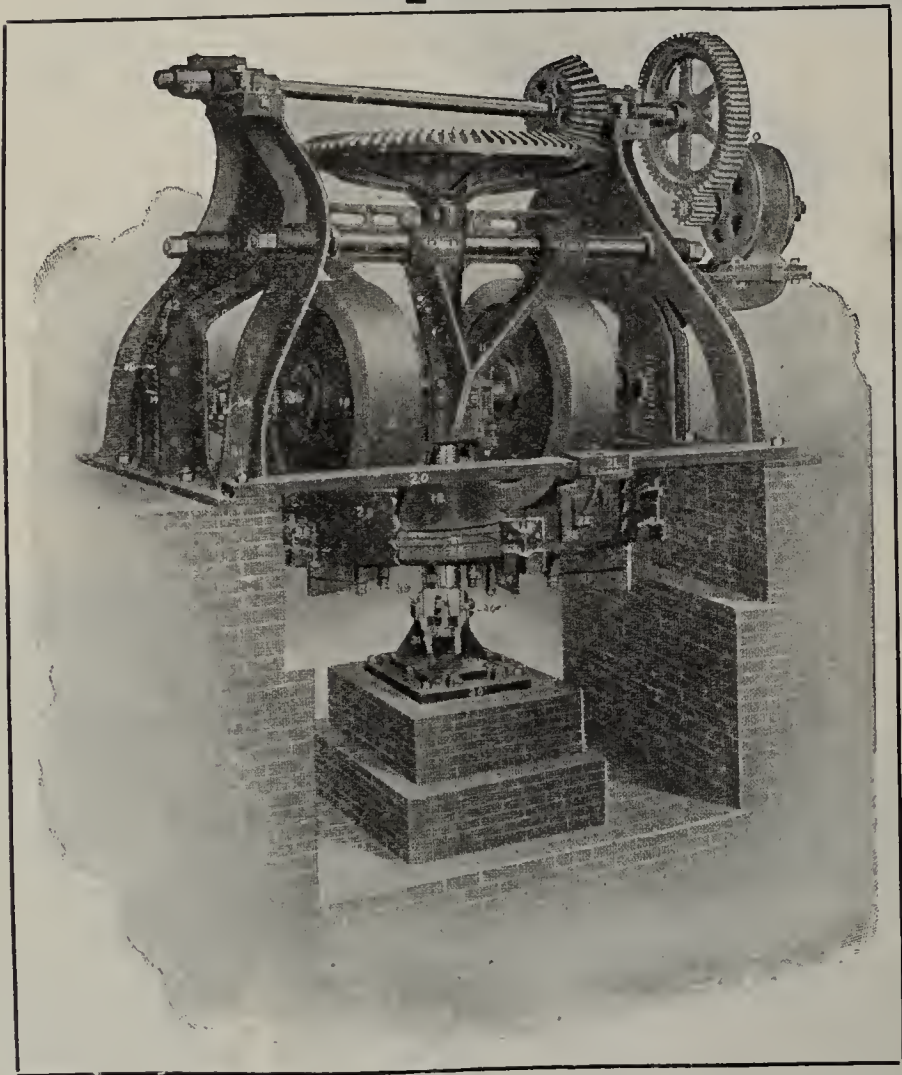
The Pittsburgh and Ohio Valley districts represent the center of the American clay industry. And it's right here that Stevenson Pans and other equipment represent from fifty to seventy-five per cent of all clay working machinery used. That's one incident.

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Stevenson equipment means getting the last dollar's worth of value from your in-

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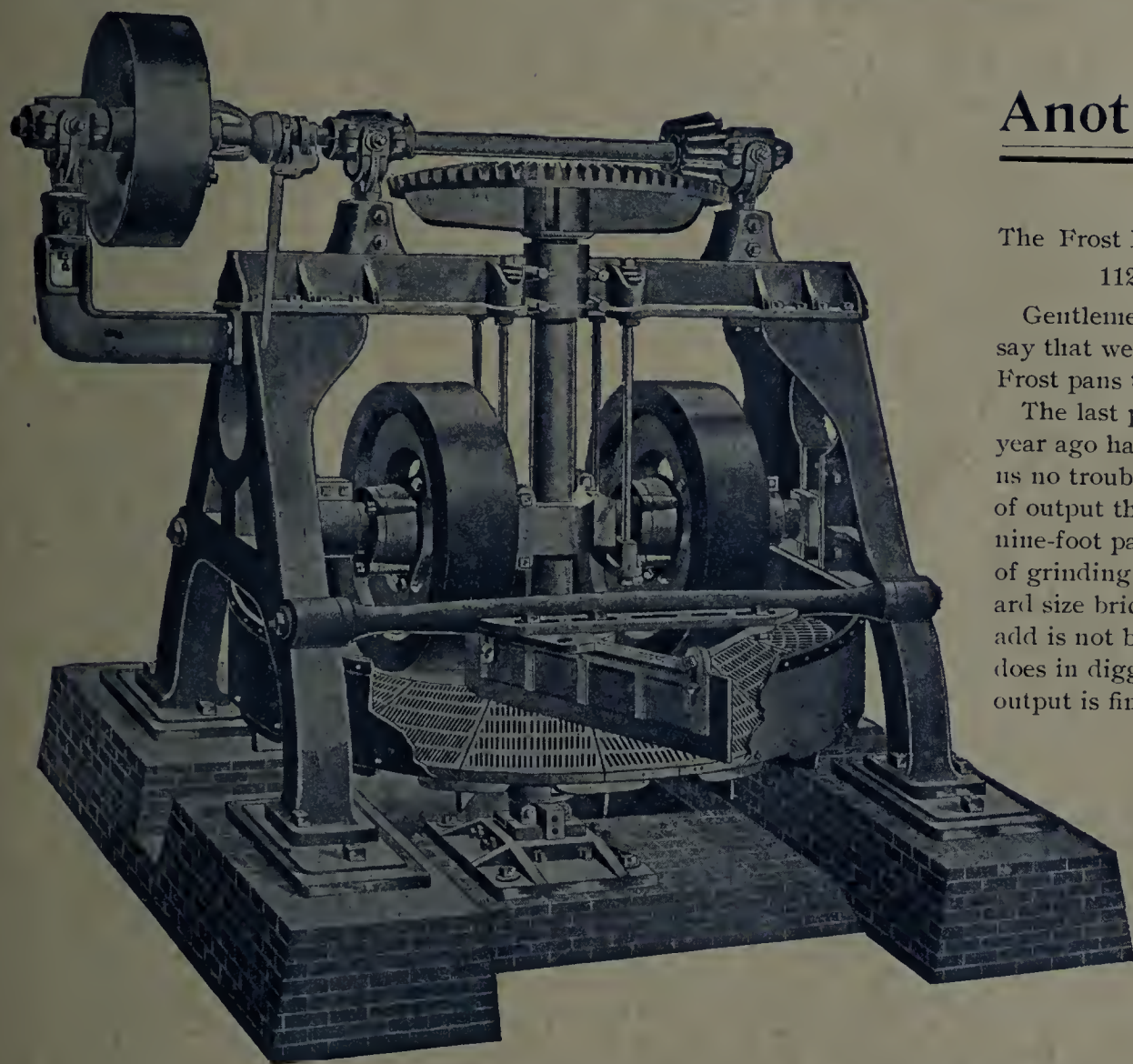
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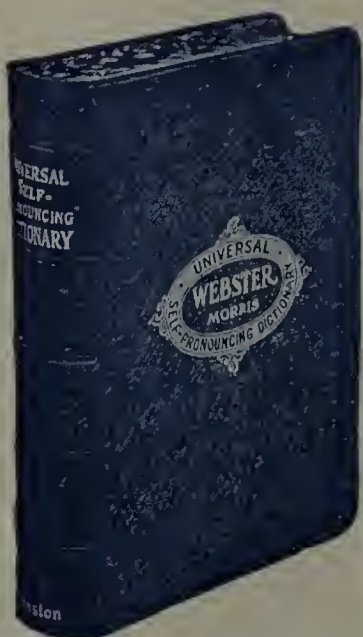
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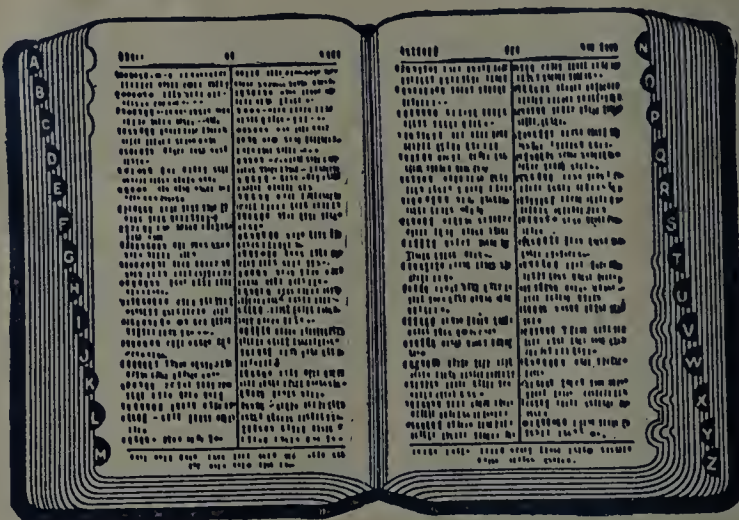
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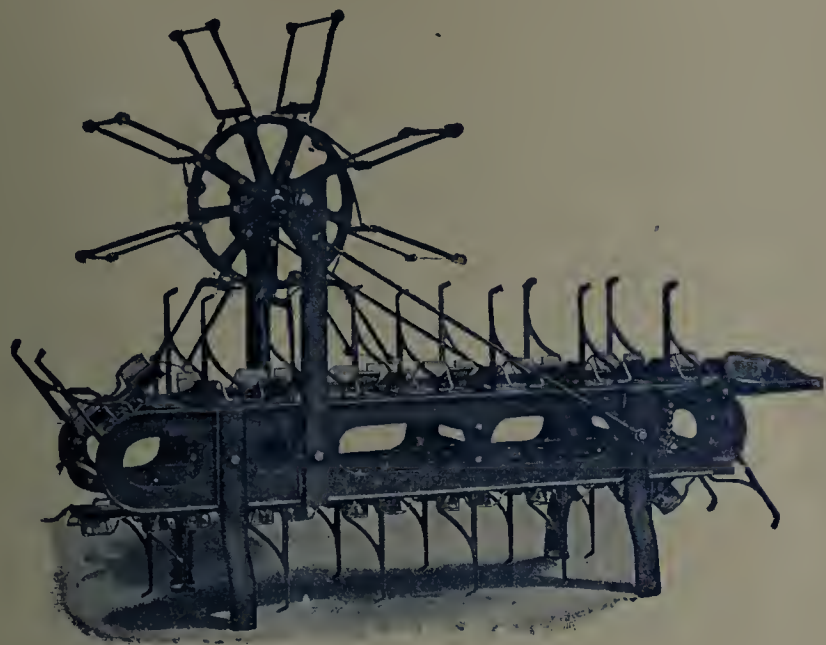
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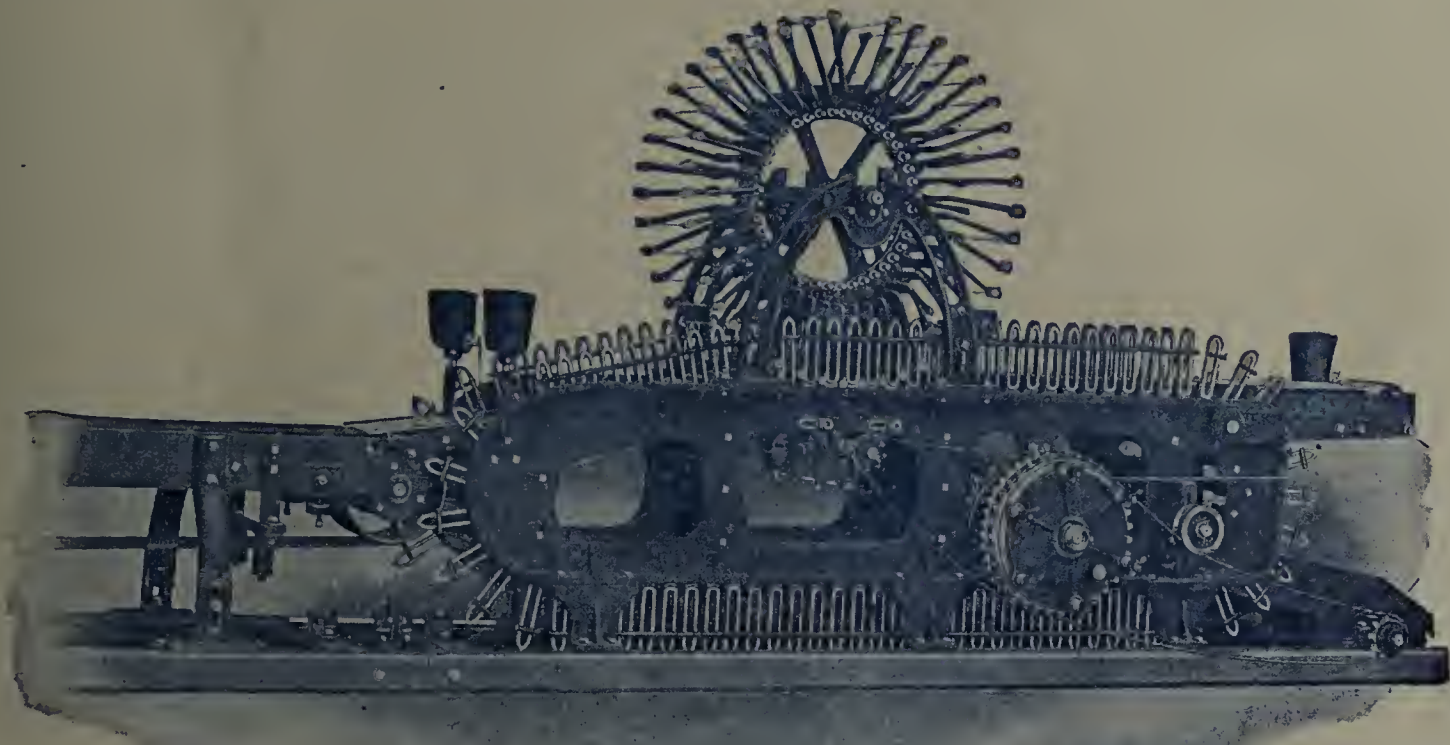


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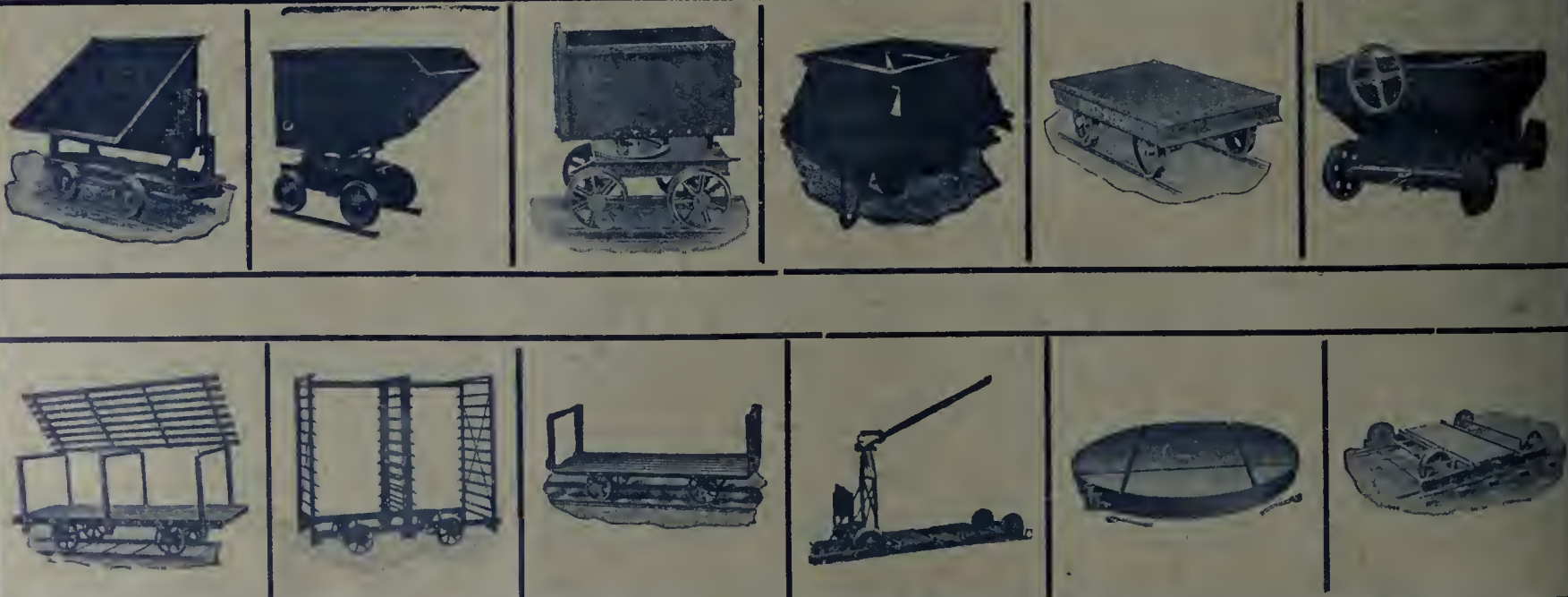
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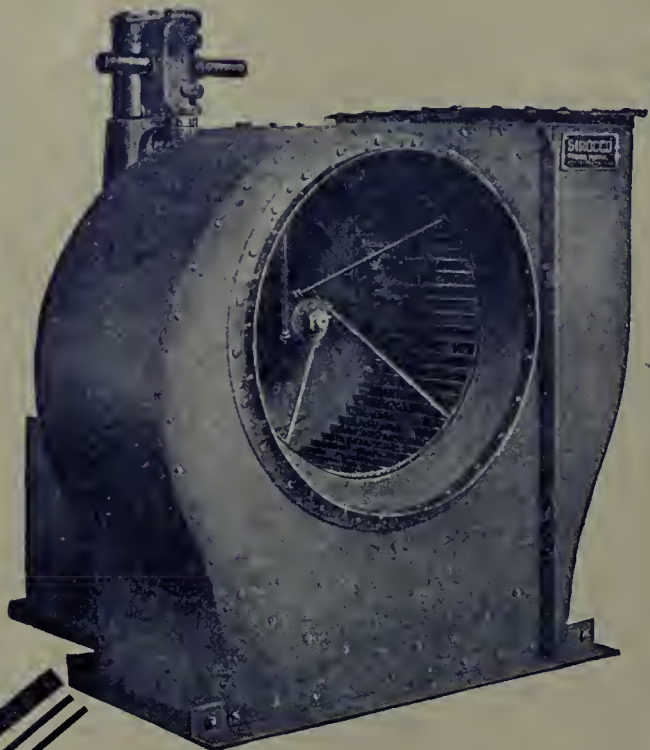
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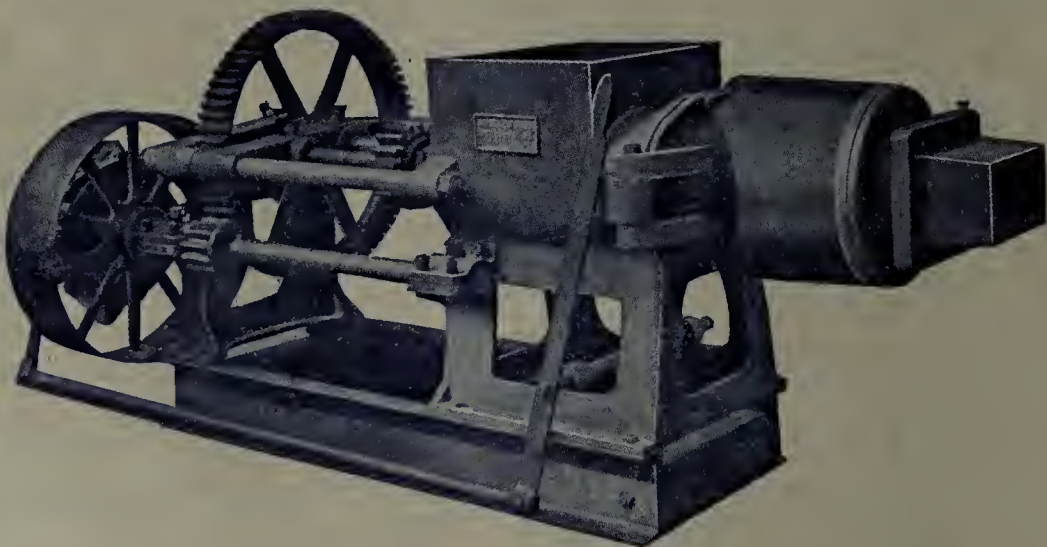
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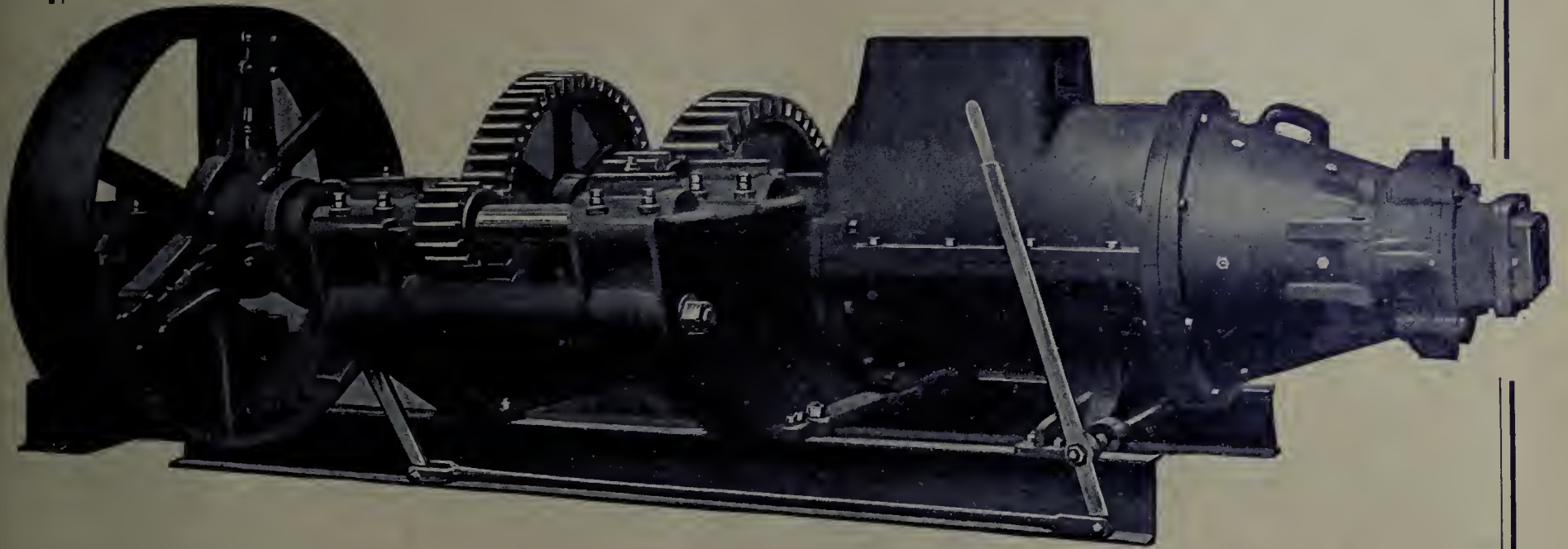
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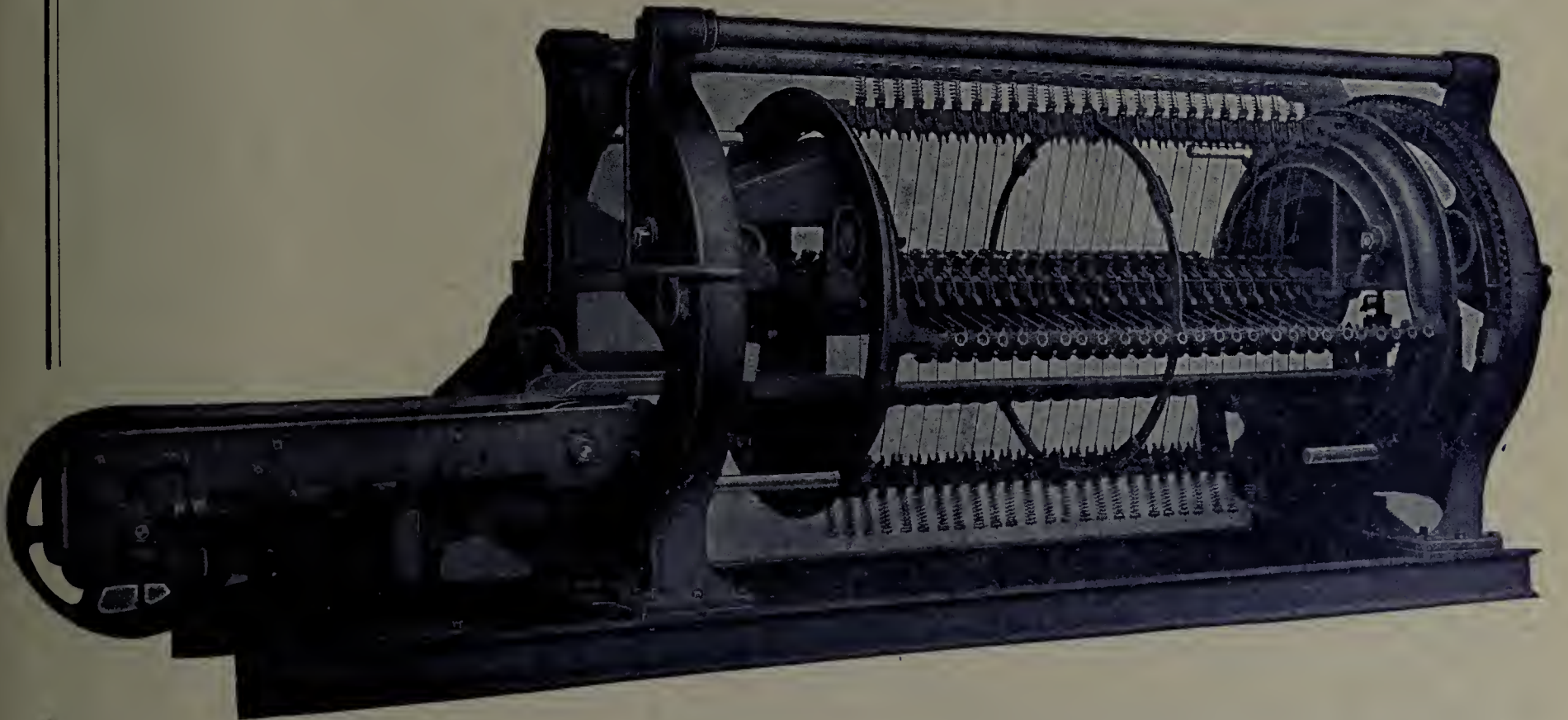
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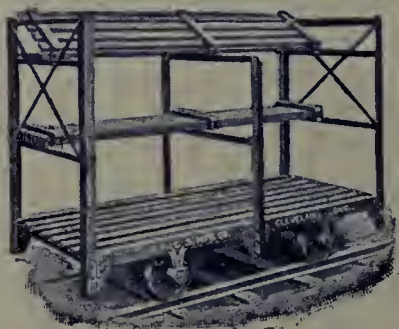
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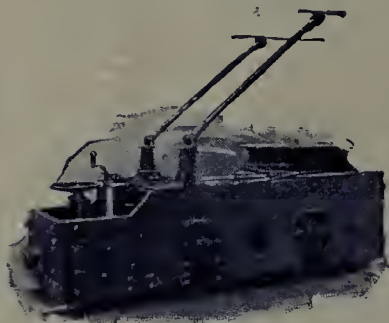


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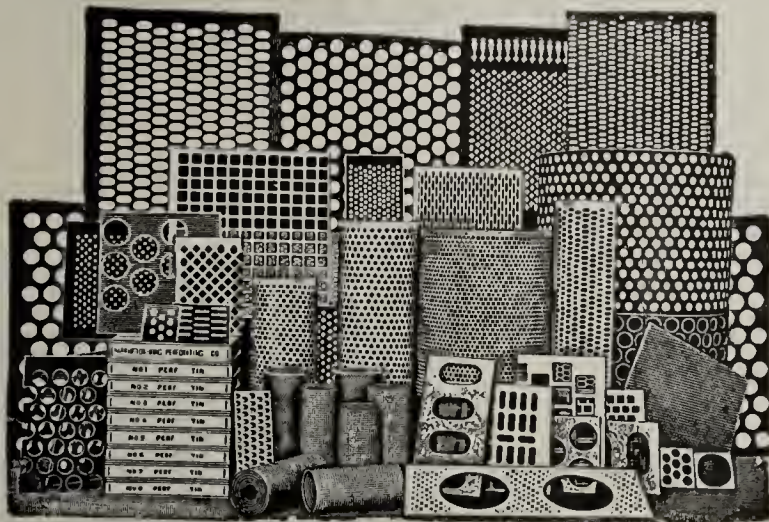
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CHICAGO.

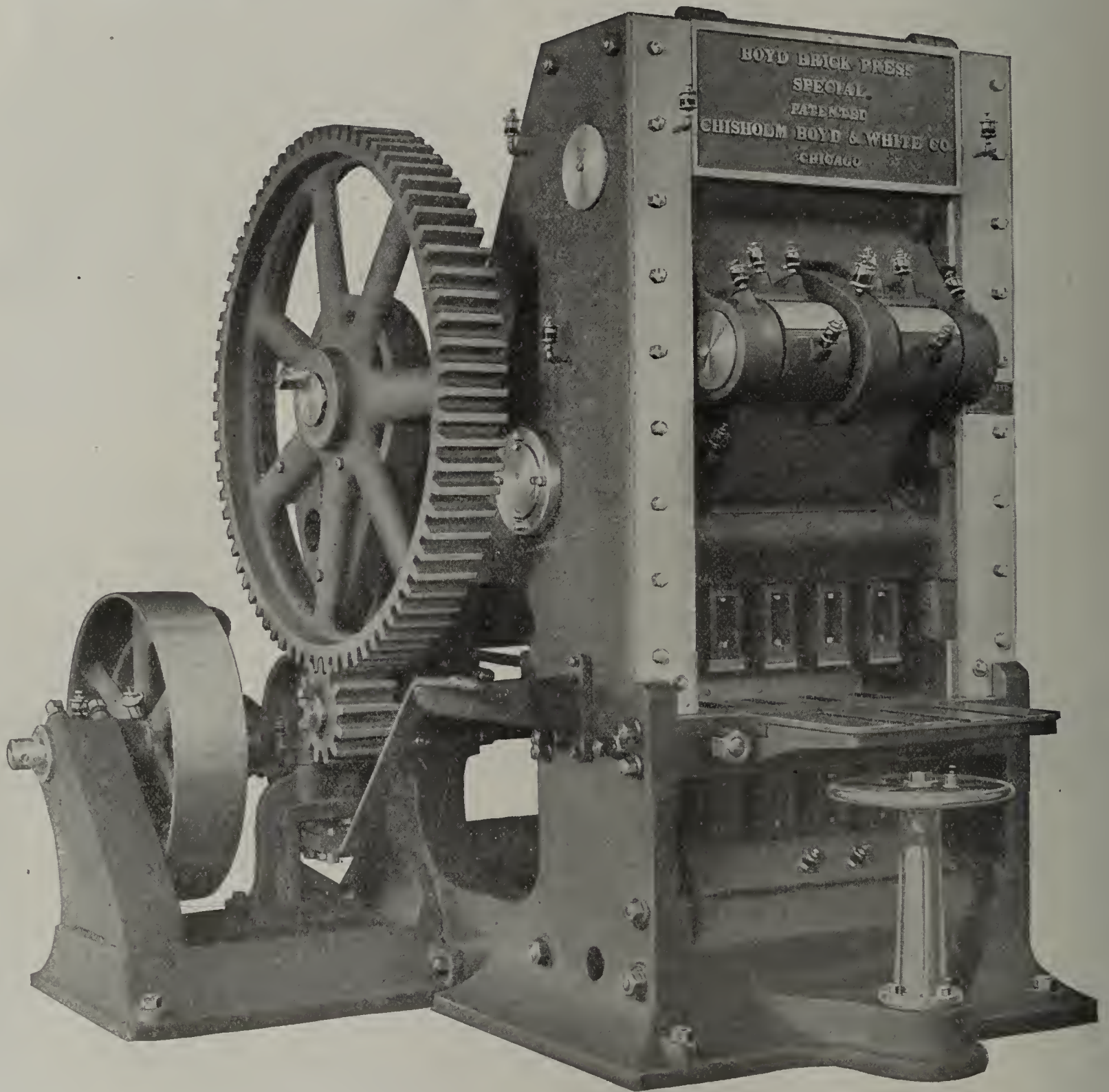


RODGERS



The Boyd Brick Press

"Built Up to a Standard—Not Down to a Price."



SPECIAL FEATURES OF THE BOYD BRICK PRESS

BALANCED-PRESSURE—brick lifted in molds under pressure.

PRESSING TIME FACTOR—long duration, 50% of the cycle.

GEARS, SHAFTS, BEARINGS and other parts exceptionally large.

FREE from complicated parts—**ACCESSIBILITY** unequaled.

TOP and BOTTOM of brick equal hardness—**NO** granulated surfaces.

Write for latest Catalogue No. 25, which contains plans and suggestions concerning the design and equipment of brick plants.

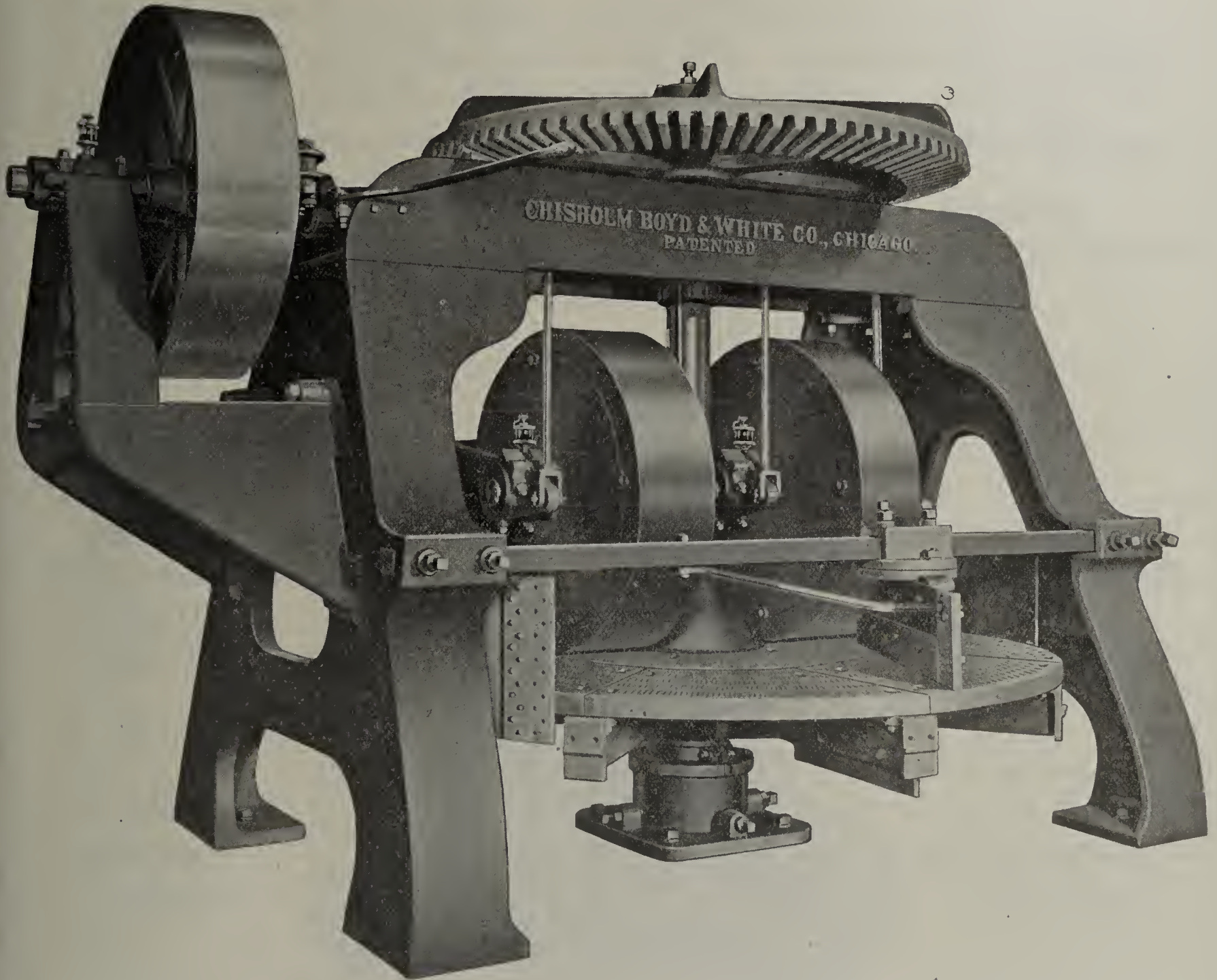
Chisholm, Boyd & White Company

Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

DRY PANS

BOYD QUALITY



OUR NEW NINE-FOOT HEAVY DUTY DRY PAN.

For design, strength, durability and efficiency
this Dry Pan has no equal.

Chisholm, Boyd & White Company,
Office and Works, 57th and Wallace Sts. CHICAGO, ILL.

Mention THE CLAY-WORKER.

THE BRADLEY THREE ROLL MILL

For Grinding Dry Tailings

Is a New Departure in the Fire Brick Industry and **should be thoroughly investigated.** Will give exceedingly large output with low cost of upkeep and any fineness desired. Mill is entirely self-contained and **requires no auxiliary machinery** to procure finished product.

IT HAS BEEN THOROUGHLY TESTED AND PRONOUNCED ALL RIGHT BY ONE OF THE LARGEST FIRE BRICK MANUFACTURERS.

Can be
Regulated to
Give
Any Desired
Fineness.

Catalog Upon
Request.



Low in
Upkeep and
Horse
Power.

Few
Wearing
Parts.

Sold on a "MAKE GOOD" Proposition.

Bradley Pulverizer Co., Boston, Mass.
London, Eng. ————— Berlin, Germany

Makers of

THE CELEBRATED GIANT GRIFFIN MILLS

The Successful Cement Material Pulverizer.

Buyers Ready Reference List.

To Find Any Particular Firm or Advertisement See "Index to Ads" as Cited on Front Cover Page.

Ammeters.

The Brown Instrument Co.

Analysts and Chemists.

Ceramic Supply & Con. Co.
N. J. State University.
Ohio State University.
Richardson-Lovejoy Engr Co.

Automatic Clay Bin Emptier.

Raymond Co., The C. W.

Automatic Cutting Tables.

(See Cutting Tables.)

Barrows and Trucks.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
H. Brewer & Co.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Illinois Supply and Con. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Barytes, Carbonate of

Gabriel & Schall.
Roessler-Hasslacher Chem. Co.

Bearings, Roller.

(See Supplies.)

Belting.

Gandy Belting Co.
Sawyer Belting Co.

Belt Conveyors.

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Gandy Belting Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.

Blowers

American Blower Co.
American Clay Machinery Co.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

Boilers.

American Clay Machinery Co.
Arbuckle & Co.
Frost Mfg. Co.
Morehead Mfg. Co.

Brick (Building).

Bloomfield Clay Co.
Bolivar Face Brick Co.
Fiske & Co., Inc.
Kushequa Brick Co.
Marlon Brick Works.
Purinton Paving Brick Co.

Brick (Fire).

Chicago Retort & Fire Brick Co.
Evans & Howard Fire Brick Co.

Brick (Paving).

Alton Brick Co.
Barr Clay Co., The
Bessemer Limestone Co.
Clinton Paving Brick Co.
Danville Brick Co., The
Hocking Valley Fire Clay Co.
Marion Brick Works.
Metropolitan Paving Brick Co.
Natl. Pav. Brick Mfgs. Assn.
Purinton Paving Brick Co.
Terre Haute Vit. Brick Co.
Thurber Brick Co.
Shawmut Vit. Pav. Brick Wks.
Wabash Clay Co.

Brick Conveyors.

American Clay Machinery Co.
Mathews Gravity Carrier Co.

Brick and Tile Machinery.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Chisholm, Boyd & White Co.
Dunn Wire Cut Lug Brick Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Fernholtz Brick Machy. Co.
Freese & Co., E. M.
Hensley, J. W.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Ohio Ceramic Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Brick Machines (Soft Mud).

American Clay Machinery Co.
Anderson Fdy. & Mch. Works.
Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Wellington Machine Co.

Brick Machines (Stiff Mud).

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Brick Machines (Dry Press).

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Chisholm, Boyd & White Co.
Chicago Brick Machinery Co.
Fernholtz Brick Machinery Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Mueller Bros.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.

Brick Recutter.

Raymond Co., The C. W.

Brick Setting Machinery.

American Clay Machinery Co.

Brickyard Engineering.

Callaway Eng. Co., Ed. H.

Buffing Machinery.

American Clay Machinery Co.

Burning and Drying Systems.

Boss, John C.
Buhner, Jacob
Dennis, F. W.
Gas Machinery Co.
Hoffmann Construction Co.
Illinois Supply & Con. Co.
Koch, J. J.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Rodgers Engineering Co., L. E.
Snowden & Co., Geo. E.
Standard Dry Kiln Co.
Tate, Jones & Co.
Trautwein Drying & Engr. Co.
Vogt, Anton.
Yates, Alfred.

Cars.

(See Dryer and Dumping Cars.)

Castings.

Arbuckle & Co.
Caldwell & Sons Co., H. W.
Chambers Bros. Co.
Edgar Allen Am. Mang. Steel Co.
Taplin, Rice-Clerkin Co.

Ceramic Engineers.

Hoehne, Richard B.
Koch, J. J.
Richardson-Lovejoy Engr. Co.

Clay Crushers and Pulverizers.

American Pulverizer Co.
American Road Machine Co.
Arbuckle & Co.
Brewer Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Phillips & McLaren Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Clay Dryers.

American Process Co.

Clay Feeders and Mixers.

American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Raymond Co., The C. W.
Taplin, Rice-Clerkin Co.
Scott-Madden Iron Works Co.
Stevenson Co., The.

Clay Gatherers.

(See Scrapers.)

Clay Steamers.

American Clay Machinery Co.
Raymond Co., The C. W.

Clay Technologists.

Koch, J. J.
Richardson-Lovejoy Engr. Co.

Clutches.

(See Supplies.)

Coloring Materials.

Chattanooga Paint Co.
Clinton Metallic Paint Co.
National Paint & Manganese Co.
Ricketson Mineral Paint Co.
Roessler-Hasslacher Chem. Co.
Williams & Co., C. K.

Cones.

Orton, Edward, Jr.

Conveying Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.

Caldwell & Sons Co., H. W.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Mathews Gravity Carrier Co.
Mueller Bros.
Newton, A. C.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.

Continuous Kilns.

Gas Machinery Co.

Contracting Engineers.

Dennis, F. W.
King, E. A.
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Vogt, Anton.

Couplings.

(See Supplies.)

Cutting Tables (Brick and Tile).

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Dunn Wire Cut Lug Brick Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.

Cutting Wires.

Arbuckle & Co.
Brewer & Co., H.
Ceramic Supply & Con. Co.
Freese & Co., E. M.
Manufacturers Equipment Co.
Raymond Co., The C. W.

Dampers.

(See Supplies.)

Dies.

(See Supplies.)

Disintegrators.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Drain Tile.

Evans & Howard Fire Brick Co.

Drain Tile Machinery.

(See Brick & Tile Machinery.)

Drums, Hoisting and Winding.

(See Supplies.)

Dryers.

American Blower Co.
American Clay Machinery Co.
American Process Co.
Chambers Bros. Co.

(Continued on next page.)

Buyers Ready Reference List—Continued.

Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Ohio Ceramic Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Rodgers Engr. Co., The L. E.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Trautwein Dryer & Engr. Co.

Dryer Cars.

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Freese & Co., E. M.
Fate Co., The J. D.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.
Scott-Madden Iron Works Co.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Taplin, Rice-Clerkin Co.
Trautwein Dryer & Engr. Co.
Wellington Machine Co.

Dry and Wet Fans.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Crossley Machine Co.
Eagle Iron Works.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Illinois Supply & Con. Co.
Phillips & McLaren Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Stevenson Co., The
Taplin, Rice-Clerkin Co.

Dump and Clay Cars.

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Eastern Brick Machinery Co.
Freese & Co., E. M.
Hensley, J. W.
Ohio Ceramic Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.
Wellington Machine Co.

Electric Shovels.

Thew Automatic Shovel Co.

Electrical Furnaces.

Brown Instrument Co., The
Richardson-Lovejoy Engr. Co.

Electric Instruments.

Brown Instrument Co., The

Electrical Locomotives.

Atlas Car & Mfg. Co.

Electrical Supplies.

American Clay Machinery Co.
Raymond Co., The C. W.

Elevating Equipment.

(See Conveyors.)

Engines.

American Clay Machinery Co.
Chambers Bros. Co.
Frost Mfg. Co.

Engineers

Callaway Eng. Co., Ed H.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

Fans.

American Blower Co.
American Clay Machinery Co.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

Feed Water Heaters.

American Blower Co.
American Clay Machinery Co.
Frost Mfg. Co.
Morehead Mfg. Co.
Standard Dry Kiln Co.

Filler (Paving).

Barrett Mfg. Co.

Filter Presses.

American Clay Machinery Co.
Raymond Co., The C. W.
Stevenson Co., The
Taplin, Rice-Clerkin Co.

Fire Brick and Fire Clay.

Bloomfield Clay Co.
Chicago Ret. & Fire Clay Co.
Evans & Howard Fire Brick Co.

Fire Clay.

Evans & Howard Fire Brick Co.

Fire Proofing.

Evans & Howard Fire Brick Co.

Floor Tile.

Chicago Ret. & Fire Brick Co.
Evans & Howard Fire Brick Co.

Flower Pot Machinery.

Baird Machine & Mfg. Co.
Rockwood Mfg. Co., The
Taplin, Rice-Clerkin Co.

Friction Clutch Pulleys.

(See Supplies.)

Furnaces.

Brown Instrument Co., The
Illinois Supply & Con. Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Tate, Jones & Co.

Gas Fire Continuous Kilns.

Raymond Co., The C. W.

Gears.

(See Supplies.)

Granulators.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Gravity Carriers.

Mathews Gravity Carrier Co.
Taplin, Rice-Clerkin Co.

Gravity Haulage.

American Clay Machinery Co.

Hand-Power Presses.

American Clay Machinery Co.
Carnell, Geo.
Illinois Supply & Con. Co.
Mueller Bros.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Stevenson & Co.

Hand Winch.

(See Supplies.)

Hangers.

(See Supplies.)

Hoists.

(See Supplies.)

Hollow Block Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Freese & Co., E. M.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.

Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.

Hollow Partition Tile.

Evans & Howard Fire Brick Co.

Illustrators.

Lamb, J. & R.

Jacks.

(See Supplies.)

Kilns.

American Clay Machinery Co.
Boss, J. C.
Chisholm, Boyd & White Co.
Dennis, F. W.
Gas Machinery Co.
Hoffmann Construction Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Snowden & Co., G. E.
Shumaker, J. H.
Vost, Anton.
Yates, Alfred.

Kiln Doors, Castings and**Frames.**

(See Supplies.)

Kiln Floor Tile.

Chicago Ret. & Fire Brick Co.
Evans & Howard Fire Brick Co.

Kiln Irons.

Tecktonius Mfg. Co., E. C.

Kiln Furnaces.

Illinois Supply & Con. Co.

Kiln Lugs.

Tecktonius Mfg. Co., E. C.

Knives.

(See Supplies.)

Locomotives.

Davenport Locomotive Works.

Manganese.

(See Coloring Materials.)

Manganese Steel.

Edgar Allen Am. Mang. Steel Co.

Mechanical Draft.

American Blower Co.
Boss, J. C.
Rodgers Engr. Co., The L. E.

Mineral Paint.

(See Coloring Materials.)

Molds (Brick).

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Mentz, George B.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wellington Machine Co.

Mold Sanders.

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Hilton Sanding Machine Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wallace Mfg. Co.
Wellington Machine Co.

Mortar Colors.

(See Coloring Materials.)

Oil Burners.

Illinois Supply & Con. Co.
Tate, Jones & Co.

Packing Hay.

Interstate Hay Co.

Paints.

(See Coloring Materials.)

Pallets.

Ohio Ceramic Engineering Co.
Ohio Galvanizing & Mfg. Co.

Pans (Dry and Wet.)

(See Dry and Wet Pans.)

Patents.

Scientific American.
Watson & Boyden.

Paving Brick or Block.

(See Brick.)

Perforated Sheet Metal.

Caldwell & Sons Co., H. W.
Harrington & King Perf. Co.

Pitch (Paving).

Barrett Mfg. Co.

Plows.

(See Scrapers.)

Portable Track.

Atlas Car & Mfg. Co.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.

Pottery Machinery.

American Clay Machinery Co.
Baird Machine & Mfg. Co.
Crossley Machine Co.
Raymond Co., The C. W.
Rockwood Mfg. Co.
Stevenson Co., The
Taplin, Rice-Clerkin Co.

Power Plant Equipment.

Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

Powder.

Independent Powder Co.

Presses.

(See Brick Machines, also Sewer Pipe Machinery, also Roofing Tile Machinery.)

Pug Mills.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Mueller Bros.
Raymond Co., The C. W.
Steele & Sons, J. C.
Scott-Madden Iron Works Co.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Pulleys.

(See Supplies.)

Pulverizers.

Bradley Pulverizer Co.
Illinois Supply & Con. Co.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.

Pumps.

Dean Bros. Steam Pump Wks.
Pulsometer Steam Pump Co.

Pyrometers.

Brown Instrument Co.
Ceramic Supply & Constr. Co.
Rodgers Engr. Co., The L. E.

Rails and Railway Equipment.

Atlas Car and Mfg. Co.
Arbuckle & Co.
Davenport Locomotive Works.
Ohio Ceramic Engineering Co.
Scott Madden Iron Works Co.

Rattlers (Paving Brick).

Ceramic Supply & Constr. Co.
Freese & Co., E. M.
Hetherington & Berner.
Phillips & McLaren Co.

Recording Gauges.

Brown Instrument Co.
Ceramic Supply & Constr. Co.

Represses.

American Clay Machinery Co.
Bonnot Co., The
Chambers Bros. Co.
Fate Co., The J. D.

(Continued on Page 372.)

REPEAT ORDERS PROVE OUR CLAIM

That the use of the Mathews Gravity Brick Conveyer will save more time and labor than any other investment made for standard brick manufacturing equipment of equal cost. The following letter is simply a sample of many repeat orders received by us every month:

Athens, Ala., July 10, 1912

Mathews Gravity Carrier Co.

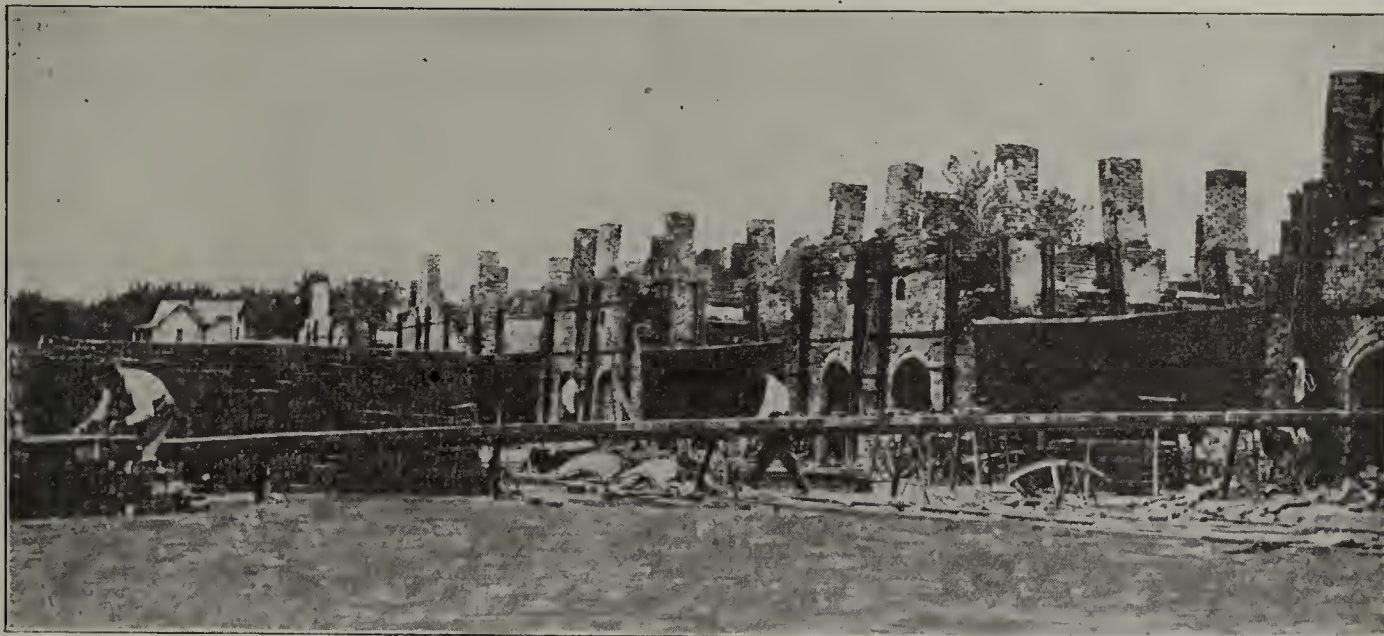
Ellwood City. Pa.

Dear Sir:

Conveyer arrived in good shape, and I like it so well you may ship twenty feet more at once. Make it in two ten feet sections. I think this will do me for a while. See if you can't get it to me some quicker than the first.

Athens Brick Co.

By N. L. Cardin.



A line of Mathews Gravity Brick Conveyers, long or short, set up between any two points—such as from kilns into cars, or from kilns to stock piles, will save miles of travel back and forth, pushing a heavy wheelbarrow one way full and back empty. Think of the useless time and expensive labor you have to pay for by this old-style method. Think of how many sections of Gravity Conveyer you have already paid for in this way but do not own. How many more are you going to pay for before you actually own a conveying system? A letter to us will put you in the way of getting all necessary information without further delay? Will you write it?

BRANCH FACTORIES:

British Mathews, Ltd., London, Eng.
Canadian Mathews Gravity Carrier Co., Toronto, Ont.

BRANCH OFFICES:

New York: 30 Church Street, Room 726.
Boston: 164 Federal Street, Room 50.
Philadelphia: 1002 Drexel Bldg.
Rochester: 1459 South Ave.
Chicago: 9 South La Salle St.
St. Louis: P. O. Box No. 568.
San Francisco: Hicks, Nell & Marks, 604 Mission St.



Main Office and Factory
ELLWOOD CITY,
PENN., U. S. A.

Buyers Ready Reference List—Continued.

Freese & Co., E. M.
Illinois Supply & Con. Co.
Mueller Bros.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Taplin, Rice, Clerkin Co.
Stevenson Co., The

Revolution Indicators.

Brown Instrument Co.
Ceramic Supply & Constr. Co.

Revolving Steam Shovels.

Thew Automatic Shovel Co.

Rock Crushers.

American Pulverizer Co.
Phillips & McLaren Co.

Roofing Tile Machinery.

American Clay Machinery Co.
Ill. Supply & Construction Co.
Mueller Bros.
Raymond Co., The C. W.
Taplin, Rice-Clerkin Co.

Rope.

(See Supplies.)

Rotary Dryers.

American Clay Machinery Co.

Sand Dryers.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Fate Co., The J. D.
Hensley, J. W.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wellington Machine Co.

Sand Lime Brick Machinery.

American Clay Machinery Co.
Anderson Fdry. & Mach. Wks.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Fernholtz Brick Machinery Co.
Illinois Supply & Constr. Co.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.

School of Ceramics.

Illinois University.
New Jersey State School.
New York State School.

Scrapers, Plows and Clay Gatherers.

Arbuckle & Co.
Eagle Iron Works.
Ill. Supply & Construction Co.
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Screens.

American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Bonnot Co., The
Ceramic Supply & Constr. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Edgar Allen Am. Mang. Steel Co.
Freese & Co., E. M.
Harrington & King Perf. Co.
Illinois Supply & Constr. Co.
Mueller Bros.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.
Stevenson Co., The

Sewer Pipe.

Evens & Howard Fire Brick Co.

Sewer Pipe Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Taplin-Rice-Clerkin Co.
Scott-Madden Iron Works Co.
Stevenson Co., The

Steam Gauges.

(See Supplies.)

Steam Shovels.

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Thew Auto. Steam Shovel Co.

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Anderson Fdry. & Mach. Wks.
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Ceramic Supply & Constr. Co.
Chambers Bros. Co.
Chase. Fdy. & Mfg. Co.
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Chisholm, Boyd & White.
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Edgar Allen Am. Mang. Steel Co.
Fate Co., the J. D.
Freese & Co., E. M.
Hensley, J. W.
Illinois Supply & Constr. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Newton, A. C.
Ohio Ceramic Engineering Co.
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Steele & Sons., J. C.
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Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

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Arbuckle & Co.
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Freese & Co., E. M.
Hensley, J. W.
Illinois Supply & Constr. Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
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(See Supplies.)

Wheelbarrows.

(See Barrows.)

Wet Pans.

(See Pans.)

Wire.

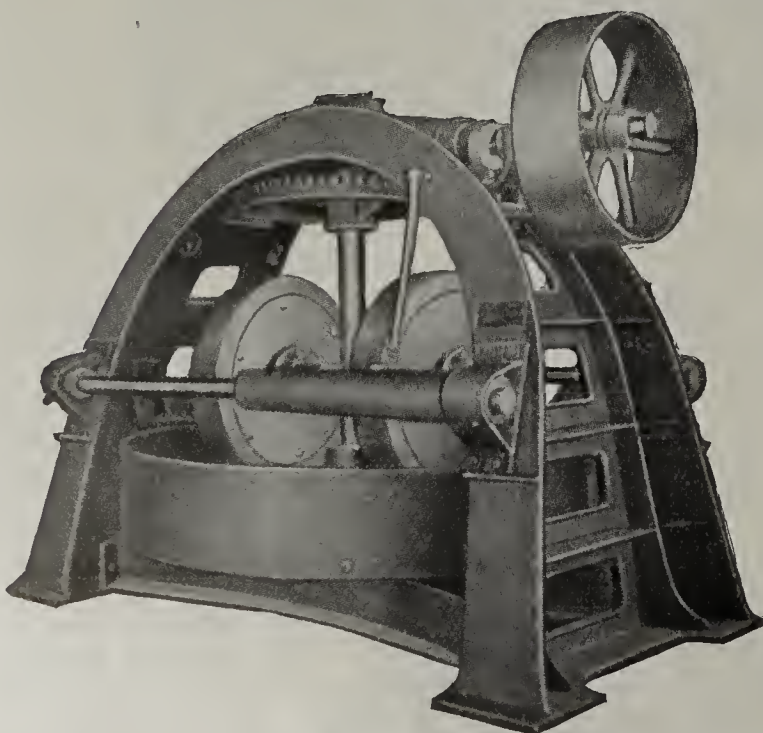
(See Cutting Wire.)

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(Every Machine We Sell is Our Agent Because it Sells Another.)

We manufacture a complete line Electrical, Porcelain, Tile, Clayworking, Clay Washing and Refining Machinery.

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**CROSSLEY'S WET OR DRY PAN**

This machine is built in two sizes, four feet and six feet, and can be made with either a screen or solid plate. Note the rigidity of construction which is superior to any machine of its kind on the market.

We lay out your buildings, placing the necessary machinery in same in the most approved manner, furnishing boilers, engines, motors, etc., and turn same over to you ready for use.

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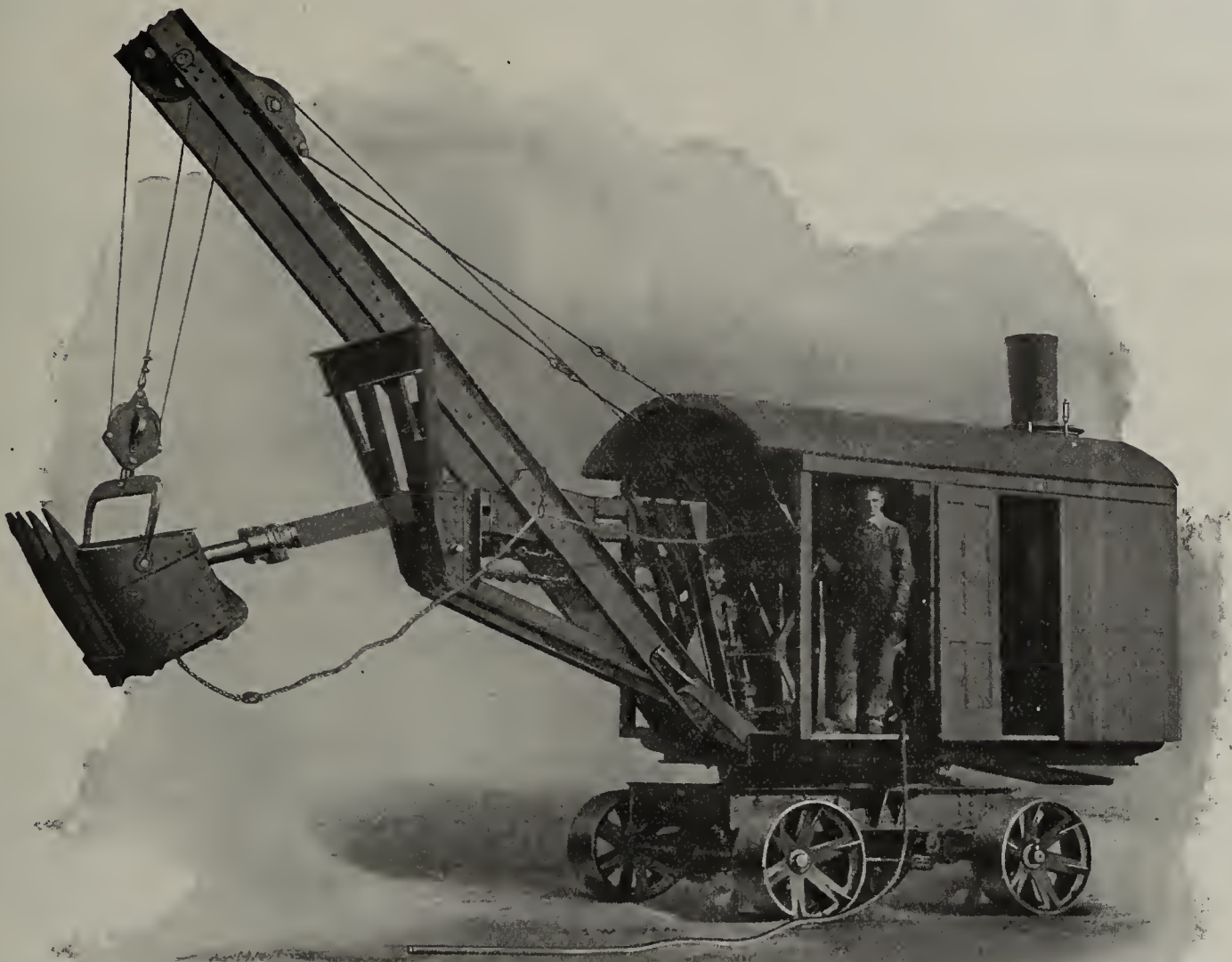
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THEW Shovels are not like others. They possess features of design not found in other shovels, features that are valuable as to convenience and economy of operation. Several hundred are now operating in brickyards and every one is giving satisfaction.

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STANDARD SIZES

Type 0,	15 Tons,	$\frac{5}{8}$ yard dipper;	capacity 100 M brick for ordinary clays.
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The above rated outputs are for one man operation and may be doubled by using a fireman and extra laborer on ground.

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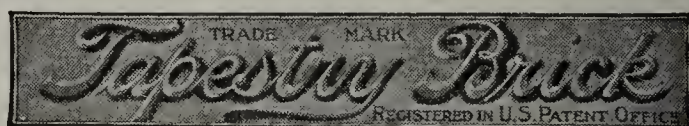
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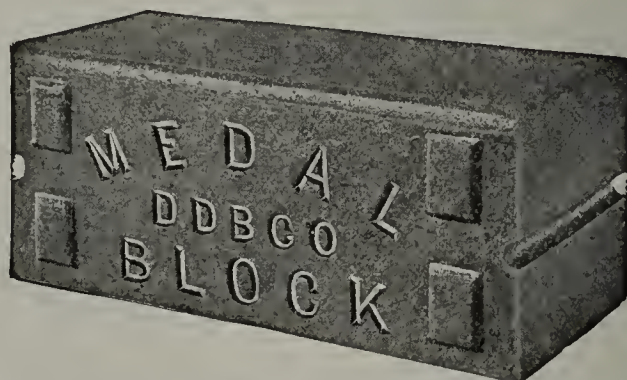
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Our material has for over twenty years successfully stood the heaviest traffic of Indianapolis, Terre Haute, East St. Louis and dozens of other large cities of Indiana and Illinois. We ask investigation and comparison by those seeking the best paving material. Samples furnished on application.

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Are manufacturers of repressed vitrified shale paving brick of unquestioned merit and also licensees of DUNN'S Wire-Cut-Lug Block, which is the acme of perfection for street paving material.

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Fire Clays, Terra Gotta Clays, Kaolin, and Fire and Moulding Sands.

Have been in the business for TWENTY-FOUR years, and are prepared to meet every reasonable demand. Unsurpassed shipping facilities. Prices and samples free.

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BESSEMER BLOCK.

The Most Uniform Shale Paver
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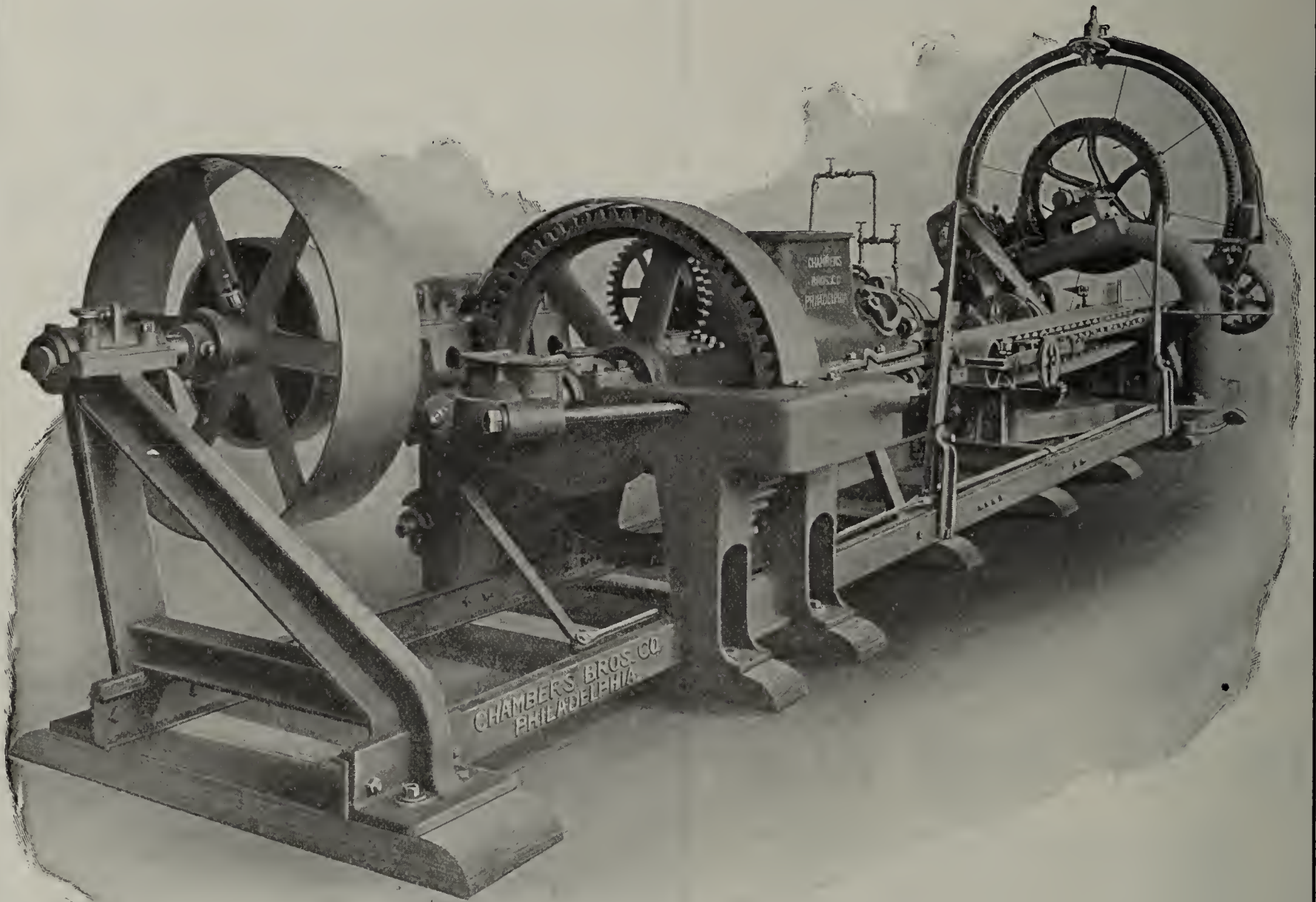
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The No. 10 Auger Brick Machine with No. 5 Automatic Side Cutter.

Cuts Building Brick, Hollow Brick and various thicknesses and lengths of Furnace Block Material.

Auger Brick Machines of Various Capacities with Rotary End-Cut and Side-Cut Tables.

Special Machines for Street Paving Block

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KEYSTONE REPRESS NO. 3

**For Repressing Furnace Block and Large
Sizes of Refractories.**

The No. 3 Keystone is a development brought about in connection with the demands of our customers in the Fire Brick Trade.

It delivers a repressed block as much as **6 $\frac{5}{8}$ in. thickness.**

Pressing two brick at a time the limit is **6 $\frac{1}{2}$ by 13 in.**

One block at a time as large as **11 by 16 $\frac{1}{2}$ in.**

One tile at a time as large as **13 $\frac{1}{2}$ by 16 $\frac{1}{2}$ in.**

Key and wedge brick and cupola block.

**STEEL
CROSS-HEAD.**

Both upper and lower cross-heads are of steel and of such dimensions as put these parts beyond breakage. The wearing surfaces are ample, those in the cross-head being babbitted where working against the steel guides.

THE CAM is 6 in. face of large diameter, and fitted with a hardened steel shoe.

ROLLER and PIN Are very important items in a machine of this kind. The roller is of very large diameter, made of hardened steel, and has a phosphor-bronze sleeve running on a hardened tool steel pin. The provisions for lubrication and for removal of roller and pin are most excellent.

These are only some of the features embodied in the Keystone No. 3 that do not show in the picture.

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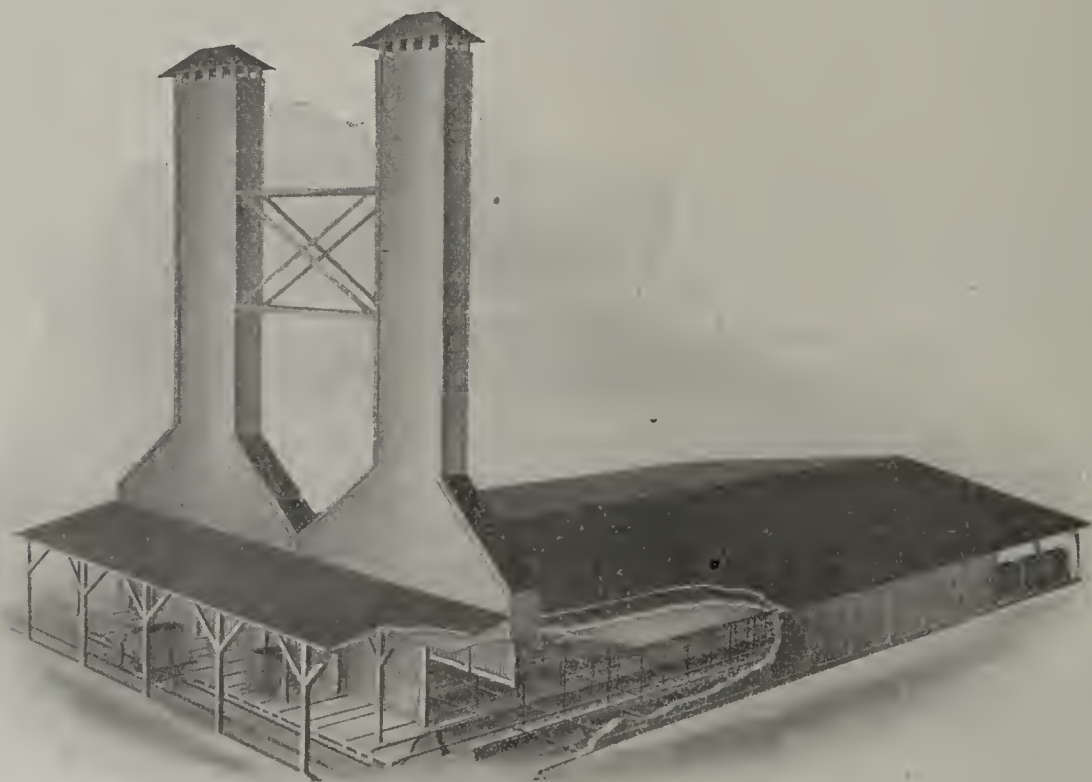
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If a competitor's salesman was outgeneralizing and out-selling *your* man in the same territory—you'd mighty soon put a *better* man in that territory, wouldn't you?

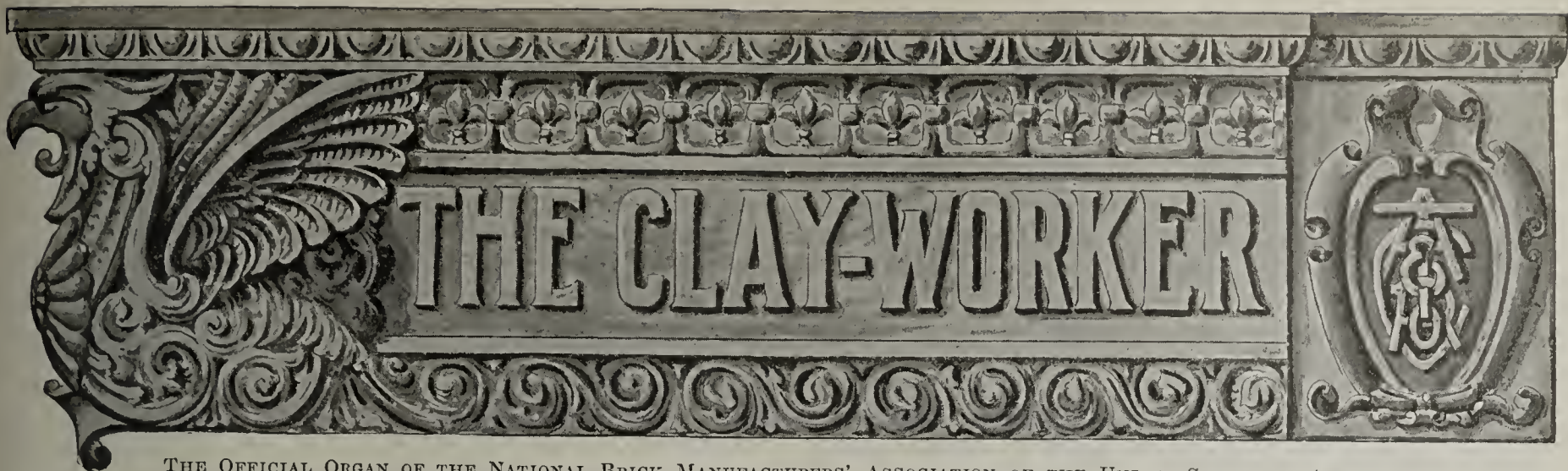
Your competitor with a more modern, more efficient drying system than *yours* has you at even a *greater* disadvantage. Overcome that handicap by putting in the *most* modern, *most* efficient drying system to be had—The Standard Steam Drier.

The Standard catalog will give you a new angle on this brick drying proposition. Write for it—there's no obligation attached. Address: The Standard Dry Kiln Co., 1547 McCarty St., Indianapolis, Ind.



Unequaled in Its Utilization of Exhaust Steam

Mention THE CLAY-WORKER.



THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LVIII.

INDIANAPOLIS, IND., OCTOBER, 1912.

No. 4

Written for THE CLAY-WORKER.

BOSTON'S FIVE-MILLION-DOLLAR BRICK AND TERRA COTTA HOTEL.

BY LIVINGSTON WRIGHT.

WHILE BOSTON AND its beautiful suburban district has for some time been giving careful attention to the advantages and architectural enhancements of terra cotta as a building material, it can be taken as fact that the new Copley-Plaza hotel, in Boston's finest square, is Boston's brick and terra cotta apotheosis up to date. The first terra cotta hollow block wall building in the city was the recently completed Hotel Princeton, a family hotel out on Commonwealth avenue, in the suburb of Allston,

where there has been a perfect fanfare of building during the past three years. The Princeton also had the Spanish Mission effect in the cornice construction by means of red tile. This tile roofing and tile cornice design was first adopted around Boston in some very expensive residences out in the Reservoir district of Brookline.

Boston studied the terra cotta trimmings and liked them. More fine residences with this style of embellishment have been steadily going up.

Thus, when the planning was begun for the finest hotel Boston could imagine, the designers and builders decided that good old brick and terra cotta would just about fill the bill. For the projectors were limited by several important considerations, the resulting injunction being that whatever the new hotel should be it must be severe and stately in its



The New Copley-Plaza Hotel, Boston, Mass.

outlines and general design. This was because Copley Square, in which it was to stand, is the most notable square in all the city and the one in which are located some of the city's most important and noblest public buildings, chief of which is the Public Library, the finest in the world and a marvel in Florentine and other intricate architectural designs; also, Trinity Church, the best piece of pure French Romanesque in the United States. Just across from the Library is the New Old South Church, a grand piece of stately architecture.

Immediately back of Trinity stands the fine hotel, the Westminster, so placed that its edge gives an outlook into the square. The Westminster is entirely of brown terra cotta and is really a beautiful building, its brown sides ornamented with numerous wreaths, scrolls and fancies, being a pleasing contrast to the more sombre colors of Trinity Church.

Now, the new Copley-Plaza was to stand on the site of the former Museum of Fine Arts, and on a lot which was just across the way from the Westminster.

Thus, with the white walls of the Public Library and the French-Spanish Trinity Church almost within reach, the task of putting up a hotel which should be in the slightest harmony of outline with the halls of learning and religion, and which could face the storm of objection which the more conservative of Boston people were making against the project of having "another hotel butting into Copley Square," was brobdingagian.

Nevertheless, the almost impossible has been accomplished, and instead of beholding an impudent, annoying innovation, the visitors to Boston can survey Copley Square and feel that the chaste, dignified front of the new Copley-Plaza is, for all its externals might betray, a college building belonging to some great university.

To work this seemingly insurmountable feat of designing and construction, the finest grade of pale gray brick was used. This was matched so perfectly with a pale gray terra cotta that, even within a few feet, the beholder can scarcely tell where the brick and terra cotta mingle.

There are nine floors in the new hotel, and some idea of the ground floor may be obtained from the fact that it is 50 per cent. larger than the Plaza in New York and twice as large as the Manhattan. There are four entrances, two on Copley Square and one each on Dartmouth street and Trinity Place.

Four thousand five hundred spruce piles were used in the foundation. Twenty-five hundred tons of broken stone were hauled by the Rowe Contracting Company for use in the new structure.

The frontage of the Copley-Plaza, that is the side facing the square, consists of two broad wings joined to a central bastion, which slightly swells out into the arc of a huge circle. This is even of the suggestion of a fortress at the outset and gave every opportunity toward dignity. The brick work has been done with a care and perfection that reach absolute exquisiteness, there being no rough seams or joints. The style of wall-facing has been to have tiny oblongs of about three feet by six inches project out slightly from the general face of the wall. Over the window of the lower section are the terra cotta finishings. These embellishments are exquisite in design. Just above the lower floor, there runs entirely across the square face a narrow band of terra cotta ornamentation. This has as a motif the fleur de lis of France and is beautiful in the extreme.

The brick oblongs in relief are continued up the face, and further upward are two more intricate terra cotta bands skirting the entire front of the hotel.

These, together with the window finishing of terra cotta, add just enough of ornament to the brick work to create the general impression of chaste dignity and severe elegance which dominate this costly structure.

This terra cotta work was done by the Architectural Terra Cotta Company of New York.

The estate of John Harrington, in Cambridge, furnished the cut and blue stone used in the structure.

The cornice work in terra cotta is just what it should have been—a plain buttress effect, merely denoting the finish of the building.

It can be safely stated that Boston will go many a day before she will behold a new edifice that can compare with the Copley-Plaza as an example of successfully surmounting such harrying and tantalizing conditions as hedged the designers of this marvelous creation in brick art and terra cotta perfections.

Written for THE CLAY-WORKER.

BUTTONHOLE TALKS.

Sunrise on the Mississippi.

MARK TWAIN wrote a most wonderful description of a sunrise on the Mississippi. It was not only a wonderful description, but it was also a wonderful sunrise. Possibly it was the most gorgeous sunrise the Mississippi ever had, and certain it is, it was written up by the prince of writers. So perfect was it that thousands of people have been content to take his word for it, and to take his sunrise for their sunrise, instead of going investigating themselves.

It is not all in the sunrise itself. Different eyes make it appear differently. Some filter all the poesy out and all the practical in until they rub the gold and color out and leave only heat and dust and sweat and toil. But he caught all of the beauty and glory, and he wrote as he saw it, and left us a classic.

I have read and reread his "Sunrise on the Mississippi" and have thought sometime I would see one, but some way until now, the sun and the Mississippi and myself have not connected.

Last night, in a lower Pullman coffin, I sought to slumber. After long periods of tossing and twisting, I became unconscious. We pay our money for this luxury, but we do not always get what we pay for. Ultimately the service may be improved. Possibly on presenting our tickets we may be properly tagged and an anæsthetic administered to render us unconscious until revived at our destination. Whether the porter is an employe whose duty it is to look after the comfort of the passengers or whether he owns the outfit, and looks after his own convenience, is still unsettled.

When I had finally gotten to sleep someone wanted an upper berth. I don't think they had ever used one on this route before, but the porter selected me as the victim, and tore the curtains wide open, letting a glare of light into my eyes that very effectually roused me to again twist and turn and vainly hunt slumber. Strangely enough, after some hours I won, and slept again, only to feel someone seat himself heavily on my recumbent form. The man in No. 1 had gone to the wash room and, returning, had mistaken his berth and thus had given me my medicine. After a long attempt to again win slumber, I gave it all up and got up to see the sun rise on the Mississippi.

It is cloudy and rainy, and now, when at last, I have kept my date, the sun has not. The buffet man says the electricity is out and he cannot even give me coffee. The air is sticky, the rain drips heavily, and I am tired out, sleepy and restless. Often so in life we plan for years and the realization is a failure. I won't get up again if I am sat down on. Next time I will rivet the curtains together and insert pins, and whoever tries to sit down on me will "get his." The Mississippi and the sun may keep or break dates as they please, I will use Mark Twain's sunrise for mine. His was probably a better sunrise that I would draw if I

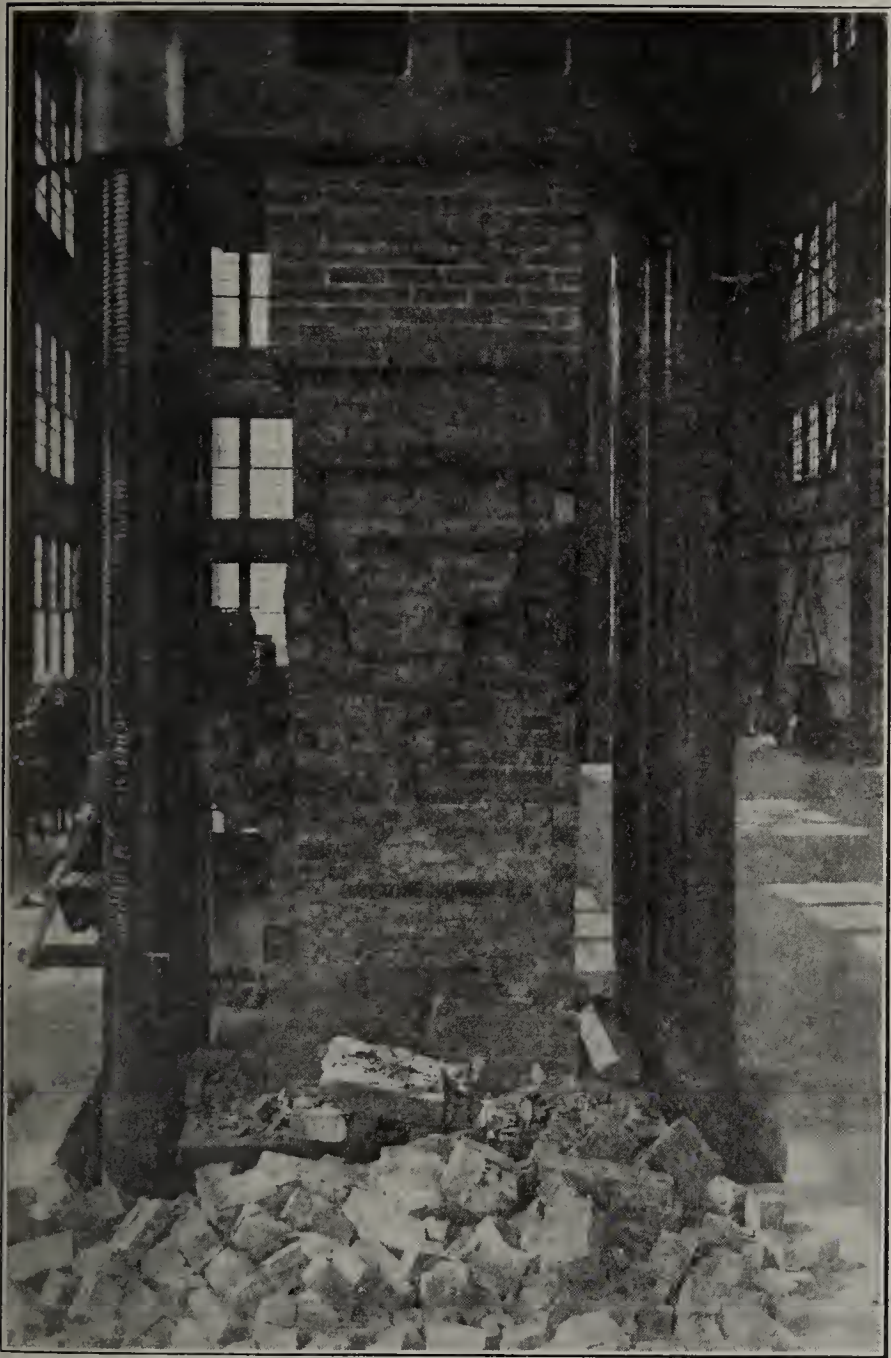
tried a month, and it was seen by a better man through better eyes and better described than I could describe it. I didn't sleep, I got no coffee, and the sun didn't rise at all this morning, but I still have Mark Twain's worded picture and am content with it.

GATES.

TEST ON A BRICK COLUMN AT THE PITTSBURGH LABORATORIES OF THE BUREAU OF STANDARDS.

DURING THEIR VISIT at the Pittsburgh laboratories of the Bureau of Standards, the delegates to the Sixth International Congress for Testing Materials witnessed a compression test on a large brick column erected between the heads of the 10,000,000 pound Olsen testing machine recently installed by the bureau.

The machine was erected in a handsome new building 98



Appearance of Brick Column After Test in Olsen Machine.

feet long, 40 feet wide, and 60 feet high, and grouped about it are the 600,000-pound testing machine and other machines used in the testing of structural materials by the Bureau of Standards.

The column, 47½ inches by 47½ inches in cross section, and 12 feet in height, was constructed from wire-cut common brick of medium strength purchased in the Pittsburgh market. The brick were laid in 1:1 cement mortar, the joints being ¼-inch in thickness. The column was laid solid, every sixth being a header course. The column was constructed four weeks before testing.

The load was applied gradually until it reached 6,580,000 pounds, or 419,904 pounds per square foot of the cross sec-

tion, at which point failure took place. The test was highly satisfactory, the column having failed as a whole, there being no chipping of the individual brick before the ultimate load was reached.

The test was one of a series being conducted by the Bureau of Standards on structural materials.

The visiting delegates also inspected the chemical and physical laboratories of the bureau and the kiln room, where test kilns and furnaces of various types were in operation.

CONSIDER THE TRADE PAPER.

Did you ever take the time to mull over the fact that no man or institution ever became great except through publicity, and usually publicity via the use of printers' ink? It matters not what the qualifications are for greatness. One of the essentials is informing the public of these qualifications, accomplishments, or whatever they may be, that the fact of greatness itself may be created. Without this nothing could become great, because it would have no way to reach the world and exercise its great faculties, nor would the world on the other hand have a chance to know of these faculties or qualities.

What is true in regard to men, localities, institutions, and incidents that have been handed down through history by virtue of writing and publishing is true today in a much more general manner of industrial progress. This includes men with ideas who accomplish things, and also the ideas themselves, both scientific and mechanical, and the progress of their development. This would all come to naught were it not for the means of recording and disseminating the information.

In the industrial world it is the trade paper that is the great dependable medium for this work. It keeps in touch with and exploits men, machines, methods, and ideas, and is thus the vehicle that piles up the greatness of the worthy ones. But too often the ideas themselves are appreciated and the medium through which the public receives them and the originators derive benefit is overlooked, neglected and even abused.

Just mull over this fact for awhile and then you will be in better position to consider the trade paper in the light it should be considered. It is one of the greatest agents of progress in the land today. There are more of them and they are finer and greater here in the United States than anywhere else in the world. It is one of the first things that the industrial captains from other countries notice when they come into this country, the magnificent trade papers that are published and the amount of matter contained therein. They marvel over it. It is marvelous in a way, too, yet the whole thing is simple. It is a part and parcel of the machinery of development that has made the United States great as a nation that does things and makes wonderful and rapid strides in progress.

All the ideas would not be worth much were there not some such means for disseminating them, and moreover many of the ideas would not exist without this means. It is the publishing of ideas that generates others, and in this way the trade paper is a source of inspiration as well as information, and it would be hard for any man to give more credit than is deserved by the worthy trade paper.

So, while you are busy boosting your own affairs and those of the industrial world generally and thinking with pride of the great things that have been done and the possibilities ahead, stop for a minute and give the trade paper what consideration is due it.

Wherever there is a building material show, there is a good place to have brick prominent, and by the term brick is meant all clay products used in or on top of buildings.

BRICK ROADS: MATERIAL, CONSTRUCTION AND MAINTENANCE.

An illustrated lecture delivered before the American Road Congress at Atlantic City, N. J., October 5, 1912, by Theodore A. Randall, Indianapolis, Ind., Secretary National Brick Manufacturers' Association:

THE IDEAL ROADWAY.

Gentlemen of the Convention:

It affords me very great pleasure to bring to your attention what I believe to be an ideal pavement for our country highways and city thoroughfares. I feel no call to talk to you about the general need for, or the great benefits to be derived from, good roads, for this is a subject that has been ably discussed. Accordingly, I am going to devote my time to a description of the very best kind of a roadway that it is possible to build. Permit me to urge in this connection that, as in all material things, the best is the cheapest in the long run. I will endeavor to demonstrate to your satisfaction that a brick-paved roadway properly constructed meets every requirement of *efficiency and economy*. I propose to show you, whether you are from Missouri or elsewhere, why I feel warranted in making this broad claim of superiority of brick streets over all other pavements of whatever material.

Before giving you an ocular demonstration by a series of photographs, recently taken, of what I consider an ideal roadway, permit me to state briefly what I believe constitutes an ideal roadway. It is a pavement which wears smooth and clean and needs no caretaker to keep it in repair, no matter what the character or quantity of traffic which passes over it; a pavement which is weather-proof, flood-proof, dirt-proof, wear-proof, and so practically time-proof; a pavement which affords an open and easy highway from country to city every day in the year for any and all sorts of traffic; a roadway over which pleasure vehicles may speed with safety to the driver and without injury to the vehicle or pavement; a roadway over which heavy service auto trucks may draw loads of several tons at a speed rivaling, if not exceeding, that of the so-called fast freight trains, without damage to the truck or the roadway; a roadway over which the farmer may easily haul with one horse what requires a team on ordinary roads, or with one team as much as two teams will commonly haul; a pavement over which one may journey in comfort, for it is a dustless pavement.

Brick Pavements Cheapest Ultimately.

Do I exaggerate when I say such a pavement is an ideal pavement? That, gentlemen, is precisely the kind of a pavement you can construct of vitrified brick, and that, too, at a cost but little more than is now being paid for our temporary roadways. When you consider that the only cost of such a pavement is its first cost, you must admit that ultimately it is the

cheapest pavement you can build. I think I can demonstrate to your satisfaction that practically there is no wear on a properly constructed brick roadway. Here is my proof, and, if "seeing is believing," it is most convincing.

Eighteen years ago there lived in Sandusky, Ohio, a wise and painstaking engineer, Mr. John W. Miller. May his tribe increase. Under his direction a mile of brick pavement, part city street and part rural road, was laid, extending from the center of the town out into the suburbs. Over this pavement during all these years has daily passed much traffic. Today the pavement is perfectly smooth from one end to the other, just as you see the section which is shown in the accompanying view. (View 1.)

Fortunately, while this pavement has been torn up at times for the laying of gas mains, water pipes, etc., it has, luckily, always been replaced as carefully as it was originally laid, so that today it is as good as any new pavement. As you know, most pavements are damaged irretrievably by being torn up, but when such work is done properly, no harm is done to a brick pavement, as demonstrated in this case. During these eighteen years not one dollar has been spent on this pavement for repairs, yet it is still an ideal roadway and bids fair to continue such for another twenty years, or perhaps twice that length of time. I hear some of you say it is an exceptional pavement. That I concede. Why it is an exceptional pavement is told in two words, *proper construction*.

No Excuse for Poor Brick Roadways.

Some of you may say, "I have seen brick pavements, but never one like this after eighteen years' use." Very true, but the reason and the ONLY reason is, that you have never seen a properly constructed brick pavement that has been down that length of time. "'Tis true, and pity 'tis, 'tis true," there are plenty of poor brick pavements, poor chiefly because of poor construction. And I want to give you another ocular demonstration proving this fact. I took this particular street as an illustration because of the comparison it affords.

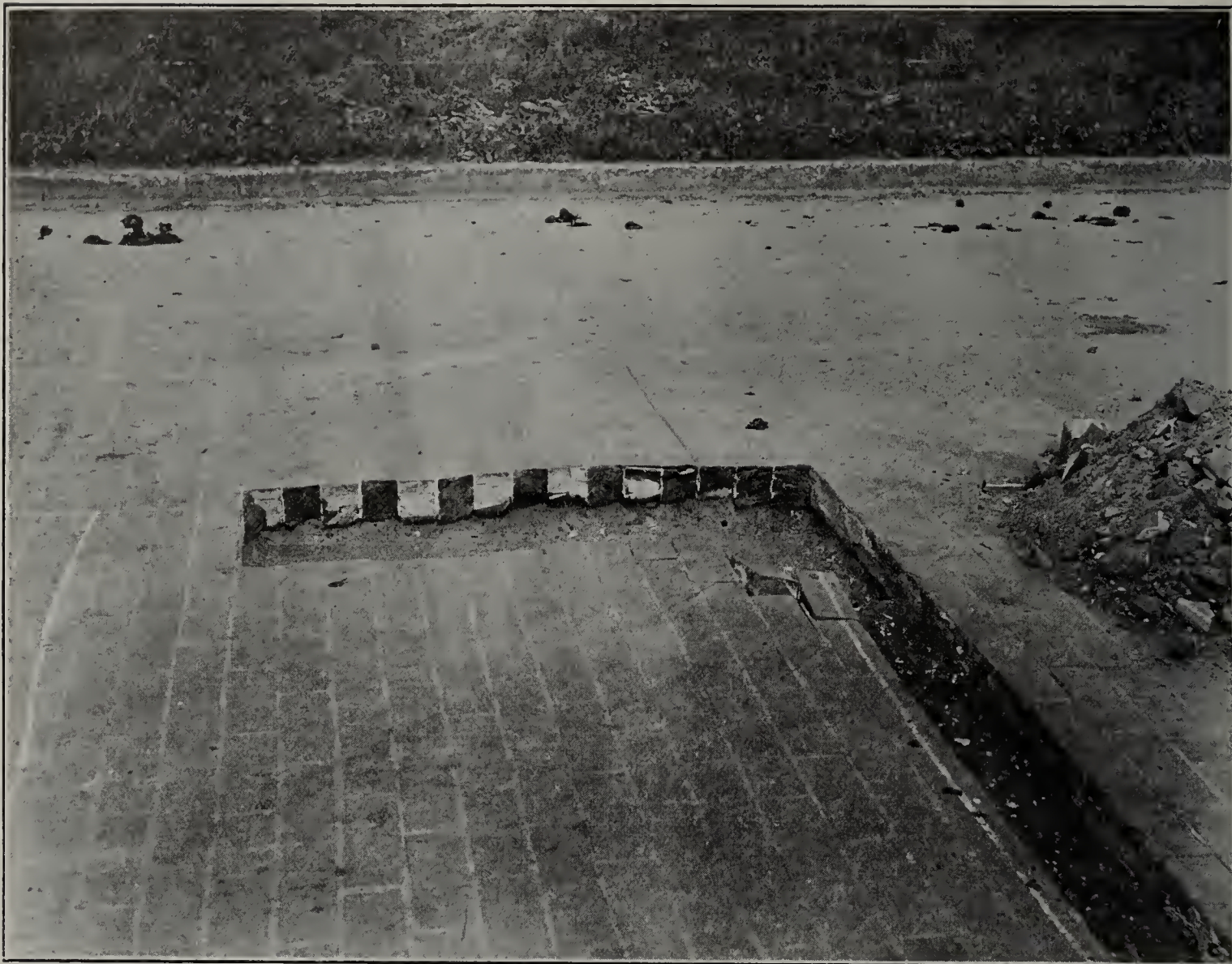
It is a portion of the main business street of Sandusky, and was paved the same year (1904) as the other roadway, and with brick of the same grade, but evidently with much less care in the method of construction. Today it is a rough and undesirable pavement. This pavement was laid under the same specifications as the good pavement, but, as I will show you, some minor but very essential details of construction were carelessly slighted. Mr. Will P. Blair, Secretary of the National Paving Brick Manufacturers' Association, of Cleveland, Ohio, and others who have been studying this subject for some years, determined, if possible, to learn the real cause of failure in one pavement and the remarkable success in the other. Accordingly, experts recently visited Sandusky, and, with the co-operation of the City Engineer, had a stretch of some fifty square feet of each pave-



View No. 1—Columbus Avenue, Sandusky, Ohio. One mile in length, all of which is just as smooth as the section photographed. Laid in 1894—eighteen years of service without any cost for repairs.



View No. 2—The section of Columbus Avenue taken up for inspection. The white lines show the section removed.



View No. 3—A cut in the pavement preparatory to taking out the brick for testing purposes. Observe that the ends of the brick are completely coated with cement.



View No. 4—A section of the pavement which illustrates its monolithic character, due to the perfect application of the cement filler.

ment, the good and the poor, taken up. (View 2.)

The good pavement was perfectly bonded from top to bottom, every course of brick was intact, just as when it was first laid. The foundation was right to begin with, and there was a two-inch sand cushion, thoroughly compressed, affording a smooth even bed for the brick, and insuring a comparatively noiseless pavement. The cement filler had been so applied that both sides and ends of each and every brick was imbedded in it. You will see by the pictures (View 3) that the brick and cement formed a solid mass, making the pavement monolithic in character. (View 4.) The result was a perfectly smooth, unbroken surface. From one end of the street to the other, there has been no chipping of brick, or disintegration of the cement filler or binder. A close inspection of this mile of eighteen-year-old pavement, made late in August, did not disclose a single defect. The traffic over this pavement has had no perceptible effect upon it, the pavement showing scarcely any wear at all. If left undisturbed this pavement will be just as good at the end of another eighteen years, without a dollar of expense for upkeep. Isn't this an *ideal pavement*?

How fared the other pavement? (View 5.) Its record is that of many of our city streets, and is thus tersely described by an unknown poet:

A City Street.

They took a few old brick, and they took a little tar,
With various ingredients imported from afar.
They hammered it and rolled it, and then they went away—
They said they had a pavement that would last for many
a day.

But they came with picks and smote it to lay a water main,
And then they called the workmen to put it back again.
To run a railway cable they took it up some more,
And then they put it back again just where it was before.

They took it up for conduits to run the telephone,
And then they put it back again as hard as any stone.
They took it up for wires to feed the 'lectric light,
And then they put it back again, which was no more than
right.

Oh, the pavement's full of furrows, there are patches every-
where;

You'd like to ride upon it, but it's seldom that you dare.
It's a very handsome pavement, a credit to the town,
But they're always diggin' of it up, or puttin' of it down.

The section of the poor pavement taken up disclosed the secret of its failure, if a pavement can be called a failure which after eighteen years of use is, though rough, still doing service, with no expense incurred for repairs. As a fact, it is a failure only by comparison with the perfect pavement. The same grade of brick was used in each pavement and the traffic is much the same on each street. Why the difference? The answer is easy. It is in the careless construction of one, and the careful construction of the other.

An Instructive Comparison.

In the good pavement, the cement filler was properly applied. In the poor pavement, as you will see,

if you look at my picture closely, not half of the brick were imbedded in the cement. (View 6.) Some of the brick had cement on one end, and not on the other; some of the brick had cement on the upper portion and little, or none, on the lower, and vice versa. In some small portions of the removed pavement you can see the cement was properly applied. In such portions, the pavement remained smooth; where there was little or no cement, the pavement was the roughest. (View 7.) To my mind, this investigation solves the mystery of good and poor brick pavements. Scientists are at work on the problem and in time a full report of the finding will be made public. I feel quite confident that the report will justify the opinion I have expressed.

Some of your road builders may say this stretch of perfect pavement was an accident, and that it cannot be duplicated in building country roads under ordinary conditions. You are wrong there, Mr. Road Builder. Come with me now for a little personally conducted tour over the country roads of Cuyahoga County, Ohio, and see with your own eyes a few of the many examples of similar ideal pavements. As you will see, they have learned how to build brick roadways in Ohio. Every detail of construction is looked after carefully, no feature of the work is slighted, and, as a result, the roads are so perfect that it takes an expert to detect any minor faults or defects even. They have over four hundred miles of brick roads in Cuyahoga County alone, and those who use them regularly and appreciate their excellence and economy, demand brick pavements, and brick pavements only.

New York's Splendid Brick Roads.

Ohio is not alone in appreciation of good brick roads. They are being built in other States. New York, for instance, has made a fine start. (View 8.) There are about one hundred miles of these brick roads in the vicinity of Buffalo, and the State Highway Department is building about one hundred additional miles this year at other points, and when the efficiency and economy of these roads have been demonstrated by actual use, the taxpayers of the Empire State will become veritable Oliver Twists in their demand for more of the same sort. It is estimated that \$50,000,000 have been expended in New York State alone on temporary roadways. Think of the many miles of permanent brick roads this sum would build. There is a vast difference between a roadway that must be looked after and repaired constantly, and these brick roadways which cost nothing at all if once properly constructed.

How to Construct Good Brick Roads.

The proper construction of a brick-paved roadway is a simple matter. In general, the requirements are the same as maintain in the building of any good road. Here is the formula:

1. Proper drainage.
2. The careful compacting of the roadbed to a grade corresponding with that of a finished street.

3. A concrete foundation in the colder climates, and on soils of slow drainage.

4. A sand bed, two (2) inches in depth, evenly compressed, intervening and immediately underneath the brick.

5. Laying the brick best edge up, with lugs lying in the same direction.

6. Rolling the brick to an even surface.

7. Application of the cement filler in proportion of one to one.

8. Protecting the filler from too rapid setting.

(Note.—The most approved methods of construction were illustrated by stereopticon views from photographs taken within the past month, during the construction of a sample section of roadway by the Honorable James R. Marker, Ohio Highway Commissioner, and under the personal supervision of Mr. Will P. Blair, the work being executed by convicts.)

I prefer, rather than enter into the details of construction, to give you evidence of what may be accomplished in conforming to the details of these directions, and submit for your consideration as to whether or not they are not of immediate and insistent interest to the road users and taxpayers of this country.

Why Brick Roads Are Best.

I want you gentlemen and other road builders of the country to know that a properly constructed vitrified brick roadway is the *ideal highway* from all viewpoints. Its merits summarized are:

It is easily built.

It is economical as to first cost.

It costs nothing for maintenance.

It is most satisfactory in use.

It is the most sanitary pavement known.

It affords the least traction resistance.

It is not a slippery pavement even when wet.

It is adaptable to all climates and all conditions of soil.

It is not an experiment, but a demonstrated fact.

It may be seen and inspected, hundreds of miles of it, in actual use, successfully withstanding excessive traffic.

Its affirmative merits are many, and, when the truth is told, there is not one single objection that can be urged against its use for the heavy traveled highways of this country.

For the foregoing reasons every road builder in the land should familiarize himself with our brick roadways and their methods of construction. Those of you who can do so will find it both a pleasant and profitable experience if you will visit Cleveland, Ohio, and make a personal inspection of the brick-paved streets and roadways of that vicinity. Call at the headquarters of the National Paving Brick Manufacturers' Association and let some of its representatives take you for a spin out into the country.

Brick Roadways the Dustless Roadway.

If you like speed, you can have it with no "thank-you-ma'ams" to jar you. If you enjoy beautiful pastoral scenery, you will be delighted. You will be sur-

prised by one feature of these brick-paved country roads; their cleanliness. It is not an uncommon thing for visitors making such a trip for the first time to ask how often the roads are swept. The answer is, "They are swept constantly, but Dame Nature does the sweeping, and she uses no broom." The wind keeps them as clean as the dear old Board Walk out here that we all love and enjoy.

If, after being convinced, as you will be by such a trip, that the brick-paved roadway is the ideal roadway, and you want to build them in your own district, the National Paving Brick Manufacturers' Association will make it easy for you by supplying you free of charge with complete specifications in which every detail of construction is set forth in plain terms, so that any engineer or road builder can readily comprehend all that is required. If, however, any uncertainty arises, all you need do is to write the National Paving Brick Manufacturers' Association, which is an organization of boosters, which is boosting by methods of education instead of by use of boodle.

In time, brick roads will become universal throughout this country, for there is an abundance of raw materials, shales and clays, in almost every State in the Union, from which vitrified brick may be made. In sections where paving brick are not now made they can be shipped in, as transportation charges are not prohibitive. On the contrary, brick and cement can be supplied to almost any district in the land at a reasonable price, and the other materials used are found everywhere almost. Indeed, one of the commendable things about brick roadways is the fact that common labor is used in building them, and home products are chiefly used in their construction. They are not a drain on local capital; on the contrary, they stimulate local business by affording employment for labor at fair wages. In short, brick-paved roadways are desirable and commendable from every viewpoint.

In conclusion, I am pleased to present an offering from a Hoosier bard, Mr. Charles Dennis, entitled:

Roads, Bad and Good.

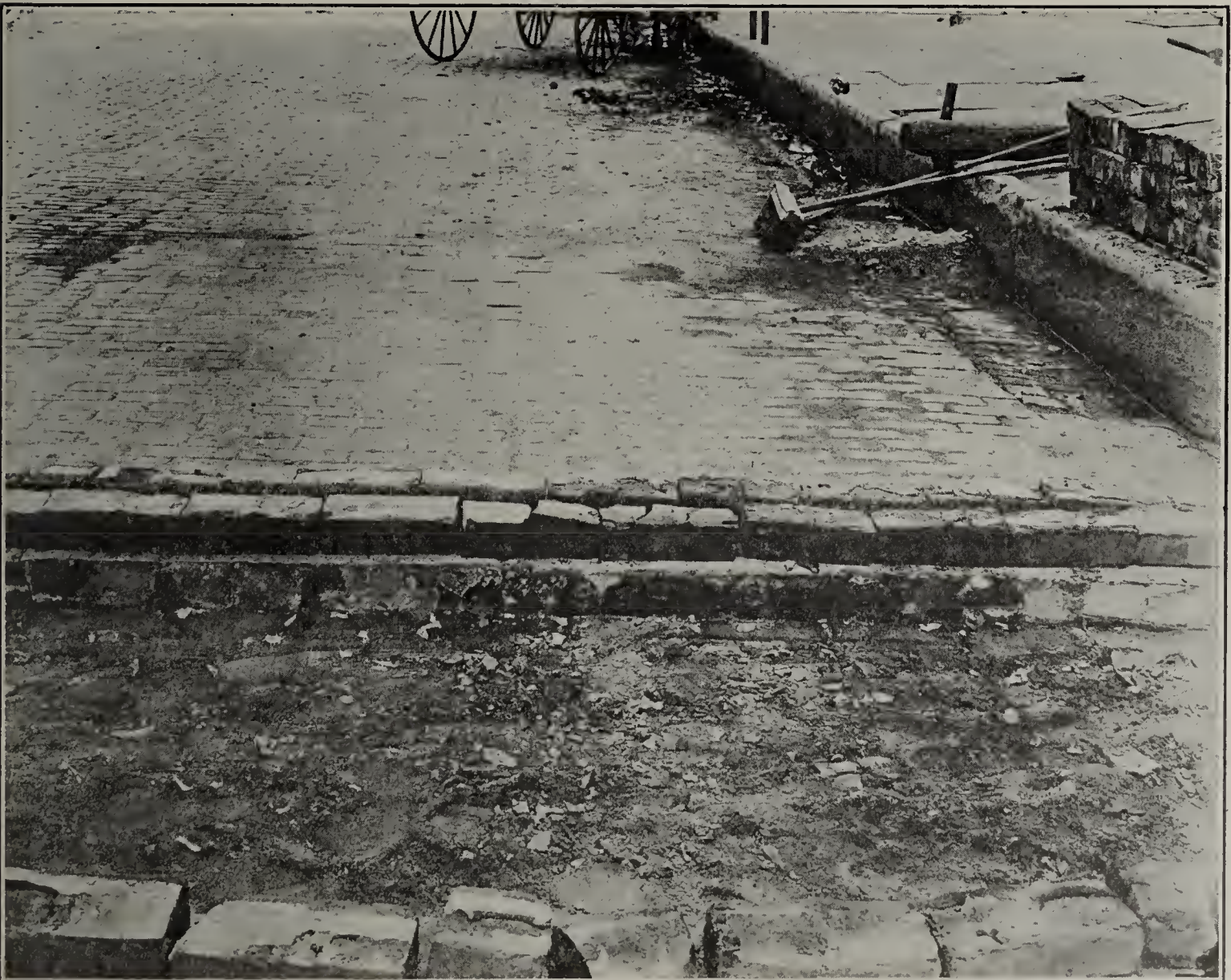
Roads, did you say? An endless theme—
From the Milky Way, like a spill of cream,
A highway, the glowing stars between—
How it sets one's fancy a-bubblin':
Or Roman roads like the Appian Way,
Or primrose paths through meadows gay,
Or the Rocky Road to Dublin.

Or the Jericho Road with thieves beset,
It may be there are such turnpikes yet—
A matter, indeed, of deep regret
To every son of MacAdam:
Or the Bagdad Road and the Caliph Haroun
With his glittering horsemen sweeping down,
As we in romance have had 'em.

There are roads that lead to Castles in Spain,
And country roads back to youth again
That we travel with mingled joy and pain,
In dreams one may not tether:
The dear old roads of the long ago
And we hail the old house—yo-ho! yo-ho!
In that fine old Christmas weather!



View No. 5—Market Street, Sandusky, Ohio. Paved in 1894 with the same character of brick as those used on Columbus Avenue. The difference in wearing quality of the pavement is due to defective construction.



View No. 6—A cut in the Market Street Pavement, showing the imperfect application of the cement filler, to which is due the uneven wearing quality of the pavement.



View No. 7—A section of Market Street at close range, showing that some portions of it are smooth. At such points the cement filler was properly applied, perhaps by accident.



View No. 8—Glenwood Road, six and one-half miles out from Buffalo, N. Y. A fine stretch of pavement constructed in 1911. Wire-cut-lug brick being used. Photographed June 8, 1912. Photograph was not re-touched, but shows pavement exactly as it appeared at the latter date. Note the brick are not chipped at all.

There are famous roads in story and song.
 With Paul Revere we may gallop along—
 With young Lochinvar, so gallant and strong
 As we help him away with his lassie;
 We ride that swift ride from Ghent on to Aix
 And to York when Dick Turpin that long ride makes.
 And on other roads equally classy!

And some like the road that seems well laid down
 From the curb to the gutter—from gutter to crown,
 That's traveled too often by lord and by clown
 And each in his sorrow mentions:
 Tho' fair to the sight, 'tis a treacherous way,
 For this is the road, as we've heard grandmothers say,
 That is paved with good intentions!

But cut out all romance! Now let us come down
 To the practical welfare of country and town,
 And speak of the roadway now winning renown.
 Let all honest people at once have the pick
 Of a pavement that's durable, dustless and clean;
 And shout, so that all may know what they mean,
 Away with all else! GIVE US VITRIFIED BRICK!

DISCUSSING CONCRETE FAILURES.

CONCRETE FAILURES have grown so frequent that they cannot all be discussed by engineering societies and experts. If each disaster were taken up it would monopolize the attention of those who should be vitally interested. Occasionally there comes a collapse so sensational or deadly that it cannot be ignored. Then there is a discussion in some learned society, and it is duly set forth in the press for the edification of the general public. If the discussions were productive of any rules and regulations that would prevent a recurrence of similar disasters, a splendid step forward could be recorded. But, with all due respect to the eminent engineering authorities who may participate, there are few if any facts brought out that will help the public. The discussions seem futile and absolutely inconclusive. A few months ago we recorded the total collapse of the reinforced concrete building of the Spang & Chalfont Company, in a suburb of Pittsburgh. This gave special timeliness to a discussion of "Failures of Reinforced Concrete Structures" at a recent meeting of the Structural Section of the Engineers' Society of western Pennsylvania at Pittsburgh.

The discussion was opened by Edward Godfrey, of the Robert W. Hunt Company, who presented a paper in which he described in detail failures in concrete construction, which had come under his notice, assigning the causes, in his judgment, for a number of failures. "The failure of reinforced concrete construction," he said, "has been a source of great annoyance to the architect, the engineer, the contractor and the owner for years, and a number of failures have occurred under such conditions as to leave the interested parties dumfounded. Buildings have failed after having stood up for what was considered a reasonable length of time to insure their permanency; and in one instance a building had collapsed after standing for seven years, during which time it had been considered perfectly safe by the engineers and others interested. These facts show us that concrete construction is not thoroughly understood by all engaged in it, for if 100 or 1,000 buildings stand and one fails we have failed to provide the factor of safety required of us, and it is the purpose of this discussion to get at the facts as to the cause of failures and to ignore the trivial circumstances that have been, on occasions, magnified to great importance.

"Unless the design of a building which has failed shows that the proper factor of safety had not been provided, the engineer is not responsible, but too much dependence cannot

safely be placed on standards, as many of the tests made are from selected material, properly mixed and applied under the care of experts, with the manual work performed by experienced men. Much of our concrete work in actual practice is done by inexperienced men; and all material used is not carefully selected."

The speaker criticised severely many of the formulas arbitrarily proposed, which professed to give the factor of safety in concrete and reinforced concrete construction. He disagreed emphatically with the authors of many books and contributions to the engineering press, who had reached what he considered unwarranted conclusions from laboratory tests, and published these conclusions as the last word on the subject. He assailed the cantilever type of construction in reinforced concrete floors, and characterized some of the supposedly standard types of reinforced concrete columns as being based on long-exploded engineering fallacies. He was specially severe in his strictures on a popular type of reinforced concrete column, whose reinforcement consists of steel rods, not hooped at all, or insufficiently hooped. For compressive strength, said the speaker, such a column was inferior to a plain concrete column. He explained that in such a column, the buckling of the slender steel rods, in case of overload, not only impairs their strength in compression, but injures the surrounding concrete; and he called attention to the fact that the concrete surrounding the rods, in the course of hardening, underwent sufficient contraction to allow the rods opportunity to buckle. In other words, the rods might be a reinforcement to the concrete, but the concrete certainly did not reinforce the rods. He exclaimed against what he believed to be the common practice of giving such a reinforced concrete column one-half the actual factor of safety that the old-time, tried building laws gave the cast iron column. "Consider," exhorted the speaker, "the difference in the materials we have here contrasted: The cast iron column, fused, made of carefully selected materials in a shop under specially prepared conditions, by skilled workmen; the concrete, made on the ground, imperfect surroundings, often under adverse weather conditions, by careless and unskilled workmen, and often of carelessly selected material containing large percentages of dirt and impurities!"

Taking these general criticisms as a basis, the speaker took up individual cases of failures of buildings that had come under his observation, reviewing them in some detail. His most direct reference was to the case of a recent collapse of a concrete factory building in Pittsburgh district, which has been very generally discussed, and was subject to an exhaustive investigation at the time. He showed photographic slides of the wreck in question, and went into the causes of the collapse, as he interpreted them, in some detail, criticizing both design and workmanship. He was specially emphatic in his criticism of the piling foundations used. In conclusion, the speaker expressed the hope that the building code of Pennsylvania, which is being revised by a special commission, will remedy a number of defects at present existing in concrete construction.

The discussion occupied two full hours, and was participated in, by invitation, by members of the Pittsburgh chapter of the American Institute of Architects, who had been specially invited to attend the meeting. The discussion centered largely on the principal speaker's criticism of the recent local building collapse. N. H. Kindall said: "Mr. Godfrey's paper teaches that it is dangerous to erect a building according to some of the accepted standards. I believe that 90 per cent. of the failures are due to faulty construction and faulty foundations. I believe also that concrete piling should be reinforced."

Edward Stotz, architect, said: "I think we are on the eve of a house cleaning on values of materials for building. The

utilitarian and esthetic values of a combination of concrete and steel are often overlooked in construction. Undue speed in construction and the use of improper material by unskilled mechanics are responsible for much of the criticism to which concrete construction is subjected."

Charles R. Irvin, of the architectural firm of Irvin & Witherow, whose firm was responsible for the design of the collapsed structure referred to by the principal speaker, read a carefully prepared defense of the design and the methods of construction used in this instance, dwelling with emphasis on the tests his firm had made on the upper floor of the structure to prove its capacity to carry load, pig iron having been piled on two panels of the building to twice the theoretical load capacity of the floor.

The speaker displayed drawings of plans for the building whose wreck had been discussed in the principal paper giving the location of columns and the combined dead and live loads they were designed to carry. Views were shown of the test loads of pig iron placed on the upper floor of the building, the floor showing a deflection of 43-100 of an inch with a live load of 336 pounds per square foot and an upward deflection of 1-100 of an inch when the load was removed from one panel and doubled on the adjoining panel—disposing of the theory of Mr. Godfrey, the speaker believed, with respect to the alleged counterweight defects in the cantilever construction used.

What does one gain from all of this talk? The most important point of the leading speaker seemed to be that concrete is a material that lends itself most readily to faulty and incompetent workmanship. The answer of the architect who designed the unfortunate building would appear to be that his firm had planned a structure that was certain to stand, and that it was extremely illogical and unscientific for it to collapse. The one striking thought was that of Edward Stotz, architect, who believed we are on the eve of a housecleaning on the values of materials for building. Indeed we are, and concrete will be given its proper and legitimate place.—Stone.

FOR HALF A CENT.

There has started the nucleus of what promises to be a merry war of words, and the thing it is all about is a half cent. Some one started the bright idea that it would be a good thing to have half-cent pieces so that we could get down to real hair-splitting points in change making, and started a movement to have the mints coin half cents as well as the well-known cent pieces. Other small coins were suggested, such as the three-cent piece, which was at one time more or less common, but it is the half-cent piece that promises to be the bone of contention in a merry war. The advocates of it point that it is the logical thing in a state of progress; that we were once so careless of fine divisions in change that we seldom had anything in the change line less than the nickel, and that during the golden days in California not much change was known smaller than the quarter. But we have gotten down to finer calculations and manipulations since that time. The cent piece has become one of the most common of coins, and the odd cents are used pretty generally in the mercantile world. To make more convenient yet the giving of exact change in business transactions, it is argued that we should have the half-cent piece.

Opposing this idea are bankers, because it would add to the details of their counting rooms and would add an extra column to their ledgers, deposit and other blanks. Then come a string of business men who point out that it would mean the scrapping of all the present adding and tabulating machines and necessitate the making of new ones with more parts and complications, and that this expense would run high up into the millions. In fact, there is quite a string of objections being mentioned, while at the same time the clamor for the half cent keeps up. So you can take your choice of sides in the argument and find plenty to say if you have a hankering for this kind of excitement, for there is pretty certain to be a lot of lively discussion of the subject from now on till it is either settled or side-tracked.

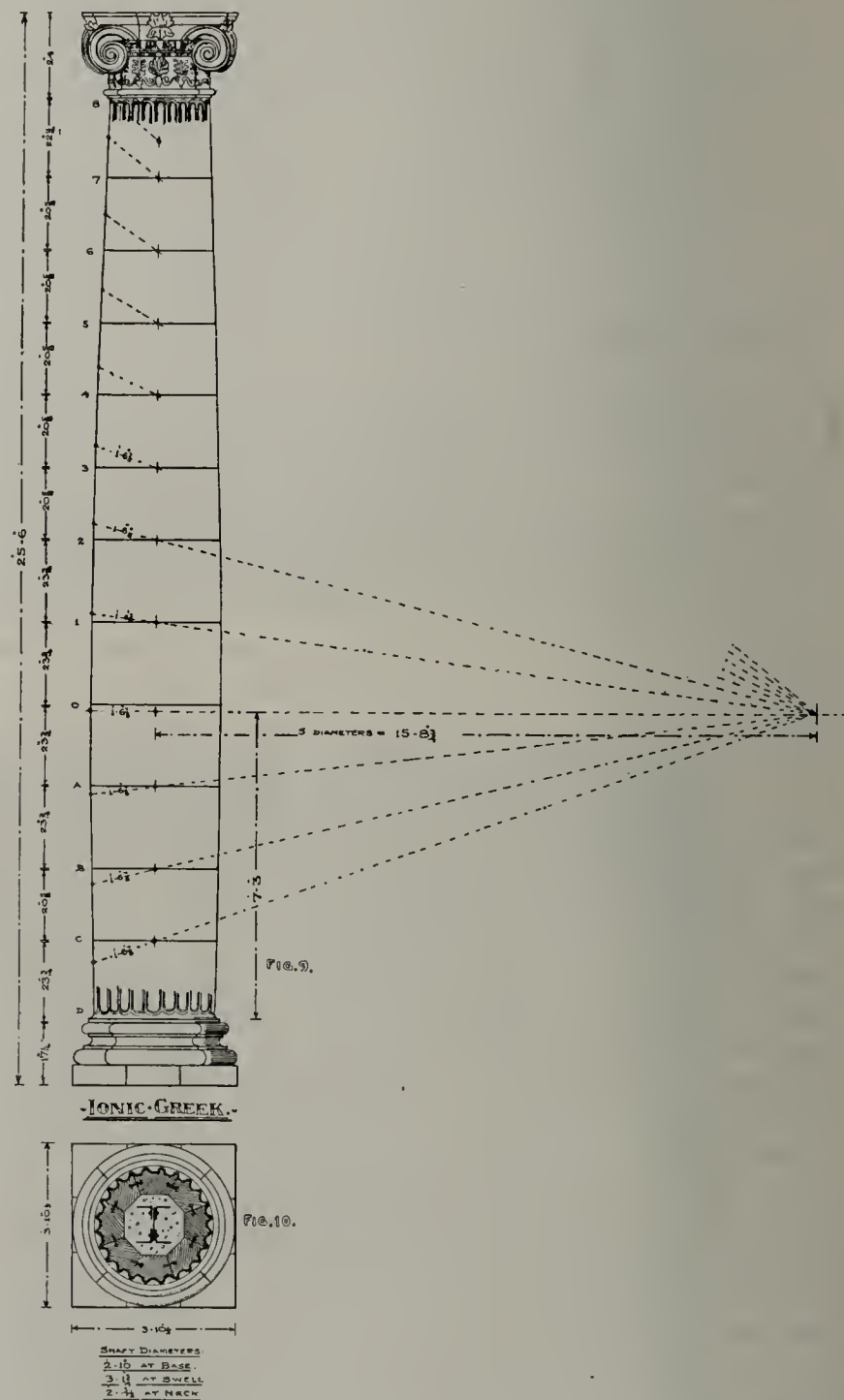
Written for THE CLAY-WORKER.

MAKING TERRA COTTA COLUMNS.

BY H. W. JOHNS.

Part II.—Form and Working Methods.

FIG. 13 shows an enlarged drawing of a typical course in this order of architecture, the diameters, of course, having been transferred from the general plan or elevation at the level required when the whole circumference has been divided into 20 equal parts, each part will represent the width of a single flute. With the distance between the points as a radius, strike arcs, and the intersecting point gives the



center for determining the true curve of the flute itself. This method is applied for each course. Precisely the same general methods are employed for constructing the Ionic column entasis as in the last mentioned shaft. Having obtained the widths at the levels 0 to 8, a general plan may be drawn with one module as radius and 15 parts radius for the diameter at necking. Between these two circles may be transferred the widths at 1, 2, 3, 4, 5, 6 and 7, and circles described, giving the exact diameters at these distinctive levels. The circumference is divided into twenty-four equal parts and the flutes drawn in as depicted in Figure 15, each flute center being at the same distance from the core center as the nosing of that course. The Corinthian and Composite orders have shafts similar to the Ionic, excepting that the flutes start slightly differently. In the Composite, also, the capital is a combination of the Ionic and the Corinthian, the

flute starting from a semi-circle as in the Corinthian, whereas in the Ionic it springs from a horizontal line and beveled upper edge. In the Ionic-Greek the manner in which the entasis is obtained ranks more complicated. The one illustrated in this article shows the method pursued in those just erected at the St. Ignatius Roman Catholic Church at San Francisco. The perpendicular jointing is here omitted to avoid clashing with the method of obtaining the entasis. The entire shaft with base and capital rises 25 feet and 6 inches with entasis from base to necking. Immediately above the base, the shaft has a diameter of 2 feet 10 inches, increasing to an extreme of 3 feet 1 $\frac{3}{4}$ inches, and diminishing to a necking of 2 feet 4 $\frac{1}{2}$ inches. One-third up the entire shaft itself at 0 a horizontal line is drawn to the right, terminating at a distance from the center line of five diameters at the

into exactly equal heights, and, the profile having been obtained, the horizontal bed joints may be then made as desired, otherwise a fine calculation would have to be made on the semi-circle diagram. In Figure 17, when the divisions O to D are alike, and 0 to 8 are all even, the points in the elevation should also be correspondingly equal respectively. Then from the diameters 6—6, 5—5, and so on, may be transferred the respective widths at those levels in the elevation and the entasis completed. The reason the actual heights in Figure 9 are not all alike in this column was owing to the difference occasioned by adjoining architectural features necessitating bed joints as indicated, one course of brick work being the variation in some of the terra cotta heights. In the Ionic-Greek, Figure 16 shows an elaborated fluting. In this instance a $\frac{5}{8}$ -inch fillet separates two $\frac{7}{16}$ -inch nosings, the

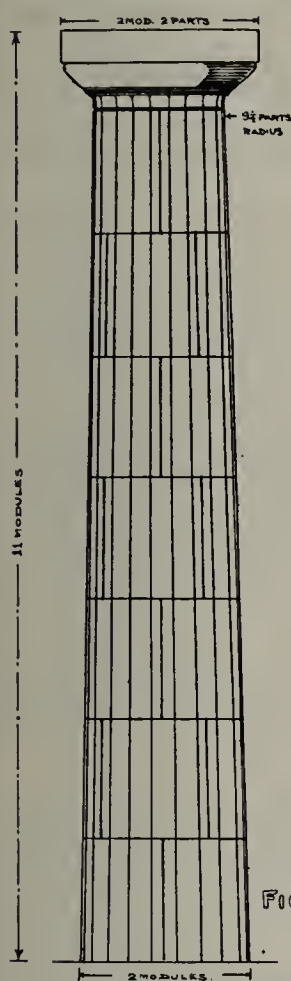


FIG. 11.
~DORIC-GREEK~

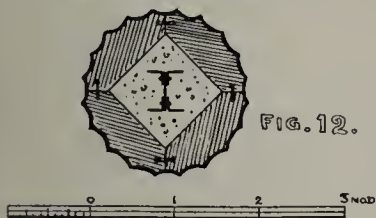


FIG. 12.

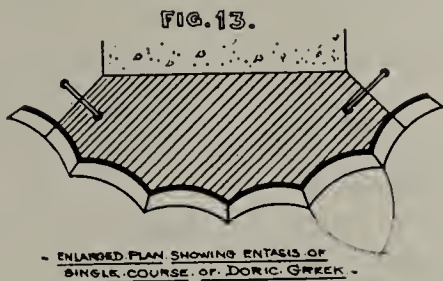


FIG. 13.
~ENLARGED PLAN SHOWING ENTASIS OF
SINGLE COURSE OF DORIC-GREEK~



FIG. 14.
~SINGLE TUSCAN COURSE
SHOWING ENTASIS~

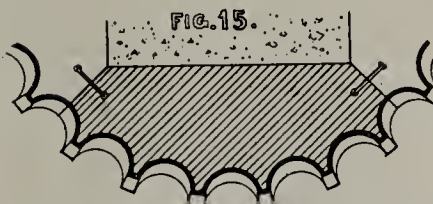


FIG. 15.
~SINGLE COURSE SHOWING ENTASIS FOR
IONIC, CORINTHIAN & COMPOSITE COLS.~

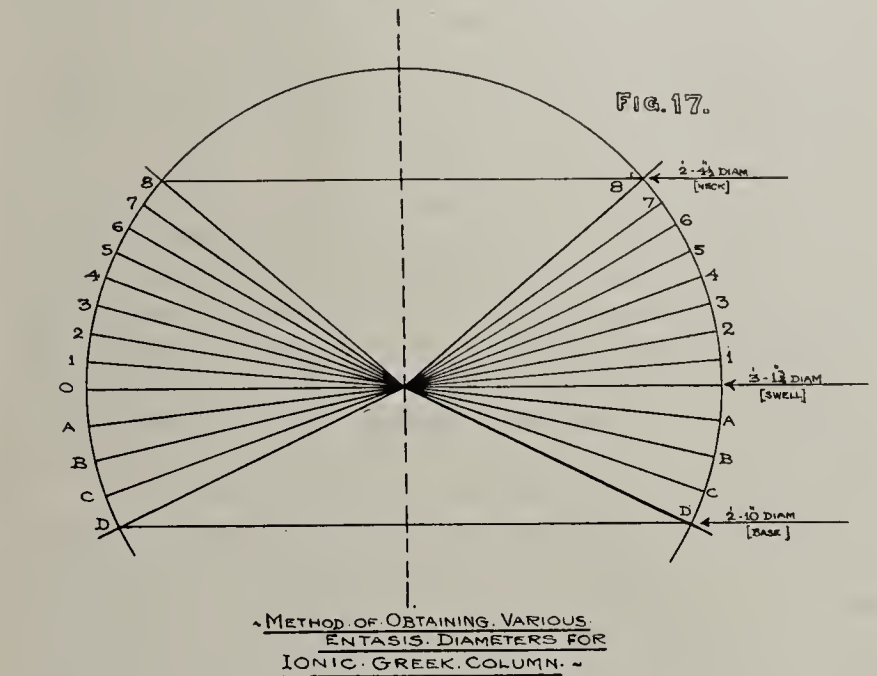


FIG. 17.
~METHOD OF OBTAINING VARIOUS
ENTASIS DIAMETERS FOR
IONIC-GREEK COLUMN~

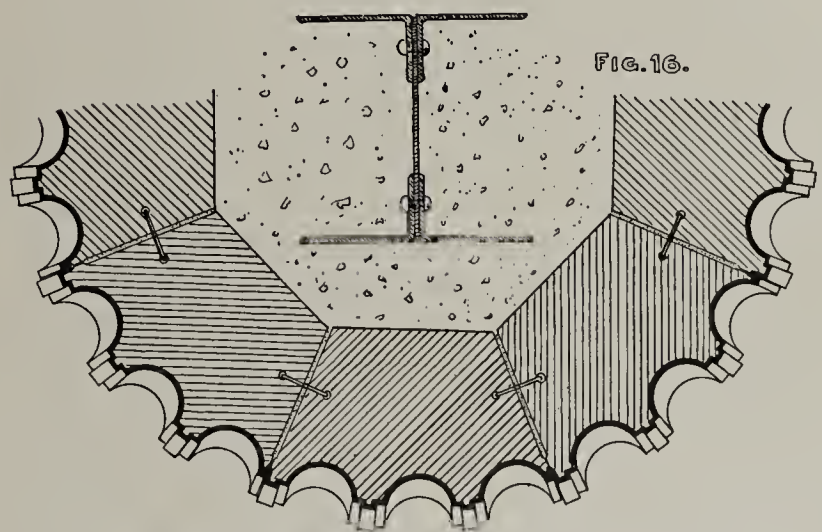


FIG. 16.
~TYPICAL SINGLE COURSE OF IONIC-GREEK~

"swell," or 15 feet 8 $\frac{3}{4}$ inches. From this horizontal line the lower part of the shaft may be divided into four equal divisions. Where these new horizontals strike the center line, construction lines are drawn from the main center, and with a radius of half the extreme diameter, that is, 1 foot and 6 $\frac{7}{8}$ inches, these radiated lines are cut as indicated. The same method applied above the leading horizontal determines further points through which the entasis proper is completed. Great exactitude must be observed or a crippled entasis will result. The subdivisions for horizontals need not be all equal, but the 1 foot 6 $\frac{7}{8}$ inches must not be altered.

Figure 17 is a diagram pertaining to the method under consideration. To avoid any complications in setting off the divisions on the semi-circle, the shaft should be divided

flute itself being struck as in the Ionic order. In this shaft the perpendicular joints are practically concealed. The cut is taken on the left side of the central fillet, and the repeating piece is set virtually dry for a distance of 1 $\frac{1}{4}$ inches, widening out from that point towards the core, and giving a full $\frac{1}{4}$ -inch joint. The only objection here is that the small nosing, being necessarily of a delicate nature, is decidedly liable to warp in drying unless extreme care is exercised by slow drying. Even then the pieces may prove to be misshapened after burning. The main disadvantage to terra cotta manufacturers in dealing with this form of jointing is that there is absolutely no possibility of easing upright joints by chisel or rubbing bed when assembling the shaft.

The only possible way of producing presentable columns

of this style is by making a goodly percentage of extras to allow for contingencies. Carefulness should be concentrated in the plaster shop in the preparation of the necessary plaster molds. The writer has proceeded in the following manner: First of all, a general plan is made, showing at a glance all the courses from base to necking. For the sake of quick deciphering and absolute accuracy the plan is drawn in red and black ink, in ink for accuracy and prevention of lines wearing off, and in two colors for showing alternate courses to catch the eye of the plaster model maker quickly.

In the Tuscan order the repeating piece carrying the entasis may be made in two ways. Take the course 1 to 1 in Figure 1. The bed mold shape at 1 may be taken from the general plan and a plaster model "run" to the requisite height. Placing the straight model against one end the "step" between the two models may be floated in and the exact entasis obtained by using a zinc frame made to suit the "pitch." The other method is to make a rough model without entasis, mark on one end the correct line and complete the model by planing or paring down to the requisite entasis.

In the Doric order the quickest method for producing the best results appears to be in running each course to the larger sized end and then scraping down, although another method much favored in the West is that of making a rough circular backing. On this skeleton model is fastened by shellac plaster strips made from the center of one flute to the center of the next flute. These strips are made "scant" on the edges to allow for the tapering in the entasis, and the intervening spaces are floated in with plaster.

In the Ionic, experience has shown that the most serviceable method is in making a rough circular backing and then pasting on fluted strips made with the correct nosing, but with scant joints. These strips may be bent while drying to suit the camber in the entasis, and when laid on the backing model the diverging spaces between the strips are floated in with plaster. If a zinc template were cut at top and bottom beds and applied to the plaster and the plaster pared down from end to end, much labor would be entailed (as in stone cutting), and the correct entasis only obtained after considerable time had elapsed. With these "regulars" the repeating pieces may be laid out together on the bench and absolute accuracy is obtained. To facilitate the process of fitting together the shafts after emerging from the kiln leather belts with fastenings were used. Wooden jointing wedges were placed between the regulars and the belt was tightened until the correct diameter had been arrived at and any necessary chiseling had been completed. This kept the individual courses rigid for receiving the next course above to be assembled and undergo similar treatment.

To sum up the situation, it is only by the most careful methods that this difficult class of terra cotta may be produced to the satisfaction of the architect and all concerned.

Stone, of which terra cotta is an imitation, has no difficulty of unequal shrinkage to contend with, and in order to become the closest imitation the utmost care is essential, and it is only by profitable experience that all the fine points noticeable in stone can be attained in the making of terra cotta columns. Exactitude in drafting, perfection in the models, slow drying of the molds to prevent warping, careful handling and gradual drying of the terra cotta are the outstanding features necessary to place on the market a graceful and perfect-fitting terra cotta column.

TEN MILLION DOLLARS A YEAR IN CLAY.

The clayworking industry in New York State experienced a profitable season during 1911, according to State Geologist John M. Clarke. Production was valued at \$9,751,659. However, the Hudson river brick industry made a poor record. The manufacturers of building brick held first place in the industry, the total product last year being valued at \$5,472,000.

Written for THE CLAY-WORKER.

DRYING CLAY WARES.

BY ELLIS LOVEJOY.

Classification of Clays.

DRYING CLAY WARES is one of the most complex problems with which the clayworker has to deal, and one that is least considered and least understood. We are lacking in a proper classification of clays in their relation to drying and perhaps no accurate classification is possible.

Clays may be roughly classified as follows:

- (1) Clays that may be dried in a few hours, starting with an initial high temperature and rapid drying condition.
- (2) Clays that may be dried in twenty-four hours or less, starting at an initial low temperature in saturated atmosphere.
- (3) Clays that can be dried in twenty-four to seventy-two hours, under conditions of No. 2.
- (4) Clays that require over seventy-two hours under conditions of No. 2.
- (5) Clays that must be slowly heated up in a saturated stagnant atmosphere before advancing into a moving drying atmosphere.
- (6) Clays that cannot safely be subjected to conditions under No. 2 and No. 5, but must be dried slowly, starting under drying conditions.
- (7) Clays that cannot be dried under any condition.

There are many clays and shales which will rate as No. 1. Clays that can be dried in a pipe rack dryer; that will stand exposure to wind and sun; that can be placed in a periodic dryer in which a maximum temperature is maintained from end to end of dryer.

No. 2 contains a greater number of clays and the progressive type of dryer in which No. 2 conditions prevail, are the most numerous. No. 2 class shades into No. 3 and No. 4.

There are many tender drying clays that can only be dried safely by first heating them up in a saturated atmosphere, then moving them into conditions No. 2 and No. 4. No. 5 is considered the method par excellence for tender clays, but we have found some clays that can be safely dried under somewhat trying conditions, provided they are not first subjected to a moist atmosphere—the humidity treatment which prevails in No. 2, 3, 4, and especially in No. 5.

These classes include many clays, but there are many others, perhaps as many, that cannot be dried under any conditions in their raw state, but must first be subjected to some treatment which changes the physical conditions.

A weak point in any classification is that a clay which may be difficult to dry in one kind of ware becomes easy to dry in some other ware. We have frequently found clays which in bricks required thirty-six to forty-eight hours to dry safely, yet in drain tile would dry without a flaw in twenty-four, or even twelve hours. In safe drying, drain tile easily leads the list, then comes sewer pipe in small sizes, simple and small hollow ware especially in clays that laminate, bricks, perforated bricks, complex hollow ware, large sewer pipe, roofing tile, terra cotta, etc.

Water in Clay.

Water in clay exists in three conditions:

- (1) Moisture (free water—water of saturation.)
- (2) Hygroscopic water.
- (3) Chemically combined water.

We might also add colloidal water.

Free water is the water which fills the pore spaces in the clay mass, and which serves as a lubricant, permitting

the grains of clay to slip one on another, and gives the mass the mobility necessary for casting or moulding processes. This is the water with which we are chiefly concerned in drying. When it is driven off the clay mass is rigid; it will no longer flow under pressure, but it still looks wet. There is an affinity of every substance for any liquid which can wet the surface of the substance—call it surface tension, or capillarity if you please. The water clinging to the grains of the clay can only be removed by contact with some other substance having greater affinity for the water than that of the clay—in this case vapor tension overcoming surface tension. This we call water of saturation.

We say clay wares are bone dry when they come from the dryer, showing no perceptible wetness. Yet we know that in the water-smoking, there is driven off from the dry wares a considerable volume of water vapor. This is hygroscopic water and also colloidal water. We have no hint of its presence either in the appearance or feel of the clay. We often use the expression "dry as dust" to express dryness, but dust contains hygroscopic water.

Combined water is a chemical constituent of clay and only appears when we disintegrate the mineral kaolin by heat.

How Drying Proceeds.

Clay is porous, and when wet, these pores are filled with water. The pores form zig-zag channels or capillary tubes from the center of the mass to the surface. When there is no drying at the surface, there is practically no movement of the water in the pores—osmotic movement not considered. Immediately, however, that drying begins on the surface, the water thus evaporated is replaced by capillarity, draining the numerous minute reservoirs which we call pores. There is no better illustration than a lamp and wick. As long as the lamp contains oil, it will be drawn up by the wick by capillarity. When the oil is exhausted, the flow ceases, although there is some oil still clinging to the wick. Similarly are the pore reservoirs in a clay mass drained. This is the first stage in drying and the stage in which shrinkage takes place, and since all parts of the clay mass are undergoing draining at the same time, there are no unequal or local strains and the ware does not crack.

It is almost needless to say that the safety of drying during this first stage depends upon the relative rate of surface evaporation and replacement.

If we dip different substances in a colored solution and note the rise of the solution in the substances, we will have a clear idea of how in one clay mass, because of its pore channels, the included water will move from one place to another within the mass faster than in another clay mass with a different system of pore channels to replace water removed by surface evaporation.

Now if the water is evaporated from the surface faster than it is replaced, there must be cracking to relieve the strains, either that or the wet core must be compressed by the dried and shrinking shell, which is very doubtful. To compress such a core will exceed the power of the strongest press, and clay, however strong, has not such strength. There are undoubtedly some strains introduced. It would be folly to claim that drying proceeds absolutely at the same rate throughout the mass, and whenever the strain exceeds the breaking strain of the dried clay, there must be cracking.

In overcoming minor strains, the physical character of the clay plays a part. Ordinary clays, practically all clays, are made up of a number of minerals—fragments of the rocks from which the clays were derived. If the grains are angular and coarse, they may be loosened, partly pulled out of the imbedding matrix, or under compression will rearrange themselves into greater compactness, in either case relieving the strain.

The safe removal of the moisture then depends upon two factors:

(1) The relative rate of evaporation and interstitial movement of the moisture.

(2) The shape and size of the grains which make up the clay mass—viz., the interlocking power.

Having removed the reservoir water, as above described, there still remains the moisture clinging to the walls of the pore passages—the water of saturation. This can only be removed by the drying medium entering the pores and evaporating the water by direct contact with it.

This brings us to the border land of the second stage of the drying, or more properly, we should make this the second step in the first stage.

When the drying medium has penetrated to the core of the clay mass, the latter is bone dry, as we say, but there is still the hygroscopic and colloidal water that cannot be removed under the boiling point. Air will take up and hold as vapor a certain amount of water for each temperature. We make this statement advisedly. (Without confusing the discussion with technical matters, let us say the air has absorptive power for the moisture, so, likewise, has other bodies, including clay, and which ever body has the greatest absorptive power, will remove moisture from the other. We may say that the clay mass may not become dryer than the drying medium, and air is never absolutely dry. We know that this statement is open to attack, but, relative absorptive powers considered, it is true.)

There is then some moisture remaining, and especially is this the case when we have lining the pore passages various salts common to clay besides sulphuric acid. The latter and calcium chloride are commonly used as desiccators to remove moisture from the air, simply because they have greater affinity for moisture than air. Whatever the cause, some moisture remains in the "bone" dry clay mass which can only be removed by temperatures above the boiling point of water, or of the solution whatever it may be. Sulphuric acid, for instance, is only volatilized at 680 degrees Fahrenheit. The removal of this hygroscopic water is the second drying stage and is done in the kilns—water-smoking.

We are not concerned with chemically combined water, since it is never in the form of moisture, and is only expelled by the breaking up of the kaolin at a temperature of 800 degrees or higher. It plays no greater part than the expulsion of carbon-dioxide from limestone, or sulphuric anhydride from sulphates, or sulphur from sulphides.

In the water-smoking stage of the drying there is considerable danger. We may generate the water gas so fast that there is considerable pressure, and while it may not rupture the mass as a whole, yet it may loosen the individual grains and thus cause a rather punky product which otherwise would have the steel-like ring so much desired. The grains are loosened in their sockets in the matrix and while they may not pull out entirely, yet they cannot conduct the vibratory motion which is essential if the ware is to ring like steel. A cracked bell or a cracked vase will not ring true, neither will a brick ring true that has an infinite number of minute cracks, or loosened grains. This is why steamed bricks are so often rotten.

(To be continued.)

TILING PEAT MARSH.

J. W. W., Blue Earth County, Minnesota, writes: "Please tell me if it would be advisable to lay tile in a peat marsh where you can not get the tile below the peat? I have been told that the frost would heave the tile. The tile would be eight feet deep, where it started in the marsh, and three feet deep where it ended. The peat is ten to twelve feet deep."

We would not advise laying tile in a peat marsh. As soon as the peat is drained it rots, the tile will drop down out of line and will not work satisfactorily.—"The Farmer."



BY W. G. WORCESTER.

Flow Dies for Roofing Tiles.

FOR THE GREATER part the flow dies used in roofing tile plants are of the cold or dry type, that is, they are neither heated nor lubricated. Much attention, however, is paid to the proper proportioning of the die taper so that resistance and freedom is given to the column of clay as it passes through the die, in order that a true and straight tile may be produced. As a rule each firm develops its own dies suitable to their clays. In some plants much secrecy is maintained regarding the details of their dies. It is quite questionable, though, whether such action is warranted or not, as with glazes, a given die may fit one clay and fail with another, thus an exchange of ideas might prove eminently beneficial to all concerned. The accompany-

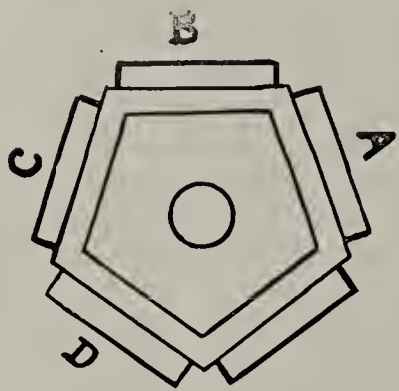


Fig. 1.

ing sketches taken from Bulletin 11, O. G. S., will show briefly the average type of flow dies for roofing tiles:

Roofing Tiles by the Press Method.

It is in this method that we find the highest development of roofing tiles, in fact, the only perfect tiles manufactured are made in this manner. As stated before, it is only in the press-made tiles that we find it possible to have tiles with both side and end locks properly made.

To produce a press-made tile three things are to its forming:

First, the blank or slab of clay from which the tile is to be pressed; second, the machine or press proper, and third, the die. Each of the three are important. Taking each up in turn, we find that the blank, slab or clot, as sometimes called, must be produced on an auxiliary machine to the press. In other words, to produce a press-made tile it is necessary to first form a blank of clay which contains roughly the quantity of clay required in the finished tile.

In the best practice the clay, which has previously been pugged and aged, is taken from the aging lines and transferred to an auger machine, which forces it through attached dies in much the same manner as end cut bricks.

As to the correct outline or shape for the blank, it is, in a measure, dependent upon the clay and the die upon which it is to be used. In most cases, though, a blank approximately two and one-half by four inches end section, and cut to the required length, is on account of its convenience of handling the most satisfactory form.

With plaster dies the above dimensioned blank also proves

most satisfactory, while in most cases on metal dies a blank of approximately the same outline and size as the tile to be made works best.

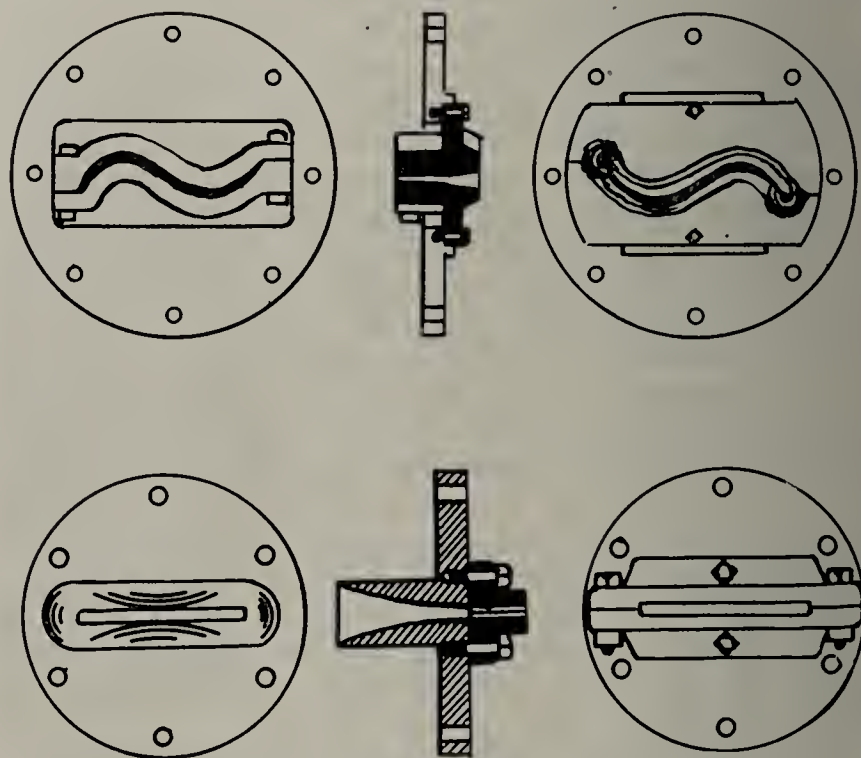
In making the two and one-half by four-inch blank it is found desirable, though not necessary, to work with a double stream die. As the columns issue from the machine they pass onto an ordinary reel cutting table actuated by the moving bar of clay. The arms of the reel, which carry the cutting wires, should be made adjustable as to length, in order that they may be regulated to cut various length bars.

The Press.

There has been but one general type of roofing tile press which has proven satisfactory. This single type is known as the Pentagon press. In the main it consists of two side frames or housings supporting a revolving five-sided drum and a crosshead or plunger, which works up and down to give the pressure.

The object in using a Pentagon drum is on account of the position of the faces, being well suited to the feeding of the blanks and the removal of the tiles.

Figure 1 shows an end view of a pentagon drum with dies attached. The blanks are fed on at A. The drum then



Floor Dies for Roofing Tile.

revolves one-fifth of a revolution, so that A moves to position B, where the pressure is applied. At the next motion, A reaches position C, where the "catcher" places a pallet upon the tile and waits for the drum to reach point D, where the tile releases and is gently caught upon the pallet.

Figure 2 is taken from the United States patent sheets and represents in outline what was probably the first pentagon press designed in the United States. It will be observed that the pressure was applied by hand through a lever. Figure 3 is a photo of a modern and true American pentagon press. It is the most approved type at the present time and can be purchased from no less than three machinery firms.

The average daily output of a pentagon press is approximately 5,000 tiles, though under favorable conditions it is possible to increase this number by 1,000. Thus an average daily output for a single press working on interlocking tiles of 125 per square would be about forty squares.

To operate the press there are but two men required—a feeder and a catcher. In connection, though, with the pressing operation there is needed, the puncher, two trimmers, a washer and a car man. The first, or puncher, punches the holes for nails or wire. The trimmers skin or trim off the feather edges or die marks, while the washer,

with a soft piece of wool or cotton cloth, washes over the lower or exposed end of the tile, thereby removing all traces of roughness otherwise left by the trimmers.

Dies.

The dies are the cast or impressions of the upper and lower faces of the tile to be made. They are either of metal or plaster of Paris. For most clays and conditions the plas-

ing, while with metal dies and their accompanying oil the reverse is quite true. While the plaster die has strong points in its favor, the general trend is to get away from it, due to its high cost of upkeep, it being necessary under good conditions to change the upper die, which forms the face of the tiles, twice a day, and the lower dies at least once. Thus the services of a plaster worker are required constantly, as well as the cost of the plaster with the metal dies. Their first cost is high and the upkeep of the heat and oil is to be considered as an important item. There are clays, however, which, due to their physical makeup, will only work on plaster dies, while there are other clays which can no doubt be worked equally as successful on either. The details of either plaster or metal die-making are most too lengthy to undertake in a paper of this sort, though when properly understood, there is little difficulty to produce

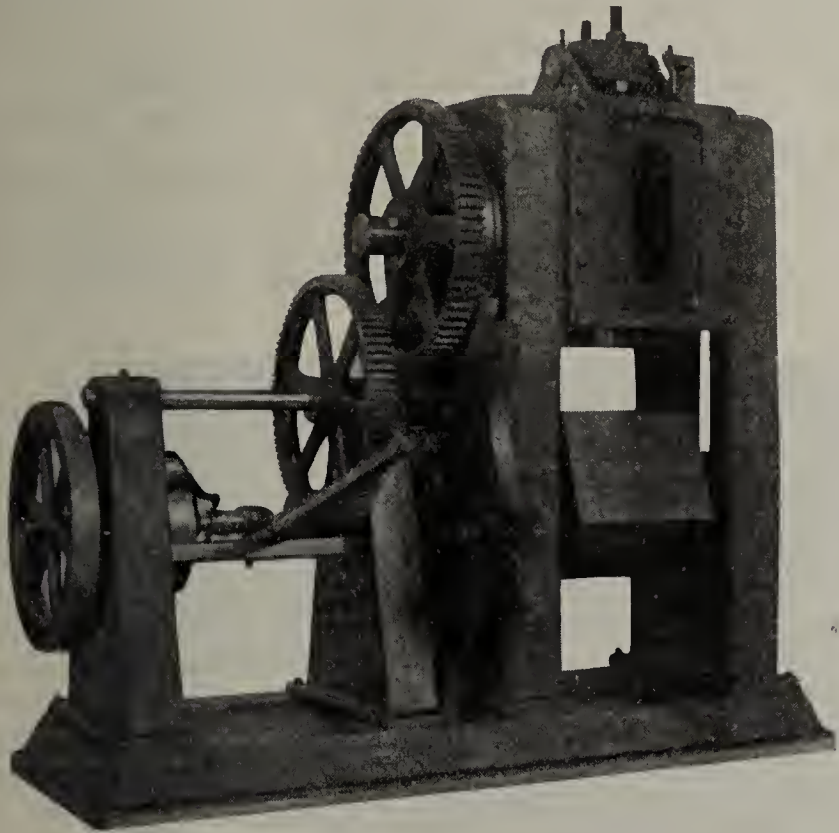


Fig. 3.

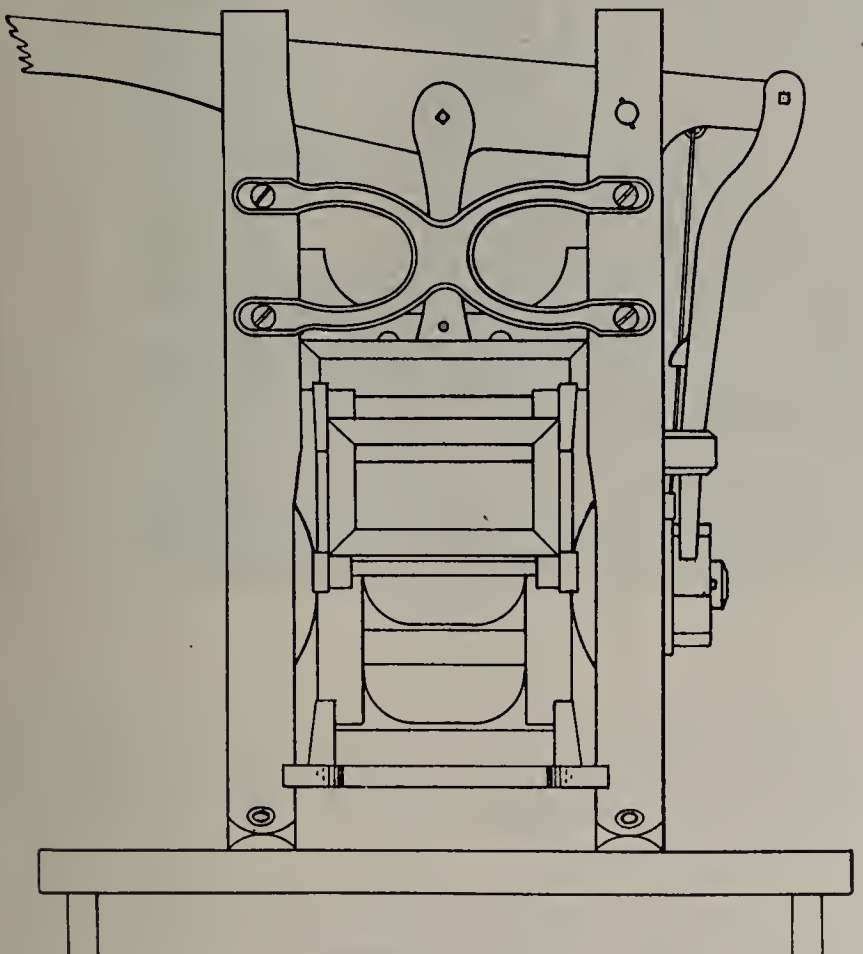


Fig. 2A.

ter die proves the most satisfactory for several reasons: First, with the plaster die the clay must be worked in a softer condition than with metal, thus the body structure is less apt to be faulty. Second, with plaster dies it is necessary to keep them saturated with water, while with metal heat and oil must be used to prevent the clay from sticking. In the case of plaster dies, the fact tends to prevent or mend up any cracks or checks which may form while press-

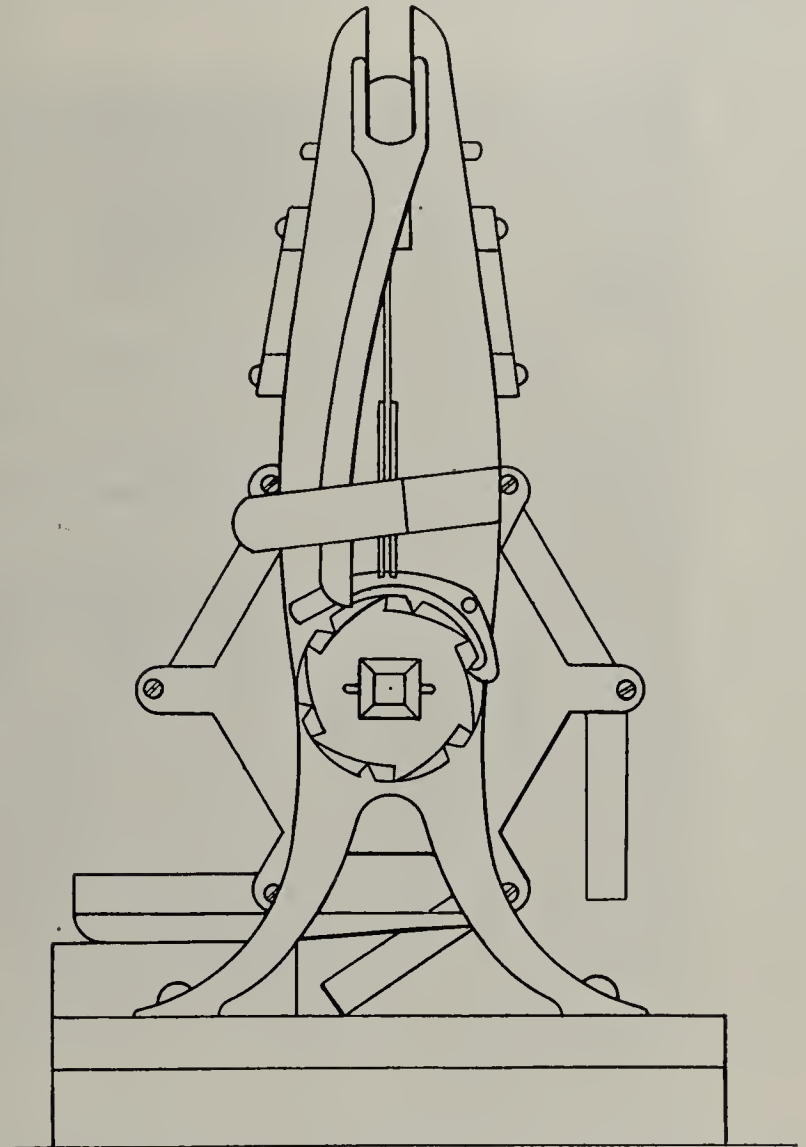


Fig. 2B.

good dies of either material. As a general rule more clays will work satisfactorily and better results will be obtained with plaster dies than with metal.

(To be continued.)

A FAIR COMMISSION.

A Kansas clergyman received a letter from a Kentucky whiskey firm which said the firm was supplying a large number of Kansans with a good article of whiskey, and asked the minister to send in the names of any men he knew in his community who might want some of their product.

As a joke, the minister sent the whiskey firm the names of twelve men of the town, all good friends of his. Later he received this letter:

"Dear Sir.—We are in receipt of your letter giving us the names of citizens in your community. We have made six sales resulting from your information, and we herewith hand you our check for six dollars as your commission."—Saturday Evening Post.

VISIT OF THE GERMAN CLAY-WORKERS AT THE OHIO STATE UNIVERSITY.

THE MEMBERS OF the "Deutscher Verein fuer Ton, Cement and Kalkindustrie" (the German equivalent for the American Ceramic Society), who have been visiting the United States in connection with the Eighth International Congress of Applied Chemistry, arrived in Columbus from Zanesville Thursday afternoon, September 19th. They had been spending three or four days in Pittsburgh, sight-seeing, before coming to Zanesville, and, arriving at Zanesville late Wednesday afternoon, had only time to see one representative establishment, viz.: the S. A. Weller potteries. The visitors were given a warm welcome by Mr. Weller, and shown the plant most fully. Early the next morning the younger members of the party took an early car via the Southeastern Ohio Traction Company, visiting

company, before leaving for Columbus at 12:35.

Arriving at Columbus at 2:45, the party was met at the depot by Professor Orton, Professor Pence, Professor Staley, Professor Harrop, Mr. Lovejoy, Mr. Frink, Mr. Garve, Professor Coddington and others. The party was placed in machines and taken rapidly to the Ohio State University, where they were met by a delegation of other professors awaiting to welcome them. A view of the group as they appeared just after alighting from the machines, in front of Lord Hall (School of Mines), is shown herewith. The persons appearing in the picture counting from left to right are:

1. Prof. Edward Orton, Jr., Ohio State University.
2. Herr Otto Kohns, proprietor of a feudal estate at Foerderstedt, Altmark.
3. Herr Johann Schlosser, engineer and owner of a brick factory at Meissen-Tribischtal.
4. Mr. Arthur Troeger, owner of a brick factory in Plauen, I. V., and supervising director of plantations in Africa.



The Visiting Ceramists at the Ohio State University and Their Hosts.

the large stoneware factory of the Ransbottom Bros., located at Ironspot, about a mile north of Roseville. This plant has become in recent years one of the largest stoneware potteries of the United States, and their beautiful new addition and fireproof kilnroom make a very impressive showing.

The ladies and other members of the German party took the train at Zanesville at 9 o'clock, and this train stopped specially to pick up the rest of the party at Ironspot, and the entire party reached New Lexington at 9:35. Here they were met by the officials of the Ludowici-Celadon Company, who had machines in waiting to take them out to their handsome roofing tile plant, some two miles west of New Lexington. One of the German party was accredited to this company by letters from Herr Ludowici in Germany. The best opportunity was given to the visitors to see and understand the workings of this plant and they were returned to New Lexington to partake of a luncheon tendered by the

5. Unknown student.
6. Privy Commercial Counsellor Schott, director of cement works in Heidelberg, president of the Chamber of Commerce, etc.
7. Mr. Ellis Lovejoy, Columbus, Ohio.
8. Commercial Counsellor August Mosel, proprietor of steam brick plant at Kloetze, Altmark.
9. Frau Kohns.
10. Dr. Otto Schott, New York, cement engineer.
11. Frau Mosel.
12. Prof. E. F. Coddington, Columbus, Ohio, State University.
13. Frau Schott.
14. Prof. H. F. Staley, Ohio State University.
15. Mr. T. W. Garve, of Richardson, Lovejoy Company, Columbus.
16. Prof. F. K. Pence, Ohio State University.
17. Mrs. Edward Orton, Jr.

18. Mr. R. L. Frink, glass works engineer, Columbus.
19. Mr. Rosbach, builder and owner of brick plant, Plauen.
20. (Front row) Baurat W. Ehrhardt, chairman of the German Society of Clay Industries of Berlin, Weimar.
21. Prof. Berthold Eisenlohr, Ohio State University.
22. Dr. Kneisel, director cement factory, Beckum.
23. Dr. Kaufmann, director of a floor tile factory.
24. (On steps, upper row) Prof. Chas. Foulk, Ohio State University.
25. Commercial Counsellor Kircher, director of the Rhenish Refractory Material Company, Gruenstadt, Pfalz.
26. Maxmillian Tonalla, proprietor of the largest brick factory in Roumania, Bucharest.
27. Mr. Leonard B. Coulter, engineer for the Carborundum Company, Niagara Falls, N. Y.

The party spent about an hour in going through the ceramic department and other departments of the School of Mines. A little while was spent in each room, explanations being made of the purpose of the work done therein. Most of the time was naturally spent in the laboratories, where the American equipment excited the keenest interest of the visitors. Their comment, after having seen the department thoroughly, was most interesting and most unexpected. It seemed to be the concensus of opinion that the facilities for teaching ceramics and the amount of practice given in doing ceramic work were far ahead of what was being done in the German ceramic schools. On the other hand, as a research organization for investigating the technical problems of the industries, the visitors thought that the German ceramic schools had the best of the American school which they had just inspected. The extent and completeness of provision for ceramic teaching seemed to surprise the visitors greatly. Beside the ceramic department, the department of metallurgy and mineralogy, and the handsome library of the School of Mines were shown in this building.

The next buildings visited were the electrical and mechanical laboratories. The party was conducted through these by their respective professors, William T. Magruder and F. C. Caldwell. As darkness was approaching, a hasty visit was paid to Brown Hall and the laboratories of the State Highway Commission of Ohio. The photographic department of the Ohio State University, the department of architecture, and the cement laboratories of the civil engineering department were shown. By this time it was too dark to see further. Automobiles were then taken and the party stopped for a few minutes at Professor Orton's cone factory, which had been kept in operation to an unusually late hour for the visitors to see.

Eight or ten members of the American Ceramic Society later met the visitors at their hotel and spent an agreeable hour with them and escorted them to the train for Chicago.

FLUES AND FIREPLACES.

No branch of the clayworking trade has more room or better opportunities for successful boosting than that branch devoted to fire brick, flue linings and other refractory products in this line. The open fireplace is the real earmark of home, and it is as easy to create a sentiment in favor of the fireplace that will lead to the building of more of them as it is to create sentiment for the home itself. It is simply a matter of persistent and judicious advertising, of playing the boosting game just as the enthusiasts for brick building do it. And, there is not only lots of good argument to create more fireplace and chimney building, but there is equally strong argument for promoting the use of flue lining. The unlined flue may not only crack and let through stray sparks that will cause fire, but it fails to draw as well as the one properly lined. This is a point so well recognized in cities that many of them have restrictions against the erection of flues and chimneys without lining. This fact is as good argument as the flue lining man should need to push his product. And right now is the time to get busy with the boosting game for all this class of clay products.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.



RARITAN BRICKMAKERS are enjoying a full measure of prosperity this season. During the recent advance of brick in New York the New Jersey product shared in the increase and \$6.50 to \$7.00 per thousand was paid, the same as for the Hudson river stock. In truth, Raritan brick have kept pace with the Hudson river stock continuously, and sales have been as liberal as manufacturers wanted most of the year. The entire Raritan district has shared in the prosperity which has been such a marked feature of late, and nearly all makers have felt the impulse of the improvement.

Other New Jersey districts have benefited likewise. Hackensack, for example, has sold fully as many brick as it has made. The total will not go over 60,000,000 this year, it is said, and may fall below that, but as this is written only a few are left in the sheds, and what will probably be the last burnings this year are not yet ready. The weather has been good in the main all summer and work has been done rather easier than it has sometimes, while fewer brick have been spoiled by rains and excessive damp weather. The price has been generally up to the level of New York values, and movement has been in harmony with conditions existing there. Most of the Hackensack manufacturers failed to operate to their full capacity this season, basing their decision upon past experiences. Now they wish they had done it. Sales have been larger and prices have been better than was expected. If the plants had been operated to their capacity the product would have been easily sold at good prices.

Apparently cement and its compounds have not especially harmed the brick business. It is true that the use of cement in its various forms is increasing, faster, perhaps, than brick men realize, though the use of brick is increasing likewise. It may be pointed out, however, that cement people will not have a rose strewn path in the future since brick men are quite determined to see that their product runs a heat which will make the cement men a poor second. More and more the brick men have become aroused to the dangers which confront them and more and they are determined that brick shall become more important in the estimation of builders and the people at large than ever before.

William G. Allbee, a young architect, who has recently gone to Georgia to undertake some important work, said just before leaving:

"Of course it is impossible to say what conditions I shall find where I am going. I am certain, however, that I shall use brick wherever I can. It is my impression, too, that a considerable proportion of the younger architects, if left to their own devices, will invariably specify brick. The failure of cement buildings generally reflects upon the architect and his reputation suffers more or less seriously, depending upon the circumstances of the case. I am going to use brick wherever I can, and along with it terra cotta, fireproofing and such other burned clay products as I can."

It might be added to what is here said that a number of other young architects have expressed practically the same sentiment. If the brick men can obtain and hold the favor of the younger architects there will be no further difficulty about securing recognition for their product.

Donahue & Nolan, Trenton, are turning out about all the red repressed brick their plant will allow. The demand for this type has increased perceptibly of late, and the quality of the product turned out by this firm warrants the liberal patronage it is receiving. Repressed brick of deep red color are in high favor for certain features of decorative work which promises to increase in popularity as more and more is used.

The Bridgeton Brick Company, makers of red repressed brick, are quite confident that Cumberland county builders

are becoming more favorably disposed toward their product. Demand this year, for both local and distant consumption, has exceeded the supply. The handsome color and perfect form have combined to make the product of this firm very popular.

The Trenton Fire Brick Company, New York avenue and Plum street, Trenton, has a good and satisfactorily increasing trade in paving brick. A number of cities in the east have specified brick in their paving contracts this season, and this has naturally resulted in enlarged demand.

The Stegmayer Enameled Brick Company, South Amboy, is enlarging its business in paving brick, though perhaps not as much as might appear desirable, because of the reluctance, hitherto unexplained, of official boards to specify brick in paving contracts. Circumstances sometimes seem to work against brick, without any indication of why.

Newark is fast becoming a city of brick. Many of the new structures now in process of erection are of brick, and most of the new residences are of hollow tile construction, some with brick veneer, some with cement covering. Fire-proofing seems to be increasing in popularity, builders coming slowly to realize the profitable benefits derivable from the use of this perfect resistance to fire. The later and

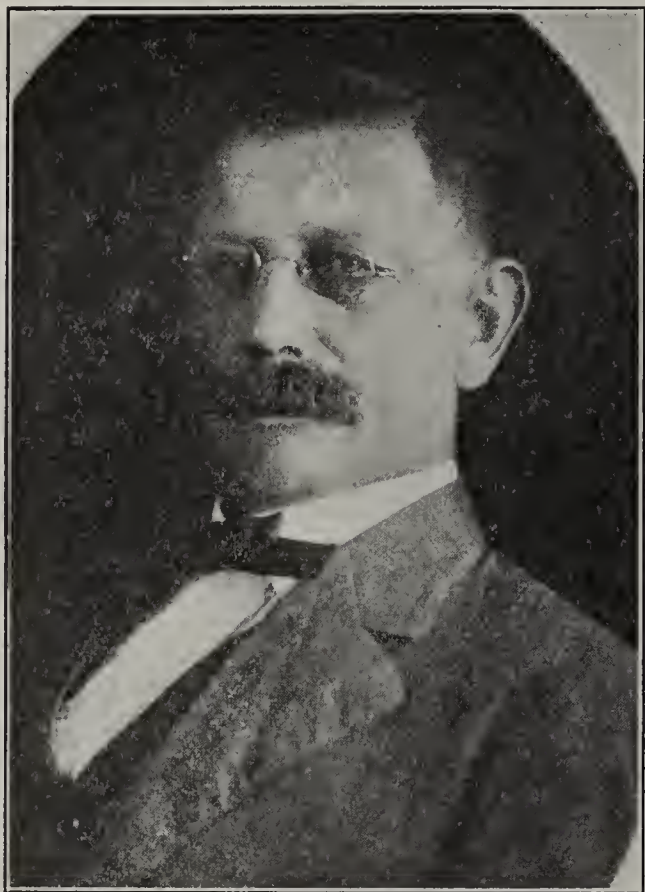
Written for THE CLAY-WORKER.

SALMEN BRICK AND LUMBER COMPANY, SLIDELL, LA.

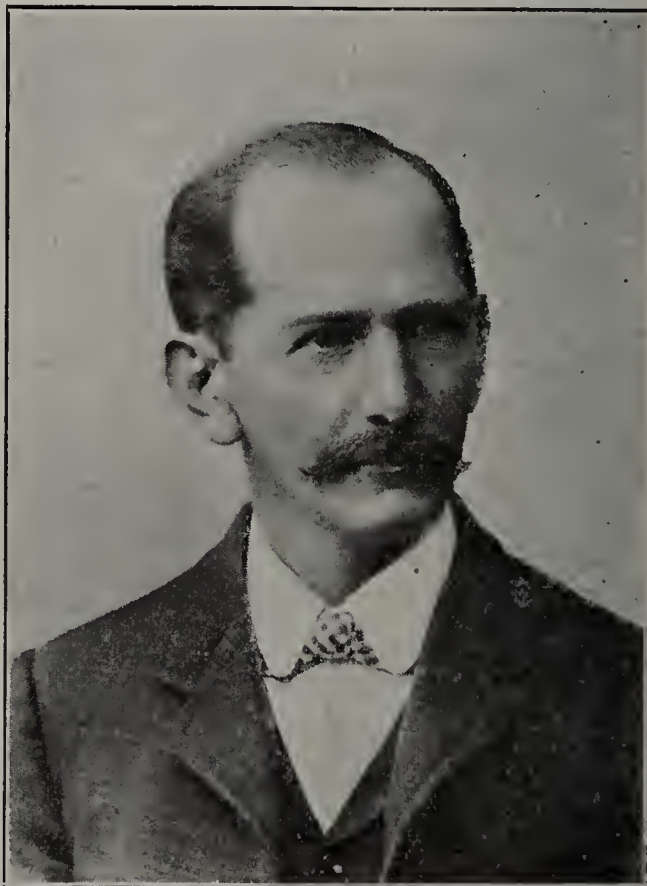
ONE OF THE LARGEST and most interesting brick plants of the South is located at the junction of the New Orleans Great Northern and the New Orleans and Northeastern Railroad, thirty-five miles north of the Crescent City of the South, and is also located at the head of deepwater navigation on a bayou running north from Lake Ponchartrain, giving it the benefit of that great commercial equalizer of transportation, the water rate.

This plant was started some twenty odd years ago by the two brothers, Fritz, who is President and General Manager, and J. A. Salmen, better known as Albert, who is Vice President.

Starting in as a small hand yard when the pugging was done in a pit in which a large wheel, looking like a large cart wheel, revolved, being driven by a mule, they have gradually increased their capacity until today they have equipment enough to manufacture 200,000 common stiff mud and



Fritz Salmen.



J. A. Salmen.

handsome dwellings are substantially all of hollow block construction, and the city gains that much. Safety from fire is the important feature, but appearance goes a long way. Newark builders are developing both ideas.

W. L. Stoddardt, a young but distinguished Newark architect, was entrusted with the erection of a new grammar school in Hackensack to cost \$180,000. He is just completing the building which is unquestionably the last word in grammar school construction in New Jersey. It is 250 front, 150 depth, has four stories and a roof suitable for a play ground. The auditorium holds 1,200 people, the largest hall in the town. The building is of white brick, with stone and terra cotta trim, and is considered by experts one of the handsomest pieces of brick work in New Jersey. Mr. Stoddardt has a number of important buildings to his credit, among which are several hotels scattered through the country. One of them, the Georgia Terrace, Atlanta, is considered one of the handsomest hotels in the United States. He has just begun the construction of another in Atlanta to cost \$500,000. It is notable that a young architect of his achievements makes use of brick wherever he can possibly do so.

40,000 dry press face brick, the dry press end of the business is frequently doubled by running a night shift.

Starting at their pit, which was formerly at the plant but twenty years' excavation has sent it nearly a mile from its origin, they have three separate kinds of clay with which to contend. The top strata, which is about two or three feet thick, is a sandy black loam containing thousands of pieces of roots of old pine trees, which formerly grew on the present site of the pit. Under this loamy strata they have from three to five feet of red sandy clay and under this have from two to four feet of very plastic white clay which is locally known as joint clay, from the fact that it separates the clay contents from the sand. This latter clay is what gives them dryer trouble, and excepting for the fact that it is imperative to use it as a binder the brick would fare far better without it.

This joint clay has caused the various dryer people of the country, together with the owners, many an anxious day's worry, as nearly every dryer man in the country has at some time or other in his career been up against it, and with the exception of that indomitable person, Fritz Salmen,



STEAM SHOVEL NO. 2 AND DIRT LOCOMOTIVE NO. 5



PARTIAL VIEW OF BRICK DRIERS



VIEW OF DOWN-DRAFT KILN UNDER CONSTRUCTION



VIEW BETWEEN UP-DRAFT KILNS AND DRIERS



COMPANY'S COMMISSARY



VIEW OF UP-DRAFT KILNS LOOKING NORTH



HAIGH'S CONTINUOUS KILN UNDER CONSTRUCTION

all have given up the ghost. He, after many soul trying months, finally perfected a dryer, which, considering all things, is one of the most unique in the country, and though the writer has been on many of the larger plants in the country, has never seen one just exactly like it. However, we are getting a little advanced and will go back to the pit again.

The clay is gathered by two shovels, one a revolving Marion and the other an ancient relic picked up from the junk pile.

The cars are partially loaded by one shovel and finished by the other, in that way getting as nearly a uniform mixture as possible. The clay is hauled in cars of their own make, each train being pulled by a Porter "dummy" hauling thirteen cars.

The cars are brought by the "dummy" to the foot of an incline, where they are hauled up to the dump by a Chambers hoist. They are then dumped into a set of Chambers disintegrators, from which the clay is dropped by gravity into two Chambers pug mills and from there by gravity into two large Chambers machines.

They have had nearly every cutter made attached to these machines and have finally decided that the Fate cutter is best adapted to their needs. The brick, which are side cut and about two and three-quarter inches thick, are loaded onto cars, of which there are one-half dozen different makes. Their clay being very tenacious as regards the action of heat in giving off moisture, they are compelled to let the brick remain in the dryer from forty-eight to sixty hours, necessitating an enormous number of cars.

Now we are coming to one of the two vital points of their business, namely, the drying of the bricks. As before stated, they have had everybody's make of dryer on their plant at some time or other. However, "Mr. Fritz," as he is commonly called, got busy and has proved his right to be classed among the winners in the dryer line.

He has invented a dryer which is peculiarly adapted to the use of tender or checking clays.

Instead of discharging the saturated air at the end of the dryer as nearly all dryers do, he has an auxiliary stack built, about one-third of the way back from the receiving end, which takes the hot saturated air away from the cars that have just been placed in the tunnel, thus allowing the brick to stand in a slightly warmed atmosphere in which there is no circulation.

By an auxiliary flue he can close the lower stack damper and force all the hot air out to the receiving end and then convey it back to the stack through a separate flue.

This dryer has really been the salvation of the company, and although they lose thousands of brick during the winter months from defective drying, taken as a whole it is the best by far they have ever tried. The dryer heat is furnished by waste heat and live steam.

This kiln equipment originally consisted of ten large up-draft Morrison kilns, having a capacity of about 800,000 each, which were fired with wood, although at present they have three of them piped for oil, which they have used with great success, lowering the fuel cost, also the labor cost.

They have now under construction a thirty-four Chambers Haigh kiln and have just recently completed a thirty-foot round down draft, built expressly for burning flashed face brick, for which there is a big demand at fair prices in the New Orleans market.

Their clay is probably the highest burning surface clay in the country, finishing up at cone twenty. It is very treacherous stuff to handle, having probably the lowest range of any in the country, a variation of three cones between its burning point and fusion.

It is high in free silica and makes an excellent fire brick when there are no sudden variations in temperature.

The brick swell in burning and the harder they are burnt the larger they are, up to the point of viscosity, when they melt very rapidly.

The writer recently saw some of the brick which had been burnt in their round down draft kilns, under a heavy reducing fire, and the color effect was beautiful, indeed. The brick must be cooled very slowly, otherwise they will fall to pieces on being handled.

The kilns are arranged with a loading track on each side, one for the rail shipments and the other for small crates holding from five hundred to one thousand each. The crate is loaded on top of a four-wheeled truck, which is wheeled out on a transfer car. This car is hauled by mule power to a derrick, when the crate is picked up off the truck and set on a barge alongside the loading wharf. The barges hold from one hundred to two hundred thousand brick on crates and are towed by the company's steamer into New Orleans or other places.

In New Orleans this company has four unloading docks, where the crates are picked up off the barges and loaded onto trailers, which are hauled by auto trucks to their destination.

In connection with its brick business, the company operates a half dozen saw mills, cordwood mills, shingle and lath mills, planing mills, etc., and have recently refused an offer of one million dollars for the sale of its combined brick and lumber interest.

They own fifty logging cars of standard gauge, a dozen flats, three main line locomotives and one switching and two logging locomotives. Most of this timber is gotten about thirty miles up on the New Orleans and Great Northern Railroad. They have a dozen high-powered motor boats, three steamboats and about a dozen barges.

Their New Orleans office is under the management of Harry Michel, one of the livest wires in the South. Unfortunately, Mr. Fritz Salmen, the guiding genius of this organization at the zenith of his power, has suffered a nervous collapse and is now with his wife and daughter recuperating at the lake resorts in northern New York.

A word in conclusion about their dry press outfit which we have overlooked. The clay is hauled up in the same cars which supply the stiff mud machines and is dumped on an elevated trestle, where it is shoveled into barrows and wheeled to a conveyor. The waste from the dryer (dry mud bats), is dumped near this conveyor and is mixed with the pit clay and conveyed up to a Chambers dry pan, where it is ground up and elevated to two inclined stationary screens. The fine clay is conveyed by gravity to a mixer, where the temperature is kept uniform by a revolving rake, and from there down to a four-mold Boyd and a four-mold Simpson dry press. Here the brick are loaded on cars and taken into the kilns.

Mr. Albert Salmen, who is at present in charge, is always glad to welcome visiting brickmakers. Assisting Mr. Albert Salmen is his young nephew, Mr. Fred Salmen, son of Mr. Fritz Salmen. "St. LOUISIANA."

Employment Bureau for Lippe Brickmakers.—The government in Germany has made an experiment with an employment bureau and has taken the brickmakers of Lippe as being the ones most in need of employment. In Lippe there are 139,000 inhabitants, and of this number over 16,000 are brickmakers or brick yard men who seek employment in other sections of the empire of foreign countries in the summer months. This new method will be placed in operation for next year, and with the government assistance it is to be hoped that the brickmakers will derive much benefit, as heretofore the employment bureau agents and others have been getting a large rakeoff of the money that these people earned while being away from home.—Tonind. Z. No. 78, 1912.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



THE GENERAL topic of conversation in Kansas City for the past couple of weeks has been the collapse of the new Alameda Hotel, at Tenth and the Passo. This was a five-story building of reinforced concrete construction and faced with brick, and it is generally admitted by those connected with the work that the concrete must have been too green when the false work was removed. The work of moving the wooden forms was in progress on the fifth floor when the roof caved in, and then the fifth floor gave away and the whole mass fell through to the bottom and carried large portions of the side walls with it. Some have been inclined to question the quality of the cement used, while others express the belief that there was not enough care taken in making the mixture, but the most satisfactory explanation is the fact that the concrete did not dry as rapidly as was expected and the forms were removed too quickly. The cool weather probably retarded the drying progress very much. This collapse of a \$100,000 building has again called public attention in this city to the fact that concrete is a very unreliable building material, and while it may be excellent when it is worked exactly right there is so many chances for slighting the work, in spite of the closest supervision, that any building made of that material is likely to have its weak points. It is apparent to any reasonable person that a building material which can be weakened even by the common laborer who assists in mixing it, even if the contractor is honest in his desire to make the proper mixture and his foremen may be doing their best to carry out his instructions, that it is an unsafe material to use. Builders can provide against the dishonesty of the contractor or his foremen to a certain extent, by putting them under bond, but when even the cheapest man on the job has the power to weaken the material by not doing his work properly it is pretty hard to fix the blame for disaster when it comes. Even being able to fix the blame does not help put the building back in condition again unless the owner has the contractor under bond and fixes the blame on him. The owner of this building made the statement that in case he was forced to stand the loss it would cost him practically all he had accumulated in his life, and it is evident that he would have been much better off if he had depended upon a more reliable building material.

At the present time there is plenty of business in Kansas City for all building contractors and labor of all kinds is in big demand. These conditions are expected to continue at least until the first of the year, and with the amount of building now on hand it is evident that a great many jobs will be enclosed and then work will progress on the interior throughout the winter months. There is a strong demand for brick, in fact strong enough to cause an advance of 25c in the cost, and there is every prospect of another advance within the next couple of weeks. This is enough to give a good profit to the local manufacturer, and helps out the Kansas manufacturer to a considerable extent.

There are now only seven brick yards left in operation in the Kansas gas belt, and one of these is burning oil as a fuel. The others are using gas, either making use of their own wells or buying under contracts of various kinds which prevent the price being advanced on them. With but seven yards producing common brick it is evident that there will not be the chance for clogging the market the coming winter that has been the case in the past seasons.

All the Kansas City yards have been shut off from the use of gas at the special price to manufacturers, and would be compelled to pay the regular price of 27 cents per

thousand feet, which of course forces them to use other fuel. They are turning to coal.

The Lyle Brick Company, which is already operating two yards in this city, is planning the establishment of a third yard, this one to go in the Rosedale neighborhood. He has always been able to sell all the brick that he could make, and working a brick yard in connection with a stone crusher he takes the stone off the ground first and then works up the shale which lies under it and is of good quality.

The Fidelity Material Company reports the sale of 75,000 Cleveland reds for face brick on a large warehouse being constructed in the West Bottoms. They have also landed the brick contract for another 8,000 yards of pavement in Warrensburg, Mo. Mr. Jacoby, manager of this company, is now deep in the political game, as he is a candidate for sheriff of the county on the Republican ticket, and seems to stand a good chance for election, as the Progressive candidate for that office was formerly a Democrat, and this is expected to cause more of a division of the Democratic than of the Republican vote. The county has been Democratic by about 3,000, so if Mr. Jacoby wins it will be quite a victory.

The Eadle Building Supply Company reports about all the business on hand that could be handled, and a bright looking future ahead. They have been giving most of their attention to face brick this fall and landed some nice business thereon.

The Corsicana Brick Company has been incorporated in Corsicana, Texas, with a capital stock of \$50,000, by C. A. Benton, Cal E. Kerr and Richard Mayes.

The Okiahoma Press Brick Company has been organized in Kiowa, Okla., with the following officers: C. W. Crum, president; T. B. Edwards, vice-president; J. W. Culberson, secretary; H. B. Rowley, treasurer; J. F. Waymeir, general manager.

The Coffeyville Shale Brick Company, of Coffeyville, Kas., has installed an oil burning system in its entire plant.

J. L. Hurst, of Houston, Texas, contemplates the establishment of a brick plant in Tampico, Mex.

The Arkansas Brick Manufacturing Company, of Little Rock, Ark., has increased its capital stock from \$100,000 to \$150,000, and will use the additional capital in purchasing new equipment.

K. A. W.

MADERO RECLAIMS IN MEXICO.

In order to provide arable lands for division among the people, one of the chief planks of Madero's revolutionary platform contemplates the drainage and filling in of the great bed of Lake Texcoco, some two and one-half miles east of the capital. The work, it is estimated, will require five years and an expenditure of \$2,000,000 in gold.

Thousands of acres of waste land, now partly covered with water to the depth of two feet, and the remainder either useless swamps or dry, sandy stretches, the latter giving rise to the frequent dust-storms which sweep the capital in the dry season; are to be reclaimed. This land, according to plans which are being worked out, is to be placed on sale to individual Mexicans at the lowest possible figure and on long-term payments.

Lake Texcoco is the last remnant of the once mighty body of water which covered the plateau and completely surrounded the ancient city of Nenoehitlan, now the capital of the republic. Legend has it that somewhere in its depths the treasure of Montezuma was sunk to prevent its falling into the hands of Hernando Cortez. It has been searched for in vain during the hundreds of years since the conquest, and it is regarded as possible, though hardly probable, that it will come to light in the conversion of this lake bed.



English Ceramic Society in Berlin.—In order to study the pottery industry of Germany in detail 27 members of the English Ceramic Society, under guidance of their president, Mr. C. W. Thomas, and their secretary, Dr. J. M. Mellor, visited Berlin for three days. They were welcomed by the members of the Tonindustrie Zeitung, and the management of the Royal Poreclain Manufactory. They visited all factories in connection with the pottery industry, and were highly elated over their visit.—Keramische Rundschau No. 28, 1912.

Three Cornered Continuous Kiln.—In the brickyard of Dr. Wahlen, in Porz, near Cologne, we find a continuous kiln which has been built with three corners. In this kiln two chambers are burnt at the same time, and the daily burning



Plan of Three Cornered Continuous Kiln.

capacity is 60,000 brick. The total length of the burning tunnel is 785 feet, and it is 9 feet and 4 inches wide and 8 feet 4 inches high.—Tonwaren fabrikant No. 15, 1912.

Sunday Work in German Factories.—The permission granted by the German government for Sunday operations of factories has increased in 1911 from 461 to 2,102 cases, and of the employes from 65,264 to 71,955. This increase has been in direct connection with the better condition of the German manufacturer, and the greater amount of business done by them.—Sprechsaal No. 28, 1912.

Porous Roofing Tiles.—In a very interesting article Mr. E. Cramer treats the subject of the porosity of roofing tiles, and the question as to whether porous roofing tiles have a lower value on that account. He takes first in account the material of which tiles are manufactured and the amount of heat that is necessary as to the handling of the tiles after they are delivered on the job, and what happens to a roof if it is not water tight after the tiles are put on. In conclusion he comes to the answer that all roofs which will show some porosity in the spring, will be tight after they are exposed to the action of the summer weather, and he further comes to the conclusion that all roofing tiles

which have been treated with some artificial means in order to make them tight are inferior to such tiles which have not been treated in that way.—Tonind. Z. No. 96, 1912.

Mouthpiece of Brick Machine.—Much trouble has been experienced with solid mouthpieces on brick machines. They are hard to clean, and in case something goes wrong they are hard to take apart. The newer brick machines all have, therefore, mouthpieces which either swing on pins, or are so constructed that they can be opened without the necessity of taking the whole machine apart.—Tonind. Z. No. 90, 1912.

Safety Appliance for Dump Cars.—There is often much trouble regarding the dumping cars, as they will tip over in case they are loaded too heavy. In order to overcome this trouble the German Brickmakers' Association has distributed among its members an appliance to be used in this connec-

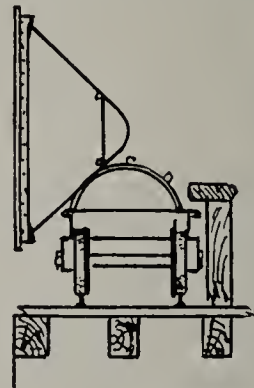


FIG 1

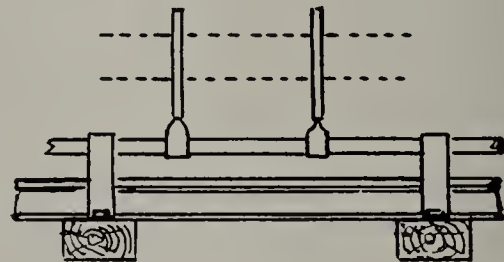
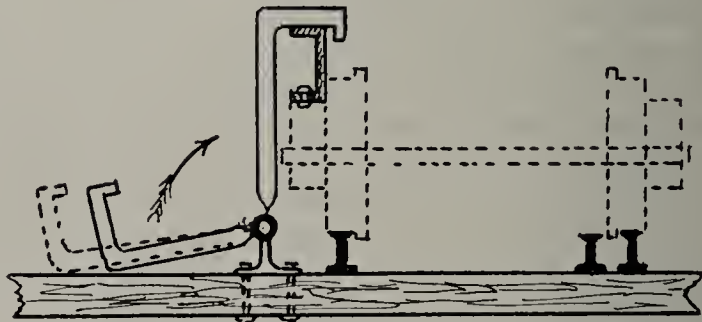


FIG 2

tion, and which will overcome this trouble entirely. The cut herewith shown is self-explanatory.—Keramische Rundschau No. 27, 1912.

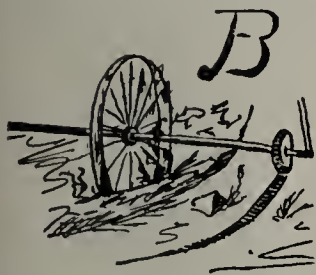
The Brick Industry of Norway.—The last few seasons the brick industry has not been very brisk, but this summer the brick business is much better. The brick company at Sandnes shipped 333,000 brick to Frederickstad, and 600,000 brick to Kristianasand. These brick are all shipped by steamer, and it took nearly two days to load the brick for Frederickstad.—Lerindustrien No. 16, 1912.

English Brickmakers Visit to Sweden.—The English Association of Brickmakers made a study and pleasure trip to the Sweden brick yards. They left London on June 29th and arrived at Gotenberg on July 1. They visited all the important brick yards in Sweden. They stopped at Halsingburg, Minnesberg, Trelleberg, Stockholm and other places. The return trip started on July 13, so that they had fully

two weeks of sightseeing, and the interchange of ideas and observations during this trip was appreciated by all English brickmakers who made the trip.—*Lerindustrien* No. 14, 1912.

Written for THE CLAY-WORKER.

CLEVELAND BRICK NEWS.



BUILDING CONTRACTORS and brick dealers in Cleveland have never before been so busy as during the past month or two. Every contractor is filled up with all the work he can do. Brick dealers in this territory are having considerable difficulty in making deliveries of stock,

owing to the heavy demand made upon them. Both brick manufacturers and contractors are suffering from lack of help. The labor market in this territory is in bad shape just now, as there is far more work to be done than there are people to do it. With mild weather continuing for several months, building will be active well into the middle of the winter.

Indications point to this being a banner year in building in Cleveland. This will prove true not only as to the number of buildings erected but as to their value. The present year has seen a great increase in the number of fireproof buildings. This, of course, has helped the brick business considerably, as there has been a very decided increase in the amount of tile and fireproofing material which has been used.

Agents for brick companies have had some difficulty in securing shipments of brick for their clients here. In some of the brick departments orders have been piling up for several weeks and contractors find it difficult to get as much brick as they require for their operations. It is hoped that this condition will be relieved before the end of the season. It is due somewhat to the very cold weather experienced last winter, which prevented many of the plants from laying up as large a surplus of brick as is generally required.

Despite the lateness of the season a number of new projects have been announced during the past month. One of these is a handsome fourteen-story white tile office building to be erected for the Cleveland Illuminating Company on the south side of the Public Square. The building will be erected by a newly incorporated concern known as The Power and Light Company. The Wick block, containing the old Lyceum Theater, has been acquired by the Illuminating Company, and the building will be torn down. It has a frontage of 80 feet on the Public Square and a depth of 147 feet. The new building will occupy the entire site, except that from the third story up there will be a 20-foot space left on the east side for a light court. The building will be of brick and stone and will cost approximately \$800,000. There will be 125,000 square feet of floor space. Actual building operations on the new building will begin early next spring.

Adjoining this site is the Old Stone Church, a Presbyterian edifice which has occupied the property for 75 or 80 years. There is a plan on to use this land as the site of a modern institutional church, the first floor to be utilized for church purposes, with offices above to a height of fourteen stories. Above the church would be the pastor's study and Sunday school room, together with institutional features, while above those would be space which could be rented for office purposes. The building will be made the headquarters of church and charitable societies now scattered throughout the city. It is hoped that the plan will be worked out so that the building will be proceeded with this year.

Cleveland already has a magnificent office building occupied by the Brotherhood of Locomotive Engineers. The Brotherhood of Railroad Trainmen have purchased a site on lower

Superior avenue, and next spring will begin the erection of a new office building, probably twelve or fourteen stories in height.

During the past month the City Council passed ordinances providing for the issuance of bonds to the sum of \$1,540,000. Of this amount \$500,000 will be used to cover the city's share of paving and sewer work. The sum of \$25,000 will be used for additional buildings at the boys' farm at Hudson, Ohio. A new workhouse building will cost \$180,000, and additions to the tuberculosis sanitarium will cost \$175,000. Out of the sum of \$125,000 for fire department improvements there will be built two new brick fire houses. Other minor improvements will be made from out of this large amount.

The public library board of Cleveland, which was authorized several months ago to issue \$2,000,000 in bonds for the new public library building in Cleveland, will meet early in November for the purpose of authorizing the issue. Under a provision in the State constitution adopted at a recent election, municipal bonds of all sorts issued after January 1 next will be taxed in Ohio. The library board is eager to have the bonds issued and proceed with its work at once. The new library will be an imposing structure on the site of the present city hall, and large quantities of brick and fireproofing material will be used in it. No architect for the library has as yet been selected.

Seven public school buildings are now under construction in Cleveland and five new ones are proposed, work to begin early next spring. The seven buildings now being built include a fourteen-room building, costing \$30,000, on Miles avenue; a twelve-room building, costing \$85,000 on Union avenue; a twelve-room building, costing \$80,000, on Memphis avenue; a twelve-room building, costing \$80,000, on South Brooklyn avenue; an eight-room building, costing \$65,000, on Warren road, and a nineteen-room building, costing \$125,000, in the Hay Market district. Another new building is to be erected at Hough avenue and East Seventy-ninth street, and one near east Forty-sixth street and Scovill avenue, and a third at Chesterfield avenue and east One Hundred and Twenty-third street. All the new buildings are to be fireproof, of red or gray shale brick, with stone trimmings. All will have auditoriums and gymnasiums.

Cleveland will erect five new underground public comfort stations during the course of next year. Definite plans for the erection of two of these, costing \$50,000, have already been worked out. The buildings are to be planned by W. S. Lougee, superintendent of construction. The buildings will be thoroughly sanitary with white tile walls throughout.

A handsome new church of oriental brick, with white stone trimmings, seating about 700 people, has just been opened by the Boulevard Presbyterian congregation at Superior avenue and East Boulevard. The new structure cost about \$75,000, and is one of the most attractive buildings, architecturally, in Cleveland.

A theater of strictly modern design will be built on the property located 300 feet west of East Fifty-fifth street on Euclid avenue, almost opposite the Euclid-Penn Theater, by the Euclid-Fifty-fifth Street Company. The building will be three stories, of brick, concrete and steel, and in addition to having three store rooms on the ground floor, with offices above, will have an auditorium seating 1,500 people.

Badgley & Nicholas, Cleveland architects, have been commissioned to draw plans for a \$150,000 church edifice to be erected in Montreal, Canada. It will be of brick and stone structure and one of the finest in that city.

Forty men connected with the sales and office force of the Cleveland Builders' Supply Company were the guests of the Robinson Clay Product Company, Akron, during the past month. A special car on the A. B. C. line conveyed the building company officials to Akron, where a boat was taken

on the canal to a park, where dinner was served and entertainment provided.

Contracts have been awarded for the new Miles Theater building, to be erected adjoining the Pythian Temple on Huron road, which will have an auditorium seating about 2,000 people. It will be ready for occupancy early in 1913.

A four-story brick and steel building, 100x100 feet in depth, is to be erected for the Gilkey Printing Company at West Ninth street and Main avenue. It was designed by Architect E. F. Gibbons, and will be erected by Andrew Doll & Son.

BUCKEYE.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



BUILDING OPERATIONS on the coast, while showing some tendency to fall off on account of the lateness of the season, are still being carried out on a large scale, and the activity promises to hold up fairly well until the holidays at least. The market for common brick is not so good as a month ago, naturally, but there has been no change in the regular price of \$7.50 a thousand. The stock of material accumulated by the various manufacturers is rather large, and some concerns are now reducing their output, yet the situation is considerably better than a year ago. The activity among the vitrified sewer pipe manufacturers continues brisk, and were it not for the close prices this branch of the clay products industry would be in the best shape it has ever been. The pressed brick makers are having a constantly enlarging market to supply, and the outlook for this department is very bright. The terra cotta people, also, are coming in for more business on account of the ever growing popularity of terra cotta building materials. The one general complaint in the trade is that of prices. Competition is very keen, and it appears to be impossible to command prices which the cost of manufacture warrant.

Nat Ellery, manager of the Brick Builders' Bureau of Publicity, has just issued the first regular literature of the bureau. This is a booklet in which is published an article entitled, "The Use of Material in Construction," by Mr. Ellery, and which was printed in the September number of the "Architects' and Engineers' Magazine." The arguments in this article appear to be conclusive and undoubtedly will do much to stimulate interest in clay products as the most efficient and economic materials for modern construction work of various classes. Mr. Ellery reports that the city authorities have not come to any definite decision in regard to the materials which will be specified for the construction of the street tunnels here, but that in the case of the Stockton street tunnel an alternative design calling for arch ring lining of brick has been submitted for consideration. The bureau asks that the brick contractors have the opportunity to figure on such work. Given this chance, they have nothing to fear of other construction methods in the matter of cost estimates.

The annual exposition in which the League of California Municipalities is greatly interested, the Public Welfare Exposition, was held this year on the campus of the University of California, in Berkeley, September 23 to 28, inclusive. The interest shown by the public in this event was most reassuring and indicates a hopeful awakening of interest in matters of civic improvements, pure food propaganda and modern building methods. Perhaps the most effective displays at the exposition were those of building materials, notably clay products exhibits. N. Clark & Sons had a characteristic exhibit of their high class building materials admirably arranged, and Gladding, McBean & Co. also were represented

by a fine exhibit. The Steiger Terra Cotta and Pottery Works, which concern devoted unusual attention to its display, deserves special mention for its enterprises at the exposition. This company had a large booth, the columns of which were of sewer pipe and the cross pieces of branch pipe. The spaces between the columns was filled in with pressed brick and the walls were capped with samples of the different coping materials made by the company. Acid ware, one of the concern's specialties, was interspersed here and there to give a unique appearance, and two name plates of terra cotta and the trade mark in terra cotta were the only features to designate the identity of the exhibitors. Acid ware vases inside the booth held beautiful bouquets of flowers, and one handsome jar was used to hold lemonade for guests. All firms represented in the trade were commended most highly for the splendid showing made of California made building materials.

The Carquinez Brick and Tile Company has not yet got in shape to make the new face brick which it has planned to put on the market, but work on the new kiln is progressing satisfactorily and it will be ready for use in the near future. This company has had a good business all summer, but now it has shut down one kiln for the winter.

C. K. Hallaway, general manager and president of the Livermore Fire Brick Company, announces that in spite of the increased capacity of their plant the firm is fifteen carloads of brick behind on their order from the Southern Pacific railroad. This company is still experimenting on the face brick and has recently shipped some very attractive material in this line.

There is about eighty miles of sewer work at present going on in the cities across the bay, thirty-five miles of which is in the vicinity of Richmond. At San Jose, Cal., there is about twenty miles of work in the course of construction. The contracts for supplying vitrified pipe for this work is shared largely by the Steiger Terra Cotta and Pottery Works, Gladding, McBean & Co., N. Clark & Sons, the Pacific Coast Pottery Company and the California Pottery Company.

The new dining room and kitchen for the State prison at San Quentin is now ready for a special lining of white ivory enameled pressed brick manufactured by the Los Angeles Pressed Brick Company. The United Materials Company has the contract for supplying this brick, and the amount of stock needed will be about 800,000 brick.

The Antioch Pottery Company, which is now making partition tile, is enjoying a very good business in the new line. W. F. Barnes is the manager of this company.

F. L. Prichard, manager of the California Pottery Works, with general offices at 836 Phelan Building, San Francisco, has just returned from an inspection trip to Valley Spring, in Calaveras county, where the company has valuable plastic clay deposits. This company is putting up a large three-story building at their Oakland plant, which building will be for pipe drying. Within the next year the company expects to have their plant equipped with ten kilns and to extend the scope of their business accordingly.

The contract for erecting the Central school and administration building, between South Sixth and Seventh streets, Tacoma, Wash., has been awarded to the F. H. Goss Brick Company, of Tacoma.

The Los Angeles Pressed Brick Company is now using big auto trucks for delivering brick from its plant at Richmond, Cal. This company has also just purchased the Lore Mining Company property, near Silver Lake, on the Tonopah & Tidewater railroad. Clay will be shipped to Los Angeles.

SUNSET.

San Francisco, October 5.

It is better to borrow money to buy new machines than it is to lose money operating old ones.



VALIDITY OF DRAINAGE DISTRICT PROCEEDING.

Improvement proceedings by the board of supervisors of a Nebraska drainage district were not illegal because part of the members owned land in the district. (Nebraska Supreme Court, Nemaha Valley Drainage District No. 2 vs. Marconnit, 134 Northwestern Reporter 177.)

HOLLOW BLOCK SILOS BEST FOR KANSAS.

A correspondent of "Successful Farming," writing from Kansas in regard to stave silos in that dry country, says:

"Several of the stave silos in this section have blown down since they were emptied. This is a reminder that they will not stand on our Western plains as they will in the East. The writer knows of a number that have stood for years and are still in good shape but they were built against the north ends of barns. If they cannot be so built the Western farmer had better double the guy wires that come with them and be sure to have on a good strong roof; the roof helps wonderfully in holding the silo together."

ARTIFICIAL DRAINAGE AND FLOODS.

"Little drops of water,
Little grains of sand
Make the mighty ocean
And the pleasant land."

And now they are attributing the increasing volume of the annual floods of the lower Mississippi river to the thousands of little farm drainage enterprises of the northern States. The increased volume of the floods is not found to be due to any material increase in rainfall, but to the artificial conditions which gather the waters quickly from the land and hasten their flow into the streams tributary to the Mississippi.

Before the lands were improved and brought into cultivation the waters were held in storage by forests, slough grass and natural obstructions to the flow, but now so many obstructions have been and are being removed that the waters are rushed from the land into the rivers within a short time.

The Deep Waterways Commission, in its recent meeting in Chicago, advocated some system of flood control whereby the excessive flood waters of the upper Mississippi valley could be held back in reservoirs. This would prevent the destructive floods of the lower river, it is claimed, and would provide a more regular flow that could be utilized both for power and to improve navigation.

They do not ask as a remedy for the destructive floods the discontinuance of drainage of the northern low lands but the construction of sufficient reservoirs to hold and control the waters of the spring freshets near their course.

The damage caused by the 1912 flood was \$200,000,000—according to estimates that have been circulated broadcast. This sum shows the necessity of immediate action to better conditions. This sum, the loss of one year, would, if judiciously expended, go far towards preventing the recurrence of such floods—not only for one season but for many years to come.

DRAINAGE DISTRICTS.

Reclamation of wet land is being pushed in many States. Recent special advance information bulletins issued by the Central States Contract Reporter gives detailed information of work to be done and contracts to be let in four counties in Minnesota, three in Arkansas, two in Illinois, one in Indiana, one in Ohio, and one in Missouri. Bids will in some instances be received sealed and some at public auction.

One letting in Missouri is for all open work and is divided into six sections, with a total excavation of 914,449.8 cubic yards excavation.

One letting in Arkansas embraces two canals with a total excavation of 1,792,000 cubic yards and two levees of 1,169,000 cubic yards.

In Minnesota one letting includes both open ditch work and the furnishing and laying of tile, salt glazed tile being specified. The sizes ranging from 6-inch to 26-inch. Average depths at which the tile are to be laid run from 4.6 feet to 8 feet with a maximum depth of 9.3 feet.

The various contracts include the clearing of the right of way, construction of bridges and retaining walls, culverts, etc.

LOWER MISSISSIPPI SWAMP LANDS.

The development of wet lands along the lower Mississippi river is yet in its infancy. Louisiana, Mississippi, Arkansas, Tennessee, Kentucky, southeastern Missouri and southern Illinois each have large tracts of rich alluvial lands subject to overflow.

Millions of dollars have already been expended in bringing about this desired improvement. Millions more will be required for the construction of levees to protect from overflow and the elaborate system of drainage canals, ditches and tiling required before the work is finally completed and the lands made ready for sure and safe cultivation.

This work is so extensive as to require the co-operation of the United States, the States interested and the individual land owner.

President Taft has signed the bill appropriating money for the levees. The bill passed the House of Representatives by a unanimous vote, and this fact is the very best evidence that Congress recognizes its obligation to protect from overflow the people living along the lower river.

The region of the lower Mississippi has a long growing season, permitting the raising of two to three or four crops a year on the same land, and where outdoor life may be spent the year round. The abundant annual rainfall of about 55 inches, well distributed throughout the year, gives assurance of bountiful crops.

One writer calls this the land of alfalfa, corn, oats, cowpeas, fruit, cabbage, cotton, vegetables, hogs, cattle, horses and sheep.

Stephen Henry, of Melrose, Louisiana, won the Department of Agriculture's grand prize by raising 139.45 bushels of corn to the acre, costing him but 13.6 cents per bushel to do so.

After the corn is off it can be followed by a crop of oats or clover, or the ground can be prepared and put in shape for winter vegetables that pay big returns in the Northern markets.

Many of the farmers in this section are now raising from 60 to 70 bushels of corn per acre and do not consider this an extraordinary yield whatsoever.

When drained and placed under sanitary conditions there is no reason why this region may not be beautiful and make good homes for farmers who may reap rich rewards from one of the richest agricultural sections of the world.

These lands have the benefits of transportation facilities

on the rivers and are traversed by railroads already in operation.

We clip the following from "The Gulf States Farmer," an excerpt from the splendid article, "The Untold Treasures of Louisiana," by Garnault Agassiz, in February National Magazine:

"To the nation at large, too, Louisiana has been, until very recently, a State of malarial swamps, with New Orleans, Shreveport, Baton Rouge, and a few other important commercial centers, her only oases, and only now are men beginning to appreciate the fact that she is a land of terraced hill and undulating valley, noble forests, fertile prairies—a land with an ever-changing landscape in a thousand moods. True, she has swamps, eleven million acres of them, or nearly one-third of the total area of the State. But these swamps, for centuries things anathema, accursed, she now regards as her greatest heritage. For Louisiana's swamps, for the most part, are not swamps in the generally accepted sense of the term, but rich alluvial and prairie lands, inundated by the overflow of the State's many fine waterways, and readily susceptible to economical reclamation. And even her cypress swamps, valueless up to ten years ago, are now numbered among Louisiana's untold treasures."

Written for THE CLAY-WORKER.

MILWAUKEE AND WISCONSIN BRICK NEWS.



PROOF OF THE assertion that this has been a record breaking year for Milwaukee from the standpoint of building, it is stated at the office of the building inspector that the total building operations for 1911 up to October 1 were almost as great as for the entire year of 1911. Figures presented by the inspector show that during the first nine months of the present year building operations amounted to \$11,865,319, an increase of \$2,420,440 over the corresponding period in 1911, when the amount was \$9,444,787. During the month of September, building permits were issued for 107 buildings, representing an investment of \$245,273.

Among the larger structures for which Building Inspector W. H. Harper has granted permits during the past few weeks, is a \$10,000 foundry which the National Brake and Electric Company will erect on Cambridge avenue, south of Bellevue place. Brick will be utilized in this building. Many permits for smaller buildings are being issued in Milwaukee at the present time, showing that building operations for this class of buildings is greatly on the increase. A record number of flats, residences and apartment houses are going up this season and jobbers in building material say that the use of brick in this is showing a decided increase. Prosperity has been more generally experienced in Milwaukee this year than at any time since the panic of 1907, due largely to the fact that industrial conditions all over the country have allowed the big heavy machinery manufacturing concerns in this city to operate very nearly to the capacity mark. Confidence has been more widespread, money has been more plentiful and people in general have felt more free to go ahead with long delayed building operations.

Jobbers say that retailers about the State are buying more freely of brick and general building material than they have in several seasons. Crops in Wisconsin were never better than they have been this year and it is only natural that building is being carried on more extensively all over the State. A record-breaking grain crop was harvested and now a tremendous corn crop is being cut. It is always a foregone conclusion that when crops are good in Wisconsin general business will be satisfactory.

Brick plants all over the State have been in busy opera-

tion since early last spring and as yet there are no signs of curtailing the output. Some delay was experienced at various plants during August because of the extensive rains, which made it especially hard for the concerns operating open yards. All the concerns are now endeavoring to catch up on back orders and at the same time meet the demands of the fall building trade.

The labor shortage is still causing no end of trouble to Wisconsin manufacturers and even to retailers. General business has shown such decided improvement and the bumper crops have demanded more than the usual quota of laborers that men are exceedingly scarce for any kind of work.

There was an especially interesting and extensive display of clay wares and general building material at the Wisconsin State Fair, which was held in Milwaukee, September 10 to 14. The use of hollow clay blocks for silo erection was emphasized in most of the exhibits. Wisconsin is the leading dairy State in the Union and the use of silos has become statewide. Manufacturers of the hollow clay silo blocks believe that they have something which is far superior to the ordinary stave or concrete silos and they are determined to push their goods in Wisconsin from now on. The exhibits of drainage tile at the State Fair was larger than usual this year. Extensive rains were received all over Wisconsin during the summer and jobbers, manufacturers and retailers made the most of their opportunities to push the sales of tile.

Indications are that brick will be the only material used in paving the streets of Grand Rapids, Wis., this season. Mayor Joseph A. Cohen recently made a trip to Fond du Lac and Sheboygan to look over the paving in those cities, and in both cities he learned that brick paving has given the best of satisfaction and has demonstrated that it is practically indestructible. Engineers in both the Wisconsin cities told Mayor Cohen that brick is the most economical material to use on streets where there is heavy traffic, as it outwears all other paving material. Many citizens of Grand Rapids have expressed the wish that the common council could start in right and use brick, even if it does cost a little more on the start. Considerable paving will be done in Grand Rapids this season.

Examples of unsatisfactory asphalt paving done in Milwaukee last season by the Socialist administration are still coming to light and indications are that while the Socialists undoubtedly saved money in the cost of laying, it is going to cost the city a big sum of money by the time the work is all repaired.

"There are four blocks on North avenue, paved last fall by the last administration, which will have to be wholly torn up and relaid," said Fred G. Simmons, Milwaukee Commissioner of Public Works. "The worst blocks are probably between Thirty-fifth and Thirty-sixth streets, but the whole four blocks will have to be relaid. The expense will, of course, fall upon the city. Much of the paving has 'buckled up,' or has cracked and is breaking up."

A. BADGER.

NEW ROAD MATERIALS.

The New York street paving authorities spend most of their time and a good deal of money experimenting with unknown paving materials and persistently ignore brick, which would solve most of their problems in a twinkling.

Their latest experiments are with what is known as Durax. It consists of granite cut in cubes 3x3 inches, laid with lines at right angles with the traffic. It has been much used in Europe, where it has given general satisfaction, it is said. After experiments there it is reported as durable, noiseless and of comparatively low cost. The New York authorities are laying a trial stretch on lower Second avenue,

where traffic conditions are pretty severe. If it is durable there, it would be almost anywhere in America.

In making wood paving short leaf pine is being used in place of long leaf, which is becoming scarce. It would not particularly detract from the value of paving if all kinds of pine were forgotten, or thrown into the discard. The pavement is not at all satisfactory, as has been demonstrated again and again under heavy traffic conditions.

Written for THE CLAY-WORKER.

AMONG PHILADELPHIA BRICKMAKERS.



BRICK MANUFACTURERS of this State have been compelled to apply to the Inasmuch Mission in Philadelphia for unskilled labor. Most of these manufacturers claim that unless they can get labor, and get it quickly, the situation will become as serious as it now is in Russia, where practically all building operations have been halted. The revival

of all trades this fall seems to have accelerated all the big building operations in and around Philadelphia, and unless men respond to the advertisements which have been inserted in nearly all the State papers, the brick supply will be cut off. The Inasmuch Mission gave out a statement to the effect that it could supply only a few score men to the brick industry, as they have been booked up with the leading iron and steel industries of Pennsylvania to supply all the men available.

Edward Stokes, 1208 Harrison building, has received the contract for the sewer pipe for the city of Beverly, N. J. This is one of the biggest contracts let in New Jersey this season. Mr. Stokes is back at his desk again after an absence of several weeks, during which time he made a trip through the Southern States.

The Eastern Brick Company, Philadelphia, has a contract to supply between 65,000 and 75,000 to the city of Roxborough, Pa., and a contract for 80 squares Spanish Detroit roofing tile for the Michaelson apartment house, in Germantown. John Kelly is the roofer. They also have a contract to supply the Peach Bottom slate for the new Catholic church now being erected at Coatesville, Pa., a contract for furnishing red repressed Tuna Valley brick for an expensive residence in Princeton, N. J., and three large mantles for Tuna Valley pressed brick to be placed in Nassau Hall at Princeton University. They are also establishing an agency for Kittanning and Iron Spot brick with the Spring Garden Brick Company at York, Pa.

The Independent Brick Company, 1001 Crozier building, has a contract for a factory to be erected for the J. L. Mott Iron Works, which will require at least 7,000,000 bricks. They also have a contract to supply Dorsey and Smith, contractors, with 300,000 bricks for a factory in Camden, N. J., a contract for a hotel and five big \$10,000 houses in Cape May, N. J., hard brick for the Broad Street Bank at Trenton, N. J., for the Shoemaker apartment in Germantown, at least 1,000,000 bricks. One of the largest contracts received so far this month by the Independent Brick Company is that of the Pennsylvania Salt Works, which will require about 3,000,000 bricks.

J. Parry Lukens, 246 Mint Arcade, has booked enough business during the first week in September to carry him through for the fall season, which points to be the most prosperous in recent years.

The Consolidated Coal and Clay Products Company has been incorporated under the laws of Delaware. The capitalization is \$500,000. R. Boyd Cooling is the resident incorporator, Wilmington, Del.

Brick and tile shippers of Philadelphia are watching care-

fully the response to circulars recently sent broadcast by the Railway Business Association, asking shippers to sign and forward to the Interstate Commerce Commission petitions requesting the commission to empower railroads to increase their rates. In the petition it is declared the roads, if enabled to increase rates, will be able to increase their equipment, and thus make sure the prosperity that is sure to come with the great volume of business all over these United States. According to the shippers, it is feared that smaller manufacturers will suffer if the commission acts upon the suggestion contained in the petitions. The revision, it is feared, will be on classified freight only, the unclassified freight rates being left alone. This will strike at the small shipper and let big corporations, which ship great quantities of unclassified freight, go free. N. B. Kelly, secretary of the Chamber of Commerce, says that his organization is keeping a sharp watch upon the trend of events and will protect the small shipper and fight the appeal to the Interstate Commerce Commission.

The Reading Shale Brick Company, Wyomissing, Pa., is now making 310,000 bricks weekly, which is much less than the demand. The additions to the plant are being rushed to completion, so that the demands from the northern part of the State may be filled as received. Very little of the product is sold in Reading.

The Equitable Brick Company, of Philadelphia, has sold to William H. McCormick two lots, each 500 by 65 feet, on Osage avenue, between Fifty-eighth and Fifty-ninth streets.

Senator James P. McNichol, of Philadelphia, one of the largest contractors in Pennsylvania, will introduce at the next session of the Legislature a measure making it a felony for clerks to reveal what may be generally termed "office secrets." The statutes now cover telegraph and telephone operators, but stenographers and auditors are still exempt. The necessity for this bill grows out of the fact that a regular business has been built up in Philadelphia by clerks who furnish advance information as to purchases intended, contracts entered into or bid upon, tips as to where there may be an immediate market for large orders, and many other valuable secrets. These "leaks" are common in Philadelphia, and many brick and tile men have lost valuable contracts through some "leak" in their office force.

The Philadelphia Schuylkill Railroad is making arrangements for the extension of their sidings at Reading, Pa., to the Glen-Gery Brick Works. This will be a wonderful improvement to both the railroad and the brick works.

Judge John C. Cushing, of New York; Attorney Maurice B. Saul, of John G. Johnson's Philadelphia office; W. F. Allen, partner of the son of Attorney-General Wickersham, and many other prominent lawyers of the East, met in Philadelphia recently to attend a meeting of the creditors of the Blue Ridge Enamel Brick Company, of Sailorsburg, Pa., a bankrupt concern, and to elect a trustee in bankruptcy. The case involves a half million dollars. Judge Cushing, who has been receiver for the bankruptcy, was named trustee.

A meeting of the stockholders of the Montello Brick Company has been called for November 21, to take action on a proposition to make a \$50,000 loan. This company is located at Reading, Pa., and is such a good proposition that several influential men have determined to boom the plant and get the money by popular means.

Jacob Walborn, brick and tile manufacturer of Reading, has received the contract to furnish the brick for the new plant of the Reading Dye Works.

Joseph Mack, of the Mack Manufacturing Company, one of the largest brick concerns in the State, recently made a trip to Hazelton, Pa., to explain to the authorities the delay in furnishing brick for the enormous paving contract which the concern holds. Mr. Mack contends that the seriousness of the car shortage on the railroads is much greater than generally understood, and that reason alone prevents, or at least temporarily ties up the work in the vicinity of Hazelton.

The Royal Shale Brick Company, Middletown, Pa., has made extensive improvements to their plant and have laid sidings from several railroads to their plant. A new bee hive kiln has been placed in operation. A QUAKER.

RECENT PATENTS.

Material for this department is compiled expressly for The Clay-Worker by Watson & Boyden, Patent and Trade-Mark Lawyers and Solicitors, 918 F Street, Washington, D. C. and to them all inquiries in regard to patents, trade-marks, copyrights, etc., and litigation affecting the same should be addressed. A complete printed copy of the specification and drawing of any United States patent in print will be sent, postpaid, to any address for 10 cts.

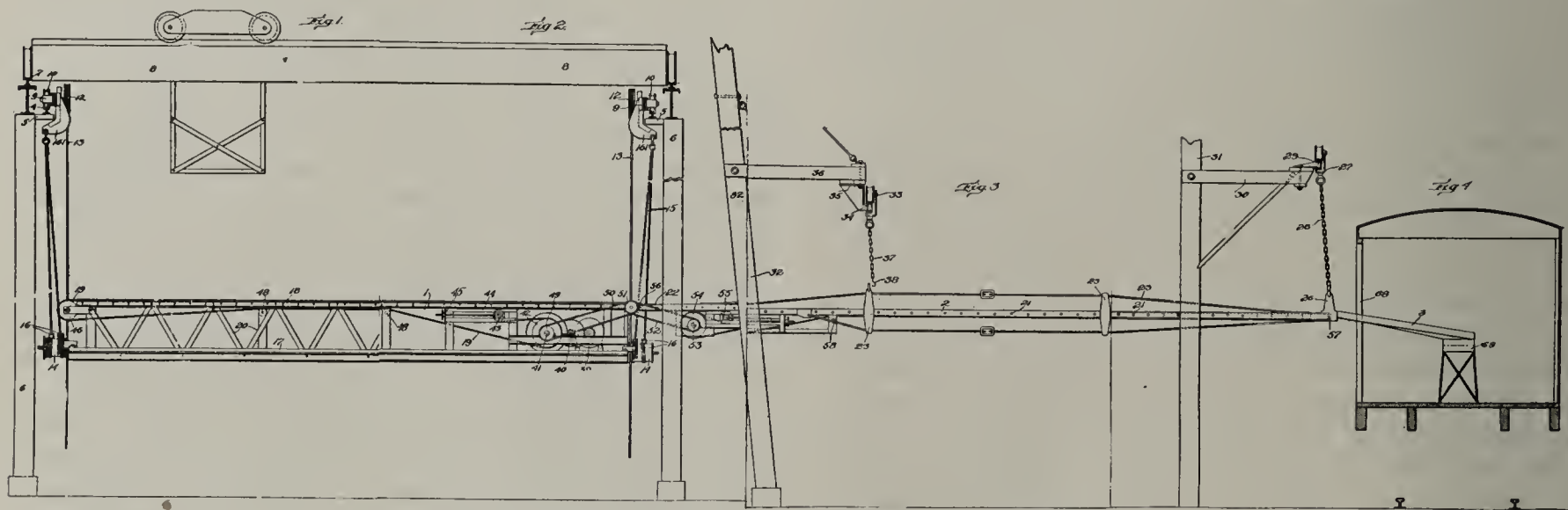
Brick-Loading Apparatus: W. W. Wallace, Willoughby, Ohio. 1,034,941. Patented August 6, 1912.—In the invention there is an arrangement whereby the loading end of the conveyor is quickly and easily adjustable to any vertical or transverse position in the brick kiln, and a suitable platform on which the operative may stand is adjusted in connection with such conveyor portion so that this loading portion is always in close proximity to the bricks to be placed thereon from whatever part of the kiln they are to be taken.

The invention provides in connection with such quickly adjustable loading conveyor portion, an intermediate connecting portion, these two portions being preferably driven by a positive mechanism and being connected by a flexible joint with a subsequent conveyor, preferably of a gravity type, which delivers the bricks into the desired part of the car being loaded. Such flexible joint between the loading portion of the conveyor permits the vertical adjustment of the

relation and stacked formation for drying and burning, such handling being known in the art as "hacking," presents problems of practical difficulty, since the great number capable of being delivered by a molding machine must be conveyed to the hacking apparatus and there arranged in properly spaced and stacked formation, and all this must be done with due regard to the fact that the bricks in their soft condition are peculiarly susceptible to damage by distortion or chipping off of edges or corners thereof.

The apparatus of the present invention is of prime importance in that it effects a very great saving of labor by handling the bricks in very large quantities automatically and without any manual handling whatever from the time they are delivered by the molding machine until they are deposited in hacked relation on the dryer car (or directly into the dryer or burning kiln). Further, by reason of the fact that all handling of the bricks until they are deposited for drying or burning is by automatic apparatus specially designed, as later set forth, to practically eliminate the possibility of damage to the individual bricks by chipping or distortion thereof, it is evident that a greatly improved quality of output is attained.

The present invention effects the handling and deposit of the desired number of streams of the brick material automatically and without manual intervention, directly from the



Patent No. 1,034,941, A Brick Loading Apparatus.

loading portion of the conveyor within the necessary limits to reach all the bricks in the kiln without disturbing the delivery portion of the conveyor appreciably, while the entire conveyor system is readily adjustable sidewise, horizontally to bring the loading portion into the different transverse portions of the kiln.

The improved apparatus not only handles the bricks with greater facility and the saving of a large amount of labor, but also more carefully and with less breakage. In piling the bricks from a kiln into wheelbarrows, various handlers are careless, and the bricks have to be piled on top of each other, while by my system the bricks are put onto a belt and are not piled over each other, and the multiple handling is done away with, thus avoiding chipping off the corners or otherwise injuring the bricks.

In the letters patent there are twelve sketches, containing in all sixty-nine figures. Lack of space prevents a detailed description. Those interested should obtain a complete copy of the patent.

Brick-hacking Apparatus: Raymond C. Penfield, of New York, N. Y. 1,026,046. Patented May 14, 1912.—The handling of soft or green bricks as they are produced on a large scale in present day practice as a series of continuous streams from a molding machine, to arrange them in proper spaced

molding machine to the hacking stack. The apparatus receives a desired number of continuous streams of bricks as they are molded, and forwards the same in units or bunches with a time interval between deliveries to a hacking mechanism, the conveyor system for this purpose having provision for a time interval of rest for the delivery end portion of the system, adapted to co-operate for a cumulative effect with the intervals between the delivery of successive units to afford ample time for the hacking mechanism to operate.

The invention further provides novel improved features of automatic co-operative control between the driving mechanisms for the several parts by the action of the onmoving brick streams.

Still further features of the invention relate to an improved form of hacking clamps, to the means for supporting and controlling the movements thereof, and various other details as will hereinafter appear.

The invention contemplates the handling of a number of continuous, adjacent streams of bricks simultaneously produced, and in certain aspects of the invention any number of streams may be handled; in other aspects to be set forth in detail, such number of streams should be some multiple of two, the embodiment to be described showing four streams for simplicity of illustration.

Considering first the preferred embodiment of the inven-

tion herein illustrated in its general aspects, the continuous brick streams are delivered from the molding machine to an off-bearing belt having a cutting device co-operative therewith for severing the individual bricks, these parts being movable in cynchronism with the brick stream delivery. Immediately beyond the cutting device a more swiftly moving separating conveyor receives the successive bricks and draws them rapidly away so as to avoid injury thereof by the cutting device on its return movement. Since a like operation is performed upon each of the streams of bricks being delivered by the molding machine, the treatment of a stream to be described may be taken for the present as typifying that of the whole number of streams.

From the separating conveyor the separated bricks are bunched together in sub-units of a convenient number, shown as twelve in each of the four streams, with a small interval between bunches, upon a conveyor section capable of holding

scribed. A set of clamping mechanisms, one for each sub-unit of bricks, all carried by a common bridge support, is then brought into properly spaced apart operative relation over a hacking belt thus shifted to one side and at rest, and simultaneously lifts all of such sub-units constituting a main unit from the belt and transfers them to a series of cars equal in number, shown as eight, to the number of sub-units of bricks. Means is provided for simultaneously shifting the several clamping mechanisms angularly through ninety degrees to place successive rows at right angles one to another, and the bridge or bridges which carry the set or sets of clamping mechanisms are movable by means of cranes to transfer the units of bricks from the respective hacking belts to the dryer cars whereon they are deposited in properly hacked relation. These cranes have provision for movement crosswise and also lengthwise of the line of cars to the extent necessary to lay the several longitudinal and crosswise units respectively for successive layers.

Process of Packing Chinaware for Baking: James Pass, of Geddes, and William Cannon, Jr., of Syracuse, N. Y. 1,036,319. Patented August 20, 1912.—The invention relates to the baking of china or porcelain articles and consists of a new process for packing the freshly molded articles in a suitable pulverized refractory material, whereby they are supported to avoid distortion during the baking.

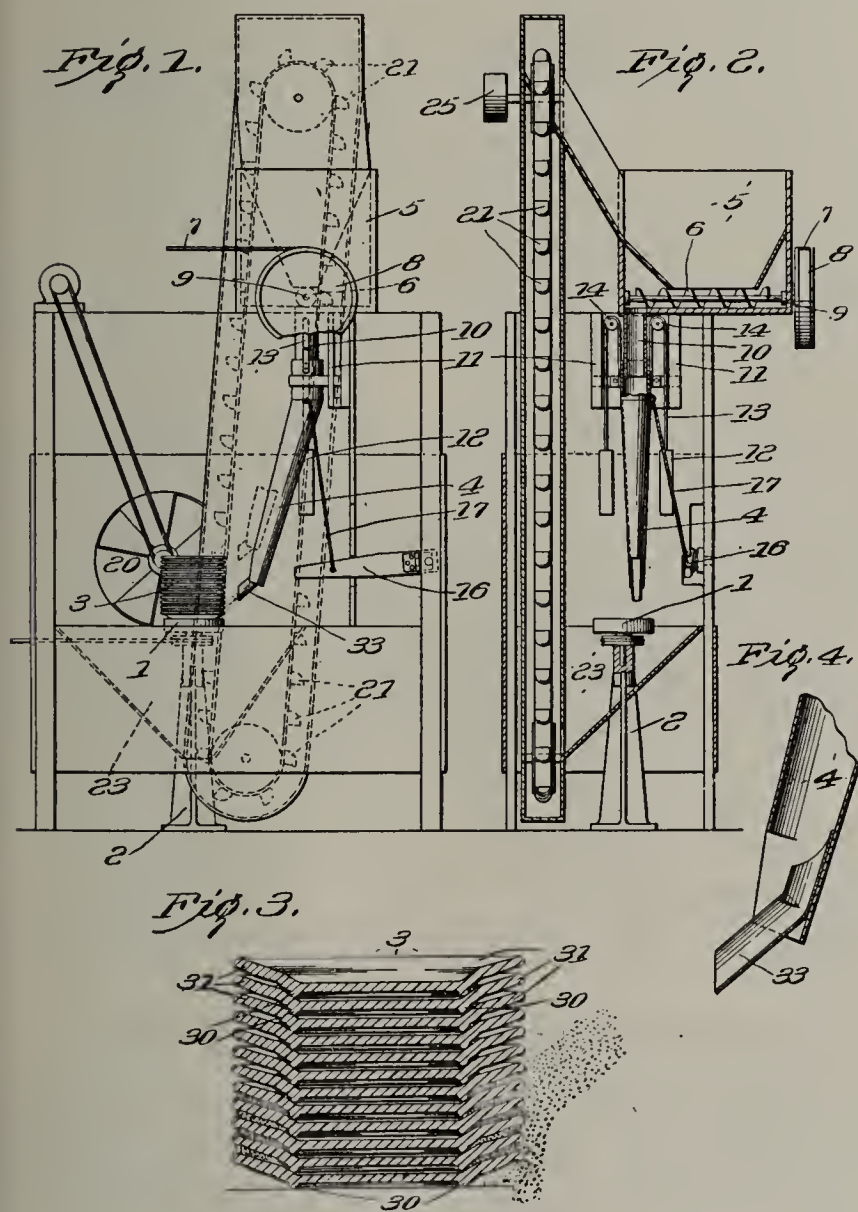
The process consists essentially in directing a down-falling stream of the packing against the edge of the bung, whereby the packing is forced between the rims of the plates down to the feet, and the entire space is filled. The bung is supported on a rotating, or rotatable support, or "whirler," so that the bung may be turned to meet the stream at all points of its periphery. This is better and more convenient than rotating the stream around the bung. A spout may desirably be used to guide the stream around the bung, and the spout nozzle is preferably rather narrow and deep, and is preferably moved to deliver the stream first against the lower plates and last towards those at the top for the following reason: The packing is not absolutely uniform, but varies in fineness, and desirably varies from dust to fine granules; as it falls through the spout, which is inclined somewhat, and out through the nozzle which is turned to direct the stream nearly horizontal, the heavier granules drop to the lower part of the stream, leaving the dust above. Therefore, if you move the nozzle from below up along the bung, the fine particles first enter between the plates and can penetrate to the foot, and the heavier particles, in the lower part of the stream, follow and force inwardly the finer, insuring such penetration of the finer particles and also fill the space to the edges. But it will be understood that we do not limit ourselves to this particularly described manner of practicing our process.

We illustrate the invention in connection with a form of machine invented by them, for which they intend also to file an application.

Figures 1 and 2 are respectively an elevation and a vertical cross section at a right angle to the elevation, showing a desirable form of machine for practicing the process. Figure 3 is diagrammatic and shows in vertical section a bung of plates illustrating the distribution of the packing. Figure 4 shows in enlarged detail a desirable form of nozzle.

BUSY DAYS FOR J. C. STEELE & SONS.

J. C. Steele & Sons, Statesville, N. C., state that their business has been quite satisfactory and that every indication points to increased business in the building line throughout the South. This means more brick and, per se, more brick machinery, so they anticipate a steadily increasing demand for "New South" brick and tile machinery, an ad of which appears on page 475 of this issue.



No. 1,036,319.

a number, shown as eight, of such bunches or sub-units, which during the bunching operation moves at a speed less than that of the separating conveyor but slightly in excess of the initial speed of the on-coming stream of bricks. After being loaded with a full complement of bricks, shown as eight sub-units of twelve in each of the four streams, such conveyor section is given a speeded-up movement to a subsequent receiving conveyor similarly accelerated, such a subsequent conveyor or receiver constituting one of a plurality of similar hacking belts from which the several sub-units or bunches are to be lifted to be deposited in proper hacked relation on the stack being formed. These plural hacking belts, shown as two, are shifted on a carriage transversely of the on-coming line of bricks, so as to bring each hacking belt successively into alignment with the brick line supply, the other belt or belts being at this time at rest at the side of the belt receiving a load, this being a main unit heretofore de-

Written for THE CLAY-WORKER.

BRICK NEWS FROM MAINE.

THE BURNING season is now, in the second October week, at its height, and so far, Maine manufacturers have been favored with good weather. In a week or two more yards will be made ready for the long winter that we of the Pine Tree State enjoy, and no more bricks will be made until the latter part of April, 1913.

The kiln shed of the Brooks Brick Company, at Brewer, was partially destroyed by fire late in September, the loss being estimated at \$1,200, partially covered by insurance. The blaze caused much nervousness on the part of Brewer people, as the yard is located near the tanks of the Gulf Refining Company, and there was danger of the oil catching fire; nearby, also, were several hundred cords of wood. The company took but one day off to put things in shape again. In this yard have been manufactured more than 3,500,000 brick the past season, which has been one of the worst in years on account of rainy and cold weather. Three kilns have just been burned, and, when the season closes, 500 cords of wood will have been used, after forty days of continuous fire. The brickmaking industry in Brewer, is continually gaining ground, and the Brooks Company is by no means behind its competitors. The sheds have been partially completed, and will be ready for use in the spring.

In a few weeks one of the prettiest brick buildings in Maine, that of the Young Women's Christian Association at Bar Harbor, will be ready for occupancy. The structure is of orange colored brick and occupies a large amount of ground, covering the site of the old Y. W. C. A. buildings and extending back further.

Work has begun on the new Maine Central station at Augusta, which will be of tapestry brick and tile, with cement trimmings to imitate Indiana limestone. The new building will be 188 feet long and 50 feet wide, with an octagonal waiting room in the center.

Biddeford is building a \$60,000 brick school house, which will be ready for occupancy before the opening of the next year. It is to be the first union school building in the city and is to be of red brick with granite trimmings.

The Universalist Church at Bangor, one of the seven in the Queen City which was burned in the 1911 conflagration, has been completed. Although the rear walls of this church were dynamited in an attempt to stay the progress of the flames, the front walls stood, and were so solid that the parish decided to rebuild, using the front walls, which is an evidence of the stability of brick for building purposes.

Twenty-five per cent. of the structures destroyed in the business section of Bangor in last year's fire have been rebuilt and plans are ready for 50 per cent. more. Three or four blocks between York, State and Exchange streets have been rebuilt, all of brick, and the lot where the old brick Exchange block formerly stood, will be covered by a five-story structure. The Kenduskeag brick building will be replaced by a four-story terra cotta front business structure. On the upper side of State street four brick buildings have been finished, and two more are under way which will help to take up the whole frontage.

BRICKMAKER'S SON.

The Golden Gate Brick Company entertained the San Francisco Architectural Club again this year, on Sunday, September 22, at a bull's head banquet at the company's premises at Antioch, Cal. The guests, almost a hundred in number, left the city on Saturday night, and were taken to Antioch in a steamer chartered for the occasion. They stayed over until Monday. The bulls' heads were cooked under the expert eye of C. E. Pratt, manager of the company.

HERE AND THERE IN NEW ENGLAND.



AMES F. FREEMAN, of Lawrence, Mass., has recently obtained patents upon a brick cleaning machine which will, he claims, clean 20,000 brick a day. A workman will clean 1,000 in the ordinary way, nor will he do it so well. The machine scrapes the mortar off without injuring the brick. It is operated by gasoline and costs but little to operate, while its results are good.

The Portland Stoneware Company, Portland, Maine, was burned out the last week in August. Edward G. Winslow, the enterprising manager, declared that the work of rebuilding will begin immediately and that a modern pottery establishment will be constructed.

The Guastavino Tile Company, of Woburn, Mass., is to increase its storage capacity.

The election of Allan Fletcher as governor of Vermont insures a continuation of the policy of good road development, which has been so auspiciously inaugurated under his predecessor. He is pledged to that and his efforts promise even more notable results because the movement is now under way and has the support of the people.

The New England Brick Company, whose plant is located at Unionville, Conn., contemplates the installation of a power-driven scraper and excavator to secure sand for its sand lime plant.

Previous to the opening of September a number of Connecticut manufacturers shipped a good many brick to the New York market. That has stopped now, New York prices surely holding out sufficient inducement under present circumstances. Moreover, the Connecticut product is all needed at home, structural work now outrunning production. Higher values might cause them to ship again.

A serious shortage has developed in the brick market at New Britain, Conn., and prices are held at a high range where any stock at all is available. Experts say they never saw the shortage so pronounced at this season. It looks now as though the quantity would be insufficient to satisfy ordinary local requirements, according to the statements of those in position to know. The same condition is said to exist to some extent elsewhere, according to what those who want brick say.

HIRAM.

OHIO CLAYWORKERS TO MEET IN COLUMBUS.

The annual meeting of the Ohio Tile and Clay Products Association is to be held in Columbus, Ohio, on the 10th and 11th of December, 1912, at the Ohio State University, in the rooms of the Ceramic Department, in the School of Mines Building.

The place of the meeting was a happy thought of Professor Orton, and it will certainly be a most appropriate place in which to hold the meeting, as there are class rooms amply large for the purpose and they are fitted with blackboards on which any of the papers can be illustrated, and the Ceramic Department is rich in apparatus, which Professor Orton advises the association can be used by any one who wishes to use it in demonstrating any point of their papers.

A program has been arranged that will give four papers for each day of the meeting, and this program will be announced at a later day.

This meeting should attract a goodly number, if not all, of Ohio clayworkers, as well as some from other states, as Columbus is centrally located and easy of access from all parts of the State.

The date of the meeting is also timely, being fifteen days before the holiday season, and no doubt many of the clay-

workers will be accompanied by their wives, who will thus have an opportunity to finish their Christmas shopping.

We especially urge all Ohio clayworkers to attend this meeting and take with them their foremen or superintendents, who are certainly entitled to a little outing, and who will without doubt pick up valuable information which will amply repay their employer for the expense.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

THE WEATHER conditions on the Puget Sound have been more favorable for the brick makers this month than last month, and are in strong contrast with August, which was cold and wet. Some of the open yards which decided to close down about the first of September are now greatly disappointed, since the whole month of September was better than any summer month for the making and drying of brick. The business for the brick-makers has been fair and they all look for a good fall trade.

Several large buildings have just been completed in Seattle, and several new ones are contemplated. The county is endeavoring to pass a bond issue for the erection of a large building, to be occupied jointly by the city and county officials. The civic center scheme, which met defeat at the last general election, is being revived again and the municipal league has reorganized its civic center committee and consequently the Bogue plan will now receive more favorable adoption.

In the towns around Seattle business and city improvements are good. Tacoma has experienced a healthy building boom. At Bremerton a new sea wall will be constructed, and the entire business district is now being paved with vitrified paving brick. At Bellingham over two million dollars worth of improvements are contemplated.

A comparison of the building activities of the various large cities in the Northwest for the first eight months of this year as compared by last year, is as follows:

	1912.	1911.
Portland	\$ 12,030,653	\$11,780,554
Vancouver, B. C.....	11,151,702	11,822,702
Seattle	6,051,750	5,614,215
Spokane	1,680,177	2,719,468
Tacoma	1,033,950	1,185,583

The "Made in Washington" day was observed this year in Seattle on the last day of August, and in Tacoma on the 21st of this month. In both cities the exhibits made by the various manufacturers was most creditable. One of the best exhibits in Seattle was made by the Denny-Renton Clay and Coal Company in the form of a bakeoven made entirely of the products of the company. The Seattle Real Estate Association was the special guest of the Denny-Renton Clay and Coal Company at their Renton paving brick plant. A special car on the Seattle, Renton & Southern was chartered to carry the party, which was under the guidance of Mr. J. R. Miller, secretary and general manager, and D. T. Farnham, assistant manager. The party was shown the entire process and introduced into the mysteries of transferring shale into vitrified pavers.

The Lake Union Brick Company has now secured rail connection with the Northern Pacific, which will greatly facilitate their brick shipments.

Mr. W. A. Doyle has temporarily taken charge of the paving brick plant of the Standard City Company at Bayne. Mr. J. H. Thress, who resigned his position as superintendent of this plant, has accepted a position at Martinsburg, West Virginia.

The Far West Clay Company, of Tacoma, is doing the largest business in the history of the company. They have

been turning away several orders for partition tile because they would be unable to fill same on time. This firm has now added to their business a contracting branch, and are putting in partition tile and Denison interlocking tile by contract delivered and put in the wall. They have several large orders for dry kilns for lumber concerns.

The Geijsbeek Engineering Company, of Portland, has made several changes in the continuous kiln of the Standard Clay Company at their paving brick plant at Bayne, which have been very successful, and the company is now turning out a first-class paving brick. This kiln is fired with producer gas and crude oil, and burns a chamber containing 60,000 pavers per day.

A mass meeting was recently held at Renton, having for its purpose the unionizing of the large paving brick plant of the Denny-Renton Clay Company. The coal mines of this company at Taylor have been closed down on account of a strike among the miners, and the labor leaders are now bringing pressure to bear to unionize also the brick department.

The sewer pipe plant of the Standard Clay Company, of Tacoma, which was located at Little Falls, Wash., was completely destroyed by fire September 30. The total loss is estimated to be about \$200,000, which for the greater part was covered by insurance. The company will possibly rebuild as soon as possible.

SIWASH.

CENTRAL SOUTH NOTES.

AUTUMN BUSINESS in brick, terra cotta, sewer pipe and pottery products is very fair in this section in proportion to other lines of activity. Quite a lot of building is going forward in this city and neighboring small towns. Other work is under plan. Farming prospects for the autumn harvest are good in the Memphis territory. Despite the disadvantages of last spring, the yield of both cotton and corn will be large.

The Memphis Manufacturers' Association, which will have an exhibit in the Kallaher building, has signed space for exhibits from the South Memphis Brick Company and the Memphis Mosaic Tile Company.

It is stated that a spur track will be built from the Louisville & Nashville Railroad main line to the Stroup & Breadlove clay mines, a distance of one and a half miles from Henry station. It is said that the work of building the track will begin in a short time. The road now has a line running out to the Johnson & Porter Company's (of Paris, Tenn.) mines, from where about 500 cars of clay are shipped annually. J. H. Clark is the present manager of the Stroup mines.

A dispatch from Monroe, Miss., says potter's clay analyzing 86 per cent. pure has been discovered on lands belonging to Fayette Jacobs, in section 43, township 5, range 3. The strata is 24x30 feet.

The E. T. Lewis Company, of Nashville, has four crews of employees, aggregating about 200 men, in different parts of the city on the big \$279,000 sewer contract awarded the firm by the city of Nashville several months ago. The E. T. Lewis Company is having a very busy season of it and has recently landed several additional contracts of considerable size.

A \$25,000 warehouse will be erected on Jefferson street, Montgomery, Ala., by the Teague Hardware Company. The building will be three stories high and built of brick, with complete elevator equipment. It will have a frontage of 150 feet on Jefferson street and will extend seventy-six feet on its eastern end. The building will be triangularly shaped, and the western end will be only fifteen or twenty feet deep.

The Missouri & North Arkansas railroad will erect a

\$50,000 terminal station in Helena, Ark. W. O. Galbreath is the chief surveying engineer.

The Ford Motor Company, of Memphis, will build a large assembling and distributing plant here to cost about \$150,000, and to be located at the intersection of Union avenue and the Southern railroad. The building will be six stories and fireproof. Dark red brick and tile will be used.

Work will begin shortly in Memphis on the new Masonic Temple, after plans by Architects Jones and Furbringer. The building will be six stories high, surmounted by a roof garden. The exterior will be of terra cotta and brick. The lower floor will be of granite. The first story to be Roman shaped, semi-glazed brick alternating with bands of cream colored terra cotta. The balance of the building will be of gray matt brick of beautiful texture surmounted by an elaborate cornice, heavily enriched. The building is designed in the Italian renaissance style of architecture and is massive and impressive, with a beautiful loggie extending through two stories on the Court avenue front.

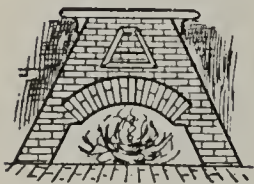
The James Alexander Construction Company is building at Memphis, for its own use, a \$50,000 warehouse, at the northeast corner of Overton avenue and Front street. It will be two stories in height and about 100 feet square. Brick and reinforced concrete will be used.

Ike Samelson is having erected in Memphis, on the south side of McLemore avenue, east of Rayburn boulevard, a business house and flat building to cost \$27,500. Fred B. Young & Son have the contract, which is after plans by Architect Chas. O. Pfeil. The building will be elaborately finished. It will be constructed of glazed terra cotta and enameled brick and will be three stories in height.

DIXIE.

Written for THE CLAY-WORKER.

THE SITUATION IN NEW YORK.



AFTER A PERIOD of dullness and slight easiness in price a buying movement began about the middle of September and has continued in moderately heavy volume up to the time this is written. From \$6.75 to \$7.00 has been paid regularly, and in instances as much as \$7.25. At the time this is written the market continues firm at that figure, and buyers have devoted considerable time to getting about searching for stock at these figures.

Probably it would be impossible to discover all the causes of this condition. It may be that the knowledge that the total output along the Hudson River will not exceed 800,000 this season has it influence, though that reduction would not be responsible for the increase in demand and the firm prices. It helps, however, and may be the determining factor.

The long expected decision regarding the contentions filed against the Greater New York Brick Company is again delayed, and it seems probable from present indications that Assistant District Attorney Ellison will devote considerably more time to securing additional evidence before the decision is handed down. The grand jury may be asked to consider it before the decision is rendered.

The effect of this upon the business is not noticeable. Investors are pouring money into realty again, and strengthening the market for structural materials, including brick. The shortage of labor has reduced the output in all the New York yards without any adequate return for the damage inflicted.

Before the middle of September Connecticut manufacturers withdrew from the market and ceased shipments. Probably the increased prices obtained since will not attract them. They are confronted with a shortage in some locali-

ties in their own State, which it will be difficult to fill. New York makers have nothing to fear from that direction.

The New York market is sound and in good condition. If prices do not advance they will not decline. That much seems reasonably certain. And with them stationary the situation holds much of promise. Further, the prospect for structural work is more promising than it has been for some years at this season. The closing season will apparently develop a more than satisfactory situation in the Metropolitan market.

BURTON

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO



HERE HAS NEVER been a season when brick manufacturers have had a heavier demand than has been enjoyed this season. Throughout the summer the demand for brick has exceeded the supply and owing to the difficulty in securing workmen the plants have not been operated as heavily as they might have been. Thousands and thousands

of brick have been sold right here in Toledo and the call from Northwestern Ohio and Southern Michigan has been unusually strong. Most of the yards have kept sold up as fast as the brick could be manufactured and some are now behind their orders. Brick are growing stronger as time passes, and never before has this material been so universally used in the more important structures. Some concerns are reported thirty days behind their orders. Prices are good, being quoted at \$7.50 and \$8 in Toledo. Three splendid school buildings have been erected in Toledo, the Scott high school, Stickney avenue school and East Side high school. These are all brick structures, 1,200,000 pressed brick being required and 6,000,000 of the common variety. The Scott high school, when completed, will be the most beautiful and the finest equipped school this side of New York, while the Stickney avenue school is said by local brick men to be one of the finest specimens of architectural art ever constructed of brick. Art brick was used, and this is a splendid example of what can be done with vitrified brick. Brick is being quite extensively used in the building of handsome homes in Toledo, also, the Robinson mansion being constructed of art brick, while another home worth about \$50,000 is that known as the "Warner house."

Paving brick manufacturers are quite as busy as the concerns handling only building brick. These concerns are all behind their orders and are working to the limit of the capacity with the men that can be secured. Brick has been extensively used in street paving throughout northwestern Ohio and southern Michigan, and this has been a banner year for street paving. Toledo has been using an exceptionally large number of brick on its streets, especially business streets. The car shortage situation is bad and brick dealers are finding much trouble over the scarcity of cars. In some sections anything in the shape of a car that can be secured is being used to move the brick, the automobile dealers complaining that brick concerns are using their cars to move brick. Some brick has been sent out of Toledo by water, but it is not expected that the situation will prove very desperate until the bulk of the season's brick business is over.

Taken altogether it has been a prosperous year for brick concerns, with stacks of orders and good prices.

The Globe Pottery Company, of East Liverpool, Ohio, has gone into the hands of a receiver. The receivership was precipitated when the Croxall Chemical and Supply Company presented a claim for \$503.29. Willard Morris

was appointed receiver and his bond fixed at \$10,000. The plant, which has suspended operations, has resumed.

Toledo is to have a modern freight house of brick construction. The new structure will be erected by the Ohio Electric Railway Company, and will be six times as large as the present structure.

John McMahon was recently awarded the contract to pave Albion street, Toledo, with vitrified brick at an estimated cost of \$35,512.24.

Henry county is preparing to make extensive road improvements and road improvement bonds aggregating \$119,500 were recently sold to a Cleveland concern. Farmers throughout this section are interested in the brick proposition for country roads and there is a prospect that at least a portion of this paving will include the use of brick.

Moving Contractors Minniga & Oberle, of Dayton, Ohio, recently accomplished an unusual feat when they moved an eight-room brick house on Linden avenue to a new location a distance of 150 feet. The building was lowered nine feet onto a new foundation without the slightest damage to any one of the walls or other parts of the house.

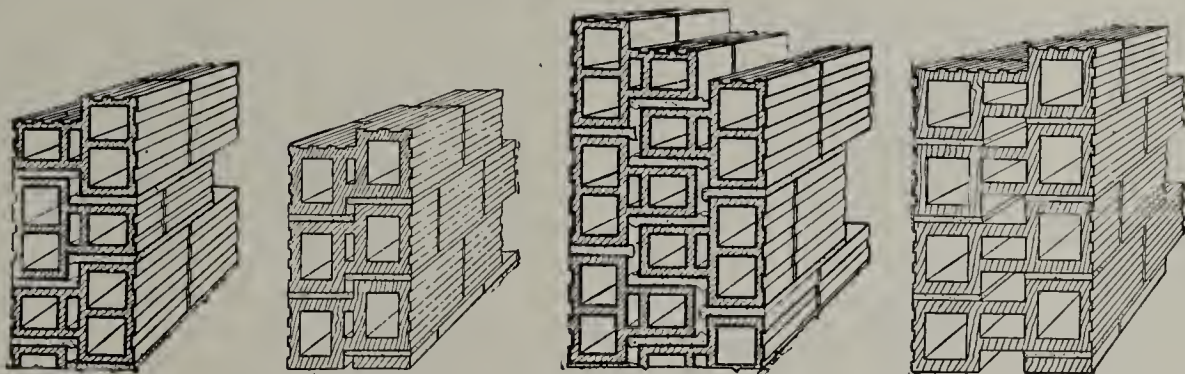
A \$48,000 issue of paving bonds was sold by Council at Bryan, Ohio, recently to Otis & Co., of Cleveland. This city has been a heavy user of paving brick this season, many of its streets having been newly paved with brick. It is also thought that a brick road will soon be built connecting Bryan with Farmer Center.

Something new in basement wall material was used in

THE DENISON TILE ENGINEERING CO.

THE ABOVE IS the title of a new organization formed October 4th in the offices of the Ohio Clay Company, Cleveland, Ohio. So great is the business of the Ohio Clay Company and their licensees of the Denison Tile Patents has increased to such an extent that the new company was of necessity born to take over from the Ohio Clay Company the business of exploiting the patents. The new company is made up of practically the same stockholders and officers as the Ohio Clay Company and has offices in the Schofield Building, Cleveland. The licensing business has become quite extensive, the present licensed plants making for the most part Denison tile for load bearing walls and which take the place of common brick. The largest concerns in the country, such as the Laclede Christy Clay Products Company, of St. Louis, Mo.; Great Eastern Clay Products Company, of New York City; The Clay Products Company, of Chicago, Ill.; Frazier Brick Company, Dallas, Texas; Far West Clay Company, Tacoma, Wash., and the Los Angeles Pressed Brick Company, of Los Angeles, Cal., have secured territory rights and are making large quantities, annually finding a ready market for this excellent material.

Although the Denison tile have only been in use some two years, the combined licensees are shipping thousands of cars monthly. In Cleveland, Ohio, alone, the quantity of Denison Patented Tile used the past year was the equivalent of 75,000,000 common brick. This tile is a hollow tile that in



Patented Denison Tile Shapes.

the Carnegie library building at Tipton, Ohio. It consists of an outer layer of vitrified paving brick faced with a coat of waterproof cement. Within this is a layer of ordinary brick, and within that a course of hollow tile. It is said by the architect and builder that this material is absolutely moisture proof. The wall above ground will be of vitrified brick with a very rough surface which will not show dirt and grime. The roof of the structure will be of red tile and the trimmings will be of copper.

Work has begun in Toledo on a \$22,000 two-story brick educational building to be erected by the Jewish Educational League on Linwood avenue. The building will have a frontage of 50 feet and a depth of 100 feet. A. J. Carsten secured the contract for the erection of the building.

The contract for the construction of the Mercy hospital at Tiffin, Ohio, was let recently to J. E. Converse, of Massillon. The construction work has already begun. The building will be of brick.

Pressed brick and concrete were the materials used in the new \$10,000 art hall erected by the Van Wert County Agricultural Society on the county fair grounds. This, with the new barns and addition to the grand stand, totals an expenditure of \$15,000 on new buildings spent by the society this season. This association is more than fifty years old, and in all these years has never experienced a failure.

T. O. D.

contents is equal to six common brick, weighing only half as much and sustains without fracture a load of 77,000 pounds. It is claimed that a given amount of clay made into hollow tile will build as much wall of better quality as double that amount of clay made into common brick.

DEATH OF A. O. JONES.

One of Ohio's pioneer paving brick manufacturers who retired from that business some years ago, Mr. A. O. Jones, died October 15th, at Phoenix, Ariz., where, owing to ill health, he has been living for the past year or so. Mr. Jones was born in Wales, in 1846, came to America when quite a young man and became identified with the clay industries, at one time owning and operating paving brick plants at Columbus and Zanesville, Ohio. He was a charter member of the N. B. M. A., and for a number of years was a regular attendant at all of the national conventions. He was buried at Flagstaff, Ariz., the home of a daughter. He is survived by his widow and four children. His elder son, E. J. Jones, is manager of the Home Brick Co., at Canton, Ohio.

Suit has been brought against the Milroy (Ind.) Drain Tile Company by Mrs. Minnie Bowman for \$10,000 because of the death of her husband, who was killed in a gas explosion that wrecked one of the kilns. The suit is based on allegation that the company did not maintain a regulator to control the flow of gas into the kiln.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

The Clay-Worker Has Set a High Standard.

Editor THE CLAY-WORKER:

We enclose herewith our subscription to the CLAY-WORKER for the year. We have had a very good year both in the paving and building brick trade. The month of July was by several thousand dollars the largest month's business that we have ever enjoyed. We have plenty of orders for paving blocks to keep us running until the cold weather ties up work, and will then have at least two million bricks to be delivered during the winter months. We still thoroughly enjoy reading your paper, and can only ask that the future numbers maintain the high standard that the past has set for you. With kindest regards, we are,

Very truly yours,

CLYDE MURRAY,

Secretary The Reynoldsville Brick and Tile Co.

Reynoldsville, Pa.

Busy Arkansas Plant.

Editor THE CLAY-WORKER:

About a year ago we had the misfortune to have part of our plant destroyed by fire, but since that time we have rebuilt better than before, and have installed natural gas, with which we are now burning our brick. This we use for making, drying and burning. We find it very convenient, and when we figure the cost of labor, carts, etc., in the handling of coal, we believe that it will prove to be some cheaper.

Our stiff mud plant has a capacity of 150,000 bricks per day, and when we desire we can change to paving blocks and turn out 80,000 blocks per day. We also have built a new dry press plant with two dry presses, and we are now able to make a very nice press brick. We get different shales, and, as you know, when you visited us, we had a shale that burns red and a graphite shale that burns white. From these we can get almost any shade we desire. We are giving the dry press part of our business special attention, and expect to be able to supply the surrounding country with face brick.

We remember your visit to us with a great deal of pleasure, and hope that you may find it convenient to drop in on us again sometime in the future.

With best regards, we remain, Yours truly,

ARKANSAS BRICK AND MANUFACTURING CO.

Little Rock, Ark.

The Ohio Good Roads Campaign.

Editor THE CLAY-WORKER:

While the campaign in Ohio for the good roads amendment was a losing one, the fight was productive of a great deal of good, which will later on result in a victory by the Good Roads Association. The interest of the paving brick manufacturers was looked after by the leading brick machinery manufacturers, who contributed to a fund for the promotion of the cause for good roads.

The funds subscribed by these enterprising machinery

manufacturers was handled by a committee who placed A. C. Jackson, of the National Good Roads Association, at the head of the campaign. Mr. Jackson had only six weeks in which to organize and carry on his campaign, but a great deal of good was done in that time, as is shown by the close vote on the amendment. Meetings were held in all parts of the State, an effort being made to enlist the good offices of the women's clubs throughout Ohio. Mrs. Huckins, president of the Women's Club Federation of Ohio, came enthusiastically into the campaign and assisted materially in securing the favorable consideration of Ohio women. Mr. Jackson has made a brief report of his work, as follows:

A Report.

Cleveland, Ohio, Sept. 5, 1912.

Mr. R. C. Penfield and Associates:

On July 26th Miss Jones, Mrs. Murfey and myself left Chicago to actively prosecute a campaign in Ohio in furtherance of the proposed good roads amendment to the State Constitution, authorizing the expenditure by the State of fifty million dollars for a system of inter-county wagon roads. Previous to this time our association had made preliminary preparations for this work and I had visited Washington and New York for such purpose, and when in Washington I had ordered printed fifty thousand good roads addresses to be delivered to us in Ohio.

We at once established state headquarters at the Colonial, and later at the New Amsterdam Hotel in Cleveland, and Cleveland headquarters at the Cleveland Woman's Club; and for nearly six weeks we have been diligently at work in the distribution of good roads addresses, individual and circular letters, distribution of good roads buttons, promoting good roads meetings in furtherance of the campaign.

Two hundred and twenty-three thousand five hundred good roads speeches have been mailed to newspapers, postmasters, commercial organizations, clergymen, women's clubs and lists of voters, reaching every section of the State. These speeches, with a view of making them most effective, contained some variety of material of interest to women as well as men, including proceedings of recent good roads meetings, resolutions, addresses by Chicago Board of Trade, Frank M. Bunch, W. L. Ross, vice-president Chicago & Alton railroad; Martin Dodge, seven years director of the Office of Public Roads at Washington; Congressman Wm. Sulzer, Congressman Paul Howland and Governor Harmon.

We have organized a Good Roads Committee of one thousand Ohio women, and Mrs. Howard Huckins, president of the Ohio Federation of Women's Clubs, most willingly accepted the chairmanship of this committee, which is designed as a permanent force for the development of good roads sentiment in this State. She and many other prominent club women have very actively aided us by writing letters, arranging for meetings, and by personal interviews with editors and other influential citizens. Copies of her letters are attached.

Over twenty thousand circular letters and hundreds of personal letters have been sent out in the progress of our work, and in this work we have had the use of two Oliver and two Remington typewriters.

Forty-six thousand nine hundred and fifty good roads buttons has been received and distributed as carefully as possible. They have proved exceedingly popular and a very effective method of publicity.

When in Washington I arranged with Senator Martin Dodge, who is a native of Ohio, and for twenty years identified with the good roads movements in this State, to aid us in our campaign. His services have proven exceedingly helpful, as he is personally acquainted with a very large number of prominent citizens all over northern Ohio, and has in this

campaign traveled extensively by automobile through Cuyahoga, Geauga and adjoining countries, delivering good roads addresses and distributing literature and buttons. I feel that in Senator Dodge we have an associate who can aid us in future work more than any other living man, by virtue of his intimate knowledge of the whole good roads movement and his active personal connection with it. While with us he has also interviewed the editors of many papers and contributed several valuable articles to various publications.

Mrs. Murfey has also interviewed many editors, officials of many commercial organizations and woman's clubs in Cleveland, Elyria, Oberlin, Sandusky, Toledo, Lima, Dayton, Cincinnati, Columbus, Akron, Ravenna, Painesville and other places. She has the rare faculty of interesting all classes and conditions of women, and is one of the most prominent club women of Chicago, having for years past been a promi-

It is a permanent investment which will yield large future returns.

Sincerely yours,

A. G. JACKSON,

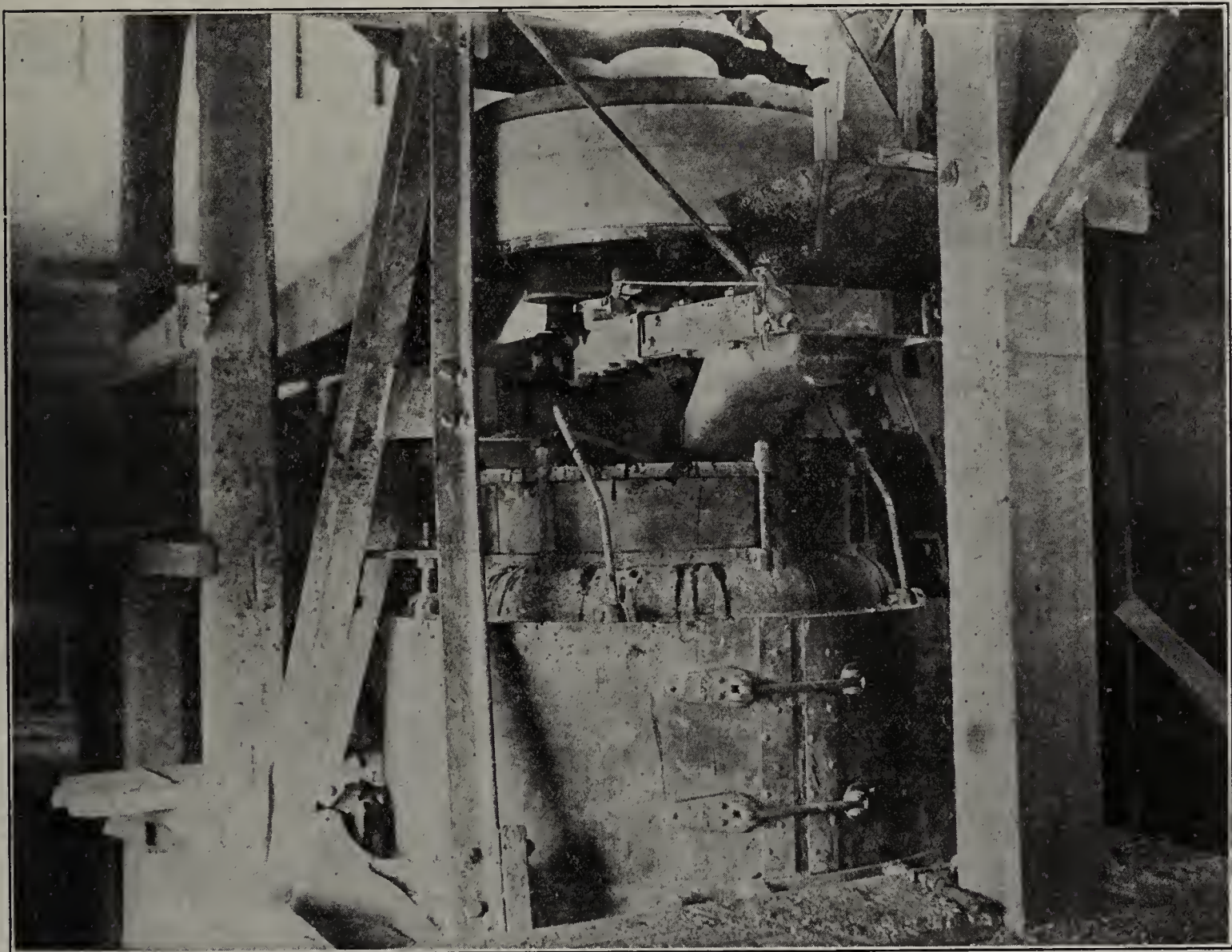
President National Good Roads Association.

The main work in the campaign having been taken up by the Ohio Good Roads Federation, Mr. Jackson's work was especially directed and limited to meetings and securing the co-operation and help through the women's clubs throughout the State, which was very important and influential assistance to secure, for which no direct effort had been made.

F. L. H.

THE BRADLEY THREE ROLL MILL.

We are pleased to present to our readers the accompanying illustration of the Bradley Pulverizer, which the manufacturers, the Bradley Pulverizer Company, of Boston, Mass., are



The Bradley Three-Roll Mill Made by the Bradley Pulverizer Co., Boston, Mass.

nent official in several of the exclusive clubs and the Illinois Federation of Women's Clubs.

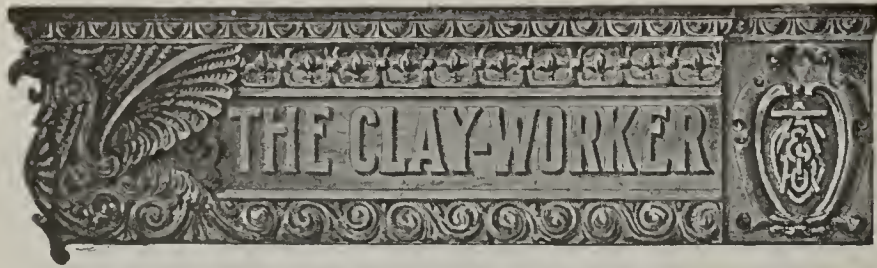
In addition to the many meetings addressed by Senator Dodge, we have held special meetings under the auspices of the women's clubs in Cleveland, Sandusky and Lima. Have placed two thousand window cards and posters and three hundred cloth automobile banners.

All of this work has been possible through the generosity and enterprise of the clay machinery manufacturers, as follows:

C. W. Raymond Company.....	\$200.00
The Bonnot Company.....	200.00
E. M. Freese & Co.....	200.00
J. D. Fate & Co.....	100.00
H. Brewer & Co.....	100.00
Chambers Bros. Co.....	200.00
American Clay Machinery Company.....	200.00

now for the first time introducing to the clay field. For several years past it has been used successfully in other lines. During the past season the Olive Hill (Ky.) Fire Brick Works added a Bradley pulverizer to their equipment and with it have been grinding from ten to fifteen tons of fine clay tailings per hour, and recommend it very highly for efficiency and economy. The mill has few wearing parts and is highly recommended for grinding fire clay tailings and similar substances difficult to handle in any other way. The pulverizer is further illustrated and described in the Bradley company's ad on page 368 of this issue. An interesting illustrated booklet will be forwarded to any CLAY-WORKER reader desiring further information.

It would seem that with the greater use of gasoline and other explosive power agents there is no need for the price of coal to go up, but it keeps doing it just the same.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-NINTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis

Vol. LVIII. October, 1912. No. 4

CURRENT COMMENT.

The way to get a lot of life is to put a lot into it.

* * *

All railway bonds may not be at a premium, but practically all serviceable cars are.

* * *

Crop stories are taking the place of hunters yarns this fall, and they make pretty cheerful reading, too.

* * *

If collections are not good with you, it is a good time to wake up and preach the doctrine of "pay and be paid."

* * *

It is roof-patching time, and also time to put a coat of paint on that out-of-doors equipment to protect it against the winter weather.

* * *

If you have hit onto some new advertising scheme that works well in boosting brick, tell us about it, so we can pass the word along to others.

* * *

It is harvest time for the brick yard as well as for the farmer, and there ought to be some good reports on the season's business when it closes.

* * *

It looks like a fair share of the excitement of the elections this fall will be furnished by the better half going to the polls and casting a vote with varying limitations.

* * *

What a brick plant costs originally is one thing, and what it costs to make the brick is another and more important thing—and lots of times one has direct bearing on the other.

* * *

The three big tickets in the clay products field are Ohio, Pennsylvania and New Jersey, as these were the only states where percentage of the total went above ten. Ohio has

20.13 per cent.; Pennsylvania, 12.49 per cent., and New Jersey, 11.21 per cent.

* * *

Any man can make excuses, but it takes a genius to find the way to do without them.

* * *

The kiln fire not only looks brighter but it feels better these days than when the sun was teeming hot.

* * *

Cheap as it is, the flower-pot is quite an item in clay products, and there ought to be a big lot of them selling this fall.

* * *

With lumber going up and cement settling down to its natural limitations, there ought to be a whole lot bigger business ahead for building brick.

* * *

Common brick suffered some inroads on its popularity boom last year, but it still represents the biggest item in clay products, 30.75 per cent. of the total of clay products.

* * *

One thing that is worse than a grafting politician is the grafting superintendent, of which the clayworking industry probably has as few as any, but even one now and then is too much.

* * *

There has been established at Copenhagen a permanent exhibition of accident prevention devices and methods. This is a good move in a good cause, but why not make these devices a feature in every machinery exhibit?

* * *

Brick will eventually become of itself the most popular and sought after building material, but the time can be shortened and the thing hustled along considerably by the brickmaker keeping everlastingly at the publicity game.

THE CRIME OF THE YELLOW PRESS.

The terrible crime attempted at Milwaukee is deplored by nearly everyone, the world over, as is evidenced by many messages of sympathy received from a host of foreigners, as well as those from our own people. It is pretty generally conceded that the crime is the direct result of continuous assaults upon Mr. Roosevelt by the yellow press of the country. The sins of the latter are many. The remedy is hard to discern, but lies largely in the discrimination of the reading public. Readers of "yellow" trade papers should too refrain from lending a too attentive ear to the exaggerated claims and statements in which they are won't to indulge.

DRAIN TILE AND THE SEASONS.

When there is an unusually dry season for the farmer it means a poor year for the drain tile man, and, in like manner, when there is an unusually wet season it generally means a good year in drain tile. It goes to show that the farmer may look to the future and plan ahead more than the average city man; still, he is partly of the same improvident nature, is affected considerably by immediate conditions instead of altogether by what his logic tells him is the right thing. It is a dry season that is given by the U. S. Geological Survey, as the probable explanation for drain tile showing such a falling off in 1911. The decrease was 15.05 per cent., the largest proportional decrease of any branch of the clay industry. That it had been a poor year was shown plainly by reports from tile men who were among the gathering at the big annual meeting, and also they reported that the dry weather was the cause. Unusually dry weather acts two ways on the farmer, for he does not feel the need for drain

tile while it is dry weather, and then the usual result of such weather is a poor crop, so that the farmer does not feel able to spare the money necessary for such work. He is a right smart of an "Arkansas farmer" after all—the farmer that didn't need his roof mended when it was not raining, and couldn't mend it when it was raining. This year there has been enough rain and good crops, so that the drain tile business should be coming along fine, and the total business for the year should make a different story from that told last year. And for the good of other years, why not try talking the farmers out of that improvident "Arkansas farmer" habit?

OHIO'S HIGHWAY SPIRIT.

It seems that Ohio has the right kind of good roads spirit, and has held out a pattern in logic that other States may well follow. One of the recent amendments of the State constitution limits the State debt to three-quarters of a million, but provides that a debt of fifty million may be incurred to build a system of highways—a state-wide system of inter-county roads. This amount of indebtedness can be incurred at a rate not to exceed ten million a year. Which means that during the next five or six years Ohio can do some wonders in the way of road building if this same spirit prevails through that period, and can therein set an inspiring example for the other states. Ohio is a big state in many respects; it covers a lot of territory, has people with big, broad minds, turns out big presidential timber, and has the biggest share of brick paved streets and roads. In the scheme of road building we hope that the brick men of the state will stay on the job and see that the example in road building to other states is perfected by including a still larger portion of brick paving, for that is what it takes to complete the ideal highway.

BUILD WITH BRICK.

Suppose there should flare out suddenly and simultaneously in every town and city in the United States that has electric lights and signs a glaring electric sign with the injunction, BUILD WITH BRICK, would it require any stretch of the imagination or strain on the mind's eye to see it making a strong impression in favor of the greatest of all building material? This question is asked because of an idea that keeps bobbing up and insisting on attention. That idea is that every man making brick should display a sign, a prominent sign, both at his office and yards, with this very slogan or injunction on it. Just think for a minute and try counting up for yourself to see how many signs that would mean, and what effect it might have on the building public. And think also of this—the great thing about it—it would not cost any man in the trade enough for him to feel it. Every business man can afford to put up a sign, and the wise ones regard this as one of the best forms of advertising that costs the least money.

But that is not all nor hardly half of the idea—it is merely the beginning. Let us suppose for a minute that the beginning has already been made, that there is a big "Build with Brick" sign on every brick yard in the country. The next step would be for those in the cities where there are several to get together and talk matters over. What is more natural, if they are of an advertising and boosting disposition, then that a part of the advertising fund should be spent in having erected and maintained in the heart of the town a conspicuously glaring sign with this same injunction on it—nothing else. Signs like this showing up in the midst of things in the busy part of town to catch the eye of the passing throng, and signs of the same portent on all the brick yards and offices would certainly put impress into the brick idea. It would din itself into the minds of people till every

time any man got to thinking about building he would be compelled to think of brick, too. Thinking of it would lead to inquiry—and to more business for the brick men. It would help not only the building brick man proper, but the idea is broad enough to even include paving brick. No matter what a man had to build, street, garage, home or factory, that sign about building with brick always confronting him would set him to investigating the brick end of it, and would impress him enough that the balance should be easy.

Nor is that all. The same thing could be made into an advertising slogan, included as a catch line on stationery, made the headline in advertising talks, and so on to whatever extent the ingenuity of those using it might lead them. Yet, the main thing, the big part of the idea is the start, the getting of everybody in the same notion at the same time, and to do that little inexpensive bit of work involved in putting up a sign that says distinctly, "Build with Brick." What do you think about the idea—does it look like a good one to you, and are you ready to be a willing worker in a movement to carry out such a plan as it suggests?

FIRE INSURANCE FOR CLAYWORKERS.

We are pleased to introduce to the clayworkers of the land the Reciprocal Fire Insurance Bureau, which has been organized for the purpose of furnishing reliable fire insurance to manufacturers of clay products at cost. One of the large items in the expense account of every manufacturer of clay products is the cost of fire insurance. Years ago it was demonstrated by the textile manufacturers of New England that by intelligent co-operation the cost of fire insurance could be reduced to a very reasonable figure, and there are a number of successful organizations in that field which are fully as reliable as any of the old line companies. The same thing has been accomplished in the lumber field by the establishment of inter-insurance bureaus, by which hundreds of thousands of dollars are saved each year to those engaged in that industry. Unquestionably reciprocal fire insurance will prove equally advantageous to the manufacturers of clay products. As announced in an ad. in this issue, Mr. W. T. Campbell, an experienced and responsible underwriter of St. Louis, and T. A. Randall, secretary of the N. B. M. A., have formed an organization and are now prepared to write fire policies on clay plants only, and at a cost that will save the members of the Bureau many thousands of dollars each year—a consummation long desired and of great importance to the clay industries.

REDUCING DELIVERY COST.

Delivery cost is an important item with most every product, and with brick, because of its weight, the cost of delivery is very high as compared to other items of cost involved in making. It behooves the brickmaker, therefore, to study ways and means for keeping it down as low as possible—for cutting out some of it here and there when a chance appears. A splendid idea has been put to service in a certain city where there are several yards located at different points. The brick men have figured it out that each yard should serve the territory near it, and not one yard be hauling a long distance and making deliveries right next door to another yard. So they have followed the plan of districting the city for delivery purposes, and making a higher price for those districts more distant from the yard. This has the effect of giving in a great measure the trade of a given district to the yard nearest, for naturally its prices would be a little more favorable. It is not possible to reduce the distance to haul and the burden of delivery to the full theoretical extent by this means, for there is some difference

in the brick, some matters of preference by customer and other factors that enter. But it does help some, cuts out quite a lot of the useless long hauling, and then it enables the brick men to get the additional price on the longer hauls that helps carry the cost of the extra hauling. Every little thing like this helps, for it is a matter of conserving energy, of cutting down some of the unnecessary cost of delivery, and it is one of the things that help make for what we call business efficiency.

A CORRECTION.

In the last announcement of Mr. A. E. Eaton's fine series of articles on "Impressions of Clayworking Methods in Europe," the sketch, in second column, on page 271 of the September issue, is that of a section of the Dressler Tunnel and Car Kiln and not of the Mendheim Gas Fired Continuous Kiln, as stated.

MISSABE DIPPERS FOR STEAM SHOVELS AND DIPPER DREDGES.

The above is the title of a very attractive bulletin issued recently by the Edgar Allen American Manganese Steel Company, known as Bulletin No. 51. If you have not received a copy and are interested in steam shovels or dredges, the above company will be glad to send you this and other literature on the subjects upon request. See their ad on page 441.

MRS. G. A. BUCKLEY SUCCEEDED BY SON.

Mrs. G. A. Buckley, who has been operating a large brick plant at Montrose, Colo., for two or three years past, has turned the business over to her son, John Buckley. The latter has sold a part interest of the concern to J. E. Dowd, formerly with the Denver Sewer Pipe and Clay Company, of Denver, Colo. The two gentlemen will give their undivided attention to the operation of the plant.

EX-PRESIDENT HUNT WEDS.

The hosts of personal friends of Mr. William H. Hunt, of Cleveland, Ohio, ex-president of the National Brick Manufacturers' Association, will rejoice to know that he is now a benedict, having on the 15th of October wedded Miss May Fairchild Sanford, of Akron, Ohio. The announcement cards state that Mr. and Mrs. Hunt will be at home after June, 1913, from which we take it that they have gone on an extended trip abroad.

CHAMBERS BROS. NEW PAMPHLET.

The Chambers Bros. Company, of Philadelphia, Pa., issued to the trade recently a well printed pocket pamphlet dealing with their brickmaking machinery. Two forceful statements made on the first inside page are that the first Chambers machine built in the early sixties is still in practical operation and that a Chambers Machine operated in Chicago, Ill., holds the world's record of 354,000 building brick in eight hours, while another Chambers Machine in the Chicago district has a week's average of 44,900 brick per hour. The pamphlet is well illustrated and contains interesting descriptions of their No. 10 Auger Machine, Standard Patent Clay Disintegrator, Keystone Double Disintegrator, and No. 1 and a No. 5 Rotary Cutter. This and their complete catalogue will be mailed by the Chambers Bros. Company, of Philadelphia, upon request.

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"GETTING THE MOST FOR A DOLLAR" has been given as a definition of good engineering such as is done by

The Richardson-Lovejoy Engineering Company.

[See page 452.]

FOR SALE, WANTED, ETC.

WANTED—A man to take charge of plant manufacturing front face brick. Must be thoroughly capable. Address, BOX 10—FRANK, 10 1 d Care Clay-Worker.

AN OPPORTUNITY.

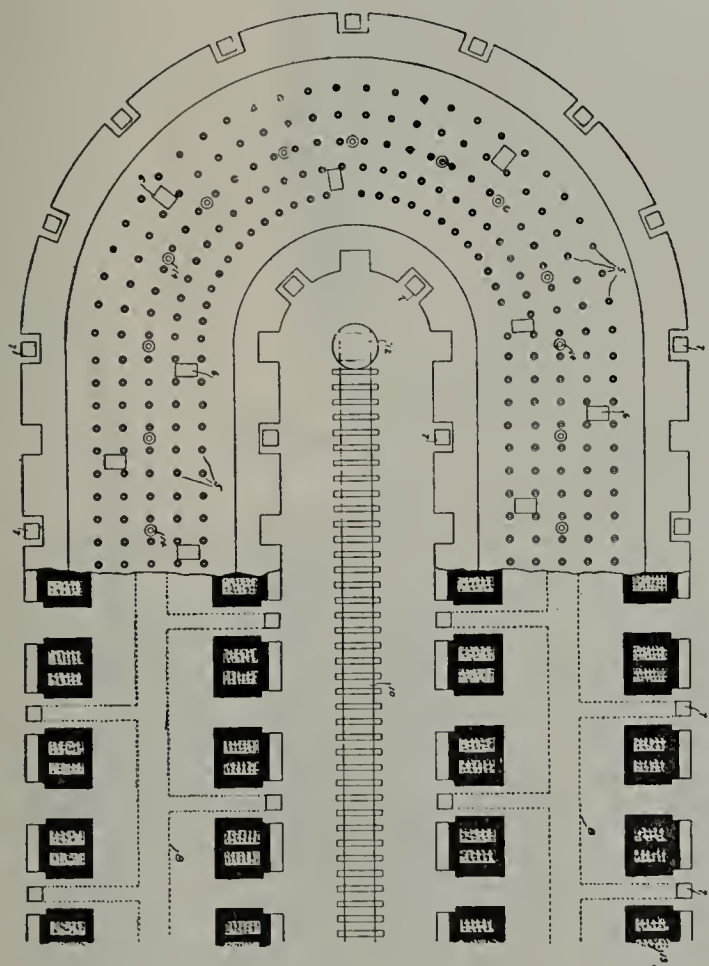
We have a rare opportunity for a man thoroughly experienced in the manufacture of Face Brick, as Manager of our new and modern brick plant in the Middle West, to take full charge of the operation of the plant and the disposal of the product. The Company is engaged in the manufacture of other building materials on a large scale, and a free hand and a liberal salary will be given the right man, but he must be able to guarantee his ability by a reasonable investment. Reply to 1109 WALDHEIM BUILDING, 9 1 cm Kansas City, Mo.

For Sale, Wanted, Etc., Ads Continued pages 440, 441 and 442.

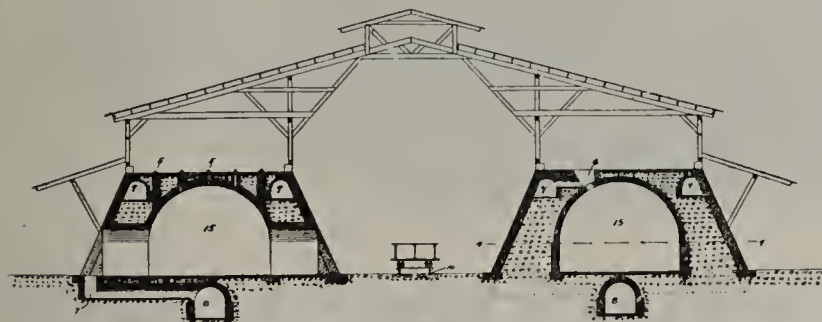
A QUALITY OF MACHINERY ABOVE ALL OTHERS.

Stop Thief!

Do you know that your fuel supply is disappearing without your knowledge?



Top Plan View With Part in Section on Line 1-2



Transverse Section Through Side Door

Transverse Section Through Waste Heat Connection

5-Top Firing Hole
6-Waste Heat Connections
7-Smoke Duct Connections
8-Main Smoke Duct
9-Waste Heat Duct

10-Transfer Track
11-Turn Table
12-Earth Filling
13-Measuring Hole
14-Burning Chamber

If you found any of your employes taking away a cartload of coal once a week you'd have him in jail just about as quick as your telephone could get an officer to your plant.

A ton of coal a week wouldn't break you up. Why not let the employe have it? Why not go further and let each employe have a ton every once in a awhile? It would help them a lot.

We have a system whereby you can give each employe a ton of coal every now and then and still have a lot saved over what you are using.

The coal you waste is about half what you use.

The employe who would take your coal would get some good out of it. His shivering wife and children would be made comfortable, but the coal you are wasting returns absolutely no equivalent in any way. Moreover, it is a reflection against the management of your plant.

Let's get together and talk this matter over. You don't want to waste the fuel if you can save it.

You don't need to follow our advice if, after listening to us, you decide we can't make good.

We know we can save you a lot of money and labor. Are you interested?

The Haigh Kiln has made good for others and will make good for you. Others say it has saved half their fuel, to say nothing of its labor-saving features and the increased quality of product and elimination of culls.

Let us hear from you about your kiln equipment. Remember we build every machine and appliance required to make Clay Products of all classes.

The American Clay Machinery Co.

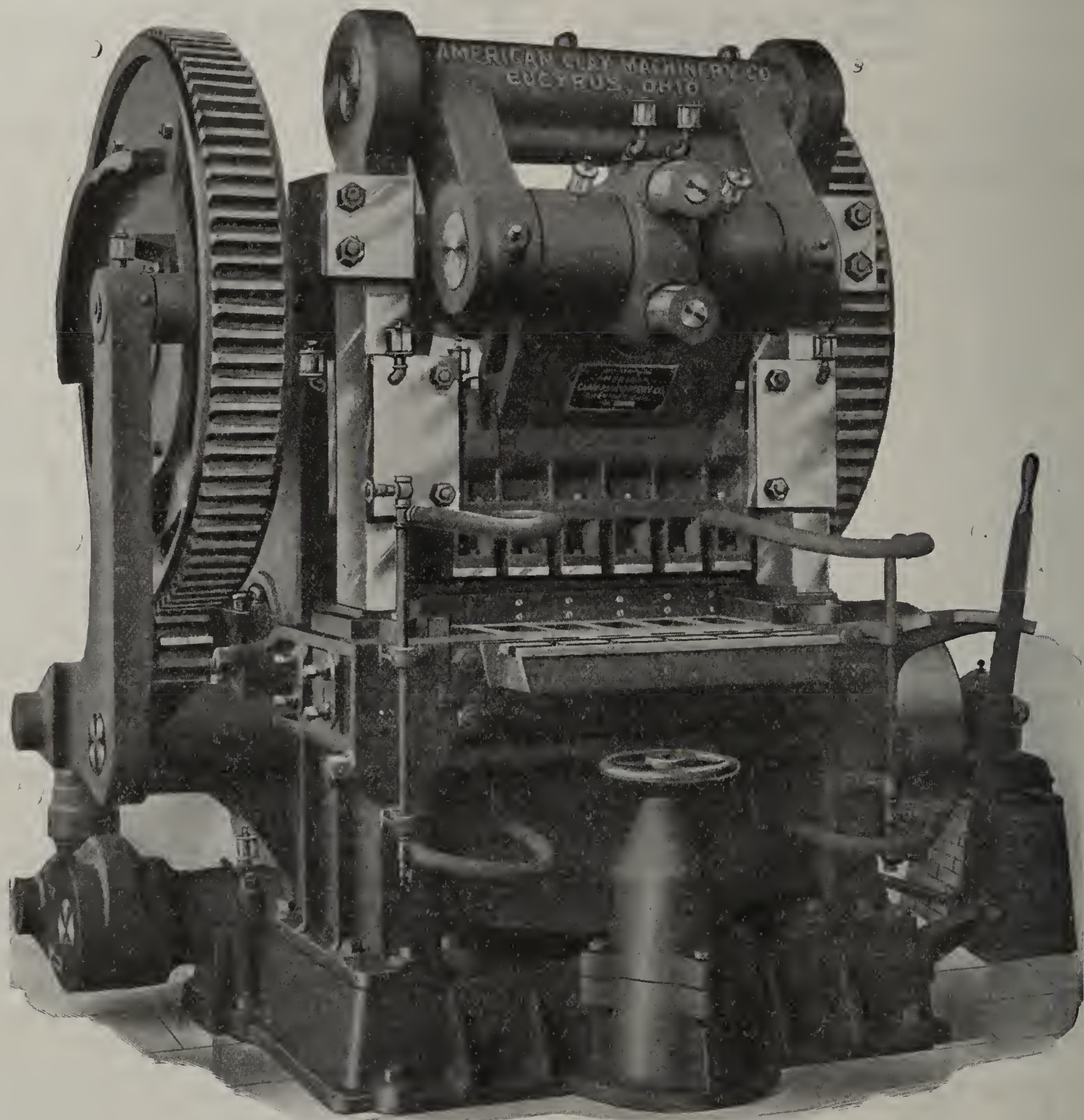
Bucyrus, Ohio, U. S. A.



Much the largest manufacturers of Clayworking Machinery in the world. And much the best.

Mention THE CLAY-WORKER.

A QUALITY OF MACHINERY ABOVE ALL OTHERS.



Cities Built of Burned Clay

Every modern city will be built largely of Burned Clay. Pressed Brick, Terra Cotta and Face Brick will predominate. All will have their advocates, but the use of any one to the exclusion of others would detract from the varied beauty.

In the manufacture of Pressed Brick we are prepared to equip complete plants with the best machinery built. One of the units of our equipment is our No. 599 Six-Mould Press here shown. It is correct in design, strong in construction, modern in method, movement and features. It is faultless and flawless. It will make a high-grade product with a minimum of cost and labor. We will be pleased to furnish a complete description of this machine. We build every machine and appliance for the manufacture of all classes of clay products by all processes.

The American Clay Machinery Co.
Bucyrus, Ohio, U. S. A.



Much the largest manufacturers of Clayworking Machinery in the world. And much the best.

Mention THE CLAY-WORKER.

A QUALITY OF MACHINERY ABOVE ALL OTHERS.

Weather Conditions Cause Loss to Brick Manufacturers

The uncertainty of weather conditions has made it impossible for the brick manufacturer to be sure of his output, his labor and his deliveries.

The "American" Steam Pipe Rack Dryer makes possible a System for handling and drying Soft Mud Brick which meets all weather conditions.

A most important, economical and meritorious feature of our Steam Pipe Rack Dryer is in the conservation of labor. It has been a harder problem to handle labor this season than ever before. Wheelers and truckers have been hard to get and hard to keep. Our dryer system eliminates all the truckers from the machine, as we use a cable delivery system, and we also dispense with all wheelers to the kiln, as we use a car system.

It is not possible to keep a force of good steady men unless they have work every day. Weather conditions of the present season were such that the men could not work every day.

They became dissatisfied and went away to find a job where they could have steady employment.

This dryer eliminates all weather chance. It gives the plant a fixed dependable output. It keeps your organization together and contented and prevents the whole plant from being a dead investment on off days. It puts the work up to the men in an easy manner and makes them satisfied with the job.

The impression may exist in some minds that it costs too much to dry brick artificially and that there is nothing so cheap as the sun and the wind. This is an erroneous impression. While the sun and the wind may be free, it costs you a great deal to use them, and you will really save time and money by not using them.

The up-keep cost of a Pipe Rack Dryer, as we build it, is less than \$100.00 a year. We believe no other system can show as low an average for up-keep.

We save the repairs to Batten and Saddles.

We save rolling and leveling open yards.

We save the repairs to racks and pallets made of wood.

We save the repairs to sheds on the covered yard.

We save the loss of time through bad weather.

We save the loss of overhead expenses.

We save the loss of brick spoiled by rain.

We save loss of time of men on yearly salary.

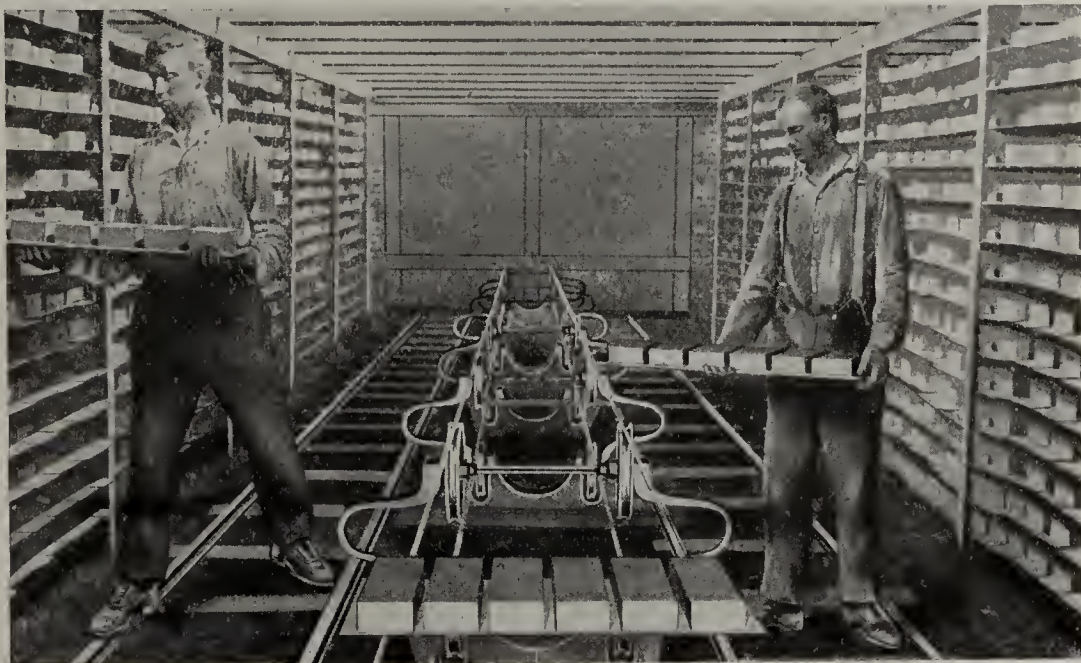
We save loss of brick in handling.

We save loss due to hacking wet brick under kiln shed.

We save loss of daily capacity by using a system that clearly shows the day's work.

We save loss of time in water smoking wet brick in kiln.

Think over your own yard and your own conditions and you will find more reasons than these why you should have a dryer.



Placing Brick on the Racks

Some Advantages We Offer You

We give a fixed daily capacity the year around, if desired.

We give a better quality of product because the brick burn better in kilns when uniformly dry.

We give an output of brick with square corners, smooth faces and well defined edges, because we handle them easily and carefully.

We give satisfaction in the performance of our contract.

We give you a system that will be a pleasure to operate and which you, as well as ourselves, will be proud of.

Let us talk this matter over with you.



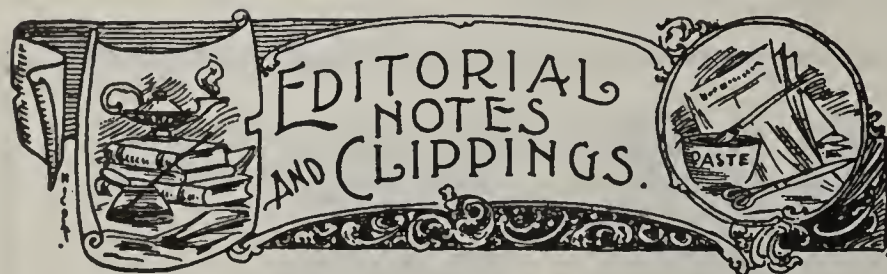
The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.

We build every machine and appliance required for making Clay Products by all processes.

Much the largest manufacturers of Clayworking Machinery in the world. And much the best.

Mention THE CLAY-WORKER.



Denison, Texas, wants a building and paving brick plant.

Superior Brick Company will erect a plant at Port Arthur, Ont., to manufacture brick tile and hollow brick. Capital \$150,000.

Receiver J. Vandever has sold the entire plant and properties of the Gulf States Brick Company to Newton R. Wilson, of Beaumont, Texas.

Charles Taylor & Co., fire brick manufacturers of Cincinnati, Ohio, contemplate the establishment of another fire brick plant at Enterprise, Ky.

The Baton Rouge Clay Products Company's plant, at Baton Rouge, La., was damaged to the extent of \$1,500 by fire recently, which started from an overheated kiln.

Andrew Blattner has sold his interest in the tile factory at Keota, Iowa, to G. Dutton, of Lancaster, Iowa. Mr. Dutton has moved to Keota and taken full charge of the factory.

The West Branch Fire Brick Company, at Drury's Run, Pa., are installing an additional wet pan in order to enable them to fill their orders. This new addition will double the capacity of the plant.

Oscar A. Newell, of Hartford, Conn., has been appointed receiver of the New England Brick Company. A bond of \$10,000 was required by the court. The aggregate claims against the company amount to \$25,000.

The Barkwill Brick Company, of Cleveland, Ohio, was damaged to the extent of \$10,000 by fire Saturday, Sept. 28th. The origin of the fire is unknown. After a great deal of trouble seventy-five horses were rescued from the stables.

Thomas A. Hagler, treasurer of the Tulsa Vitrified Brick and Tile Company, of Tulsa, Okla., died suddenly of heart failure while sitting in the office of the company. He was only twenty-six years old, and apparently in the best of health.

A new clay products company recently incorporated in Kentucky is that of the Paducah Clay Products Company, which is capitalized at \$250,000. Those interested are H. F. Pryor, Thos. I. Walker and L. Tragoit. The plant will be erected in Paducah.

W. H. Francis, who has been manager of the Coffeyville Brick Company's plant at Cherryvale, Kansas, ever since its erection, has severed his connection with that company and signed a contract with R. C. Penfield to manage the plant of the Oakland Paving Brick Company's plant at Oakland, Cal.

The Mahoning & Lake Erie Coal Company, of Cleveland, Ohio, has absorbed the American Fire Clay Company, both companies doing business chiefly in Mahoning county, Ohio, but controlled by Cleveland men. The Mahoning & Lake Erie Company has increased its capital stock from \$100,000 to \$250,000 to take care of the merger. Britton F. Day, of Cleveland, is president of the new company, and J. E. Upson, also of Cleveland, is vice-president.

Wm. Cooper, manager of the Enterprise Pottery Company, Trenton, N. J., died suddenly in that city September 20 from heart failure. He had been ill from rheumatic fever for some time, but had so far recovered that he had returned to his work as usual. He was born in Staffordshire, England, and came to this country twenty-eight years ago. For the past nineteen years he had been connected with the Enterprise Company. A wife and one daughter survive.

The Maryland Fire Brick Company has recently been incorporated and will erect a plant at Harwood, Md., where they have purchased seventy-five acres of clay land. The company is capitalized at \$300,000. S. B. Kanowitz is president, W. Kanowitz, vice-president, and W. Kanowitz, secretary-treasurer. The plant, which will be modern throughout, will be erected according to plans designed by the L. E. Rodgers Engineering Company, of Chicago, Ill., and will

have a daily capacity of 25,000 fire brick, eighteen retorts and seventy-five tons of tile.

The Clearfield Sewer Pipe Company, Clearfield, Pa., has been incorporated for the purpose of manufacturing sewer pipe, drain tile and brick.

The Coral Ridge Clay Products Company has been organized at Louisville, Ky., and will establish a brick plant at South Park, a suburb of Louisville.

Texas Terra Cotta Company has been incorporated at Athens, Texas, with \$100,000 capital stock. Those interested are J. E. Miller, P. A. Habel and J. E. Miller.

James G. Goulding, secretary and treasurer of the Trent Brick Company, of Trenton, N. J., died September 26, after an illness of several months. His widow survives.

The Meacham & Wright Brick Company, of Chicago, has recently been incorporated with \$50,000 capital stock by J. R. Montgomery, J. Barth and I. E. Harall, of Chicago.

A. McConnell was crushed to death in the clay mine of the Globe Brick Works, at Cumberland, W. Va. He was forty-one years old and leaves a wife and five children.

Work has begun on a new plant for St. Mary's, Pa., which will have a daily capacity of 50,000 brick. The Pennsylvania Fireproofing Company is at the head of the enterprise.

The Builders' Brick and Supply Company, of the Bronx, has been incorporated with \$300,000 capital stock by John J. Tully, P. J. Dwyer, Frank E. Lyon and Thomas J. Bannon, of 55 John street, New York City.

A fire at the plant of the American Pressed Brick Company, St. Louis, Mo., resulted in a \$15,000 loss. The cause of the fire is supposed to have been an explosion of oil in the boiler room. The loss is partly covered by insurance.

Ground has been broken for the new plant of the Mount McKay Brick Company at Fort Williams, Manitoba, which is to cost in the neighborhood of \$100,000. The machinery for the plant will be furnished by the Berg Machinery Company.

The Hydraulic Press Brick Company, of St. Louis, has purchased a one hundred acre tract of land in northwest St. Louis, paying close to \$250,000 for same. The land contains a fine deposit of clay well adapted to the grade of brick manufactured by the Hydraulic Company.

The Albany (N. Y.) Clay Products Company, a new million-dollar concern, has secured an option on a big tract of land near the Forbes Manor house and within a few months will establish a plant there for the manufacture of a hollow brick to be used in fireproof construction. Those interested say that the output of the company will be several million bricks annually. Theodore L. Pomeroy, of New York, is president of the new company, which was organized in Boston several weeks ago. The directors, besides Mr. Pomeroy, are Francis Swift, Llewyn Howland and Arthur Rice, of Boston.

The Swift Terra Cotta, Brick and Tile Plant, at Ottawa, Ill., owned by F. E. Swift, of Dayton, Ohio, was destroyed by fire Tuesday, September 17, entailing a loss of \$25,000. The insurance on the structure amounted to only \$5,000. The fire was first discovered in the drying room on the second floor, in the southeast corner of the building, from where it spread rapidly. There had been no heat in the drying room previous to the fire, so that it is thought the flames were started by spontaneous combustion. The drying rooms were very dry and contained a deposit of fine white powder, which, when exploded, spread the fire. The building was a three-story brick structure with terra cotta roof. Beside the buildings and machinery, \$2,000 worth of machinery was destroyed. It has been officially stated that the plant will

(Continued on page 436.)

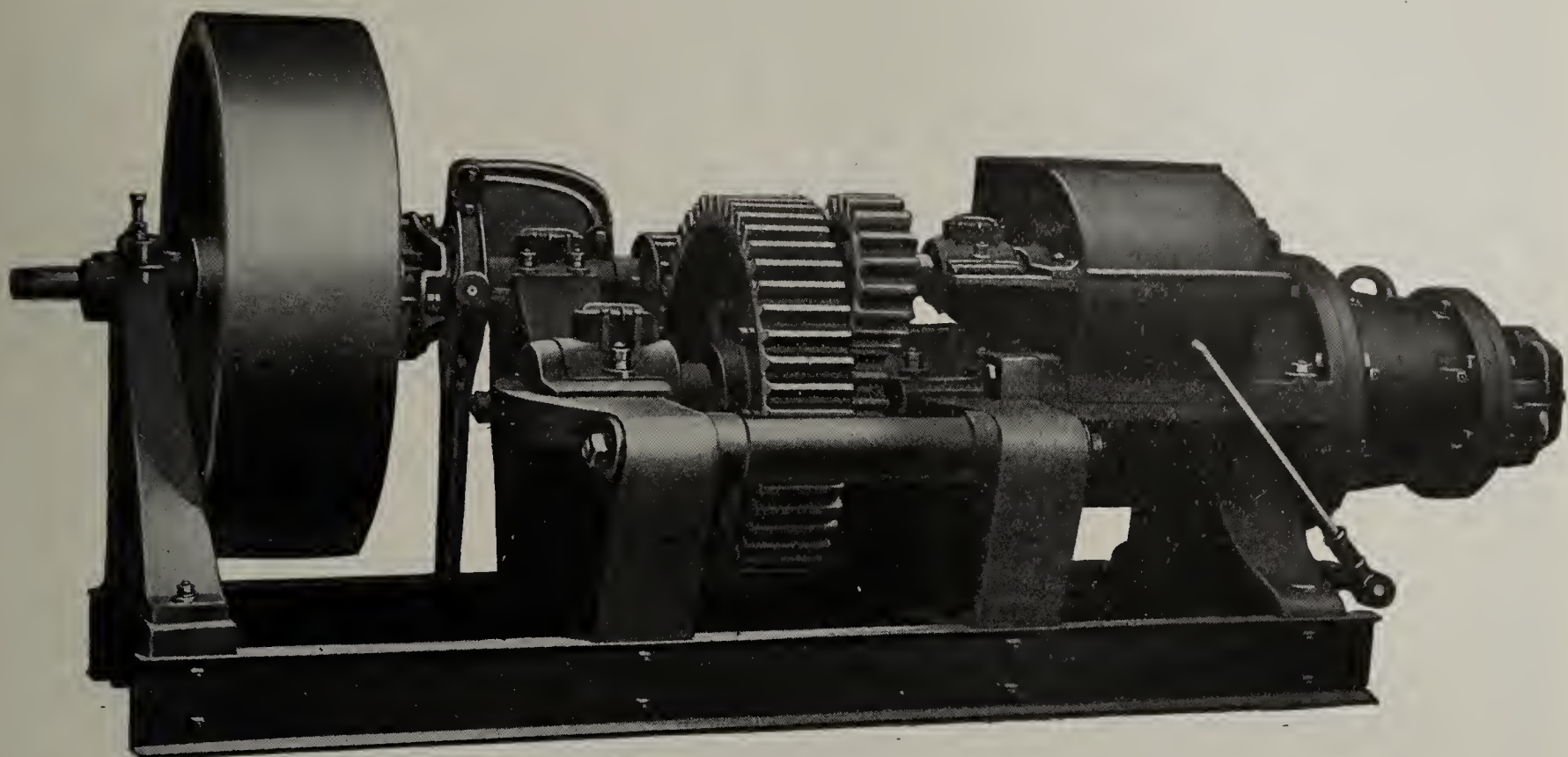


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EDITORIAL NOTES AND CLIPPINGS—Continued.

be rebuilt, but the buildings will not be on the same scale, the old buildings having been too high.

The Standard Clay Company's plant at Little Falls, Wash., was destroyed by fire September 29. The loss is estimated at \$200,000, partly covered by insurance.

C. W. Soule, brick manufacturer of Webster City, Iowa, committed suicide October 7 by shooting himself. Despondency and ill health was the cause of the deed.

The main buildings of the Fort Scott Brick Company, at Fort Scott, Kansas, were destroyed by fire October 2. The loss, which is partly covered by insurance, is estimated at \$100,000.

The Norton Brick and Manufacturing Company's plant at Norton, Va., near Big Stone Gap, was totally destroyed by fire the latter part of September. The loss is quite heavy, as the company only carried \$4,000 worth of insurance.

At a recent meeting of the directors of the Cambria Clay Manufacturing Company, whose headquarters are at Altoona, Pa., it was decided to make a number of extensive improvements in the plant. S. M. Hoyer, of Altoona, is at the head of the company.

C. B. Cook and Daniel Keough, of Windber, Pa., have leased the plant of the Kelley Brick Company at that place. They have made a number of improvements in the plant, and, if their venture proves as successful as they now anticipate, it is their intention to purchase the plant outright.

The Milton Brick Company, of Milton, Pa., has been incorporated with \$150,000 capital stock, and work on an immense plant has been commenced. The company owns 135 acres of fine clay and shale, which has been thoroughly tested and found suitable for paving brick. The plant will have a capacity of 150,000 brick per day.

R. B. Small Company will greatly improve and enlarge their brick plant at Columbus, Ga. A new clay storage shed is just being completed, work has started on four additional kilns, and a new Thew automatic shovel will be installed. This company has only been in existence about two years, but has already made a place for itself in industrial Columbus.

The death of John Russell, a highly esteemed pioneer citizen of Toronto, Ont., Canada, occurred at his home in that city early in September. Mr. Russell came to Toronto from England in 1849 and started in the brick business, founding what is now one of the largest concerns in the Dominion. He retired in 1896, and the business has since been continued by his son, Mr. Joseph Russell.

The big sewer pipe plant at Webster City, Iowa, is fast nearing completion, Mr. P. W. Hearn, the secretary and general manager, writes us, and will be ready for business early this winter. The company, which is known as the National Sewer Pipe Company, will manufacture nothing but sewer pipe. They are installing a Taplin-Rice press, and it is thought that these will handle their output for this winter. Later on it may be necessary to build more.

The Clymer Brick and Fire Clay company, of Clymer, Pa., has had an unusually successful season. One of the chief products of the company is radial chimney brick, for which they have had an extraordinary demand. This company has made a number of innovations, one of which is providing neat brick dwellings for their employes, and twenty-one of these cottages have already been erected by the company. The principal office of the company is at Indiana, Pa., and

the officers are J. S. Fisher, president; R. M. Wilson, treasurer, and George W. Lenkerd, secretary and general manager.

Damage to the extent of \$400 was sustained at the plant of the Hall Brick Company at Tiffin, Ohio, when the roofs of the kilns caught fire from an overheated kiln.

A premature explosion of dynamite at the brick plant of the Red Cliff Product Company, Medicine Hat, Alberta, Canada, wrecked the buildings, causing a loss of approximately \$10,000.

George P. Heinze & Co., of Denver, Colo., have purchased an immense tract of land on which they will erect a large plant for the manufacture of brick and tile. They expect to spend about \$100,000 on the plant.

S. L. Davidson, A. R. Robinson and C. E. Hickman, of St. Paul, Minn., are interested in the erection of an immense plant at Valley City, N. Dak., for the manufacture of the Denison interlocking tile. Tests have been made of the clay which have proven entirely satisfactory.

The Yankton Pressed Brick Company, of Yankton, S. Dak., has recently been chartered by D. B. Gurney, W. J. Fantle and W. C. Lusk, of Yankton; D. J. Johnson, of Omaha; and F. H. Perry, of Hot Springs. The Commercial Club of Yankton has donated the site for the plant, which it is expected to have in operation by the first of January.

Operations were recently begun at the new tile factory at Shelburn, Ind., known as the Jas. J. Riggs Clay Products Company. Previous to the actual operation of the plant the factory was thrown open to visitors, and many friends of the management availed themselves of the opportunity to inspect the new factory. Music and refreshments were the order of the day.

The plant of the Elgin-Butler Brick Company, at Austin, Texas, was wholly destroyed by fire which started at midnight, September 27. The loss is estimated at close to \$100,000. The fire started in the boiler rooms and had gained such headway when discovered that the fire department was helpless. The loss is only partly covered by insurance. The plant will be rebuilt at once.

Fire that broke out in the dryer at the Clay Products Company's plant at Brazil, Ind., totally destroyed the factory. The company estimated the loss at about \$90,000. The loss is partially covered by insurance, and the work of clearing up the debris preparatory to rebuilding the plant was begun before the ruins were fairly cold. The company manufactures drain tile and conduits and has placed an order with the J. D. Fate Company for almost all of the new machinery.

The new steam dryer at the Sutton & Sudderly Brick Works, at Coeymans, N. Y., was finished the latter part of September and is now in full operation. This will enable the company to operate the year round if they so desire and materially reduce the cost of production. A bad landslide occurred recently at the company's clay bank, when several hundred tons of clay caved in. Fortunately it took place at noon when the men were all away from the bank at lunch.

John M. Pope, of Trenton, N. J., president of the United States Potters' Association and of the Trenton Potters' Association, died suddenly of heart failure, September 24th, while sitting at his desk talking to a factory superintendent. He was fifty-six years old and had spent thirty-four years in this country, all of which time he had been interested in the pottery business, working his way up from the position of decorator to the high place he held in the pottery business at the time of his death. He leaves a widow, one daughter and three sons, one of whom was connected with his father at the Mercer pottery.

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Complete for drying 500 M brick, all hardwood runways, railroad switch adjoining. Could be loaded at minimum cost. Will be through using them in very short time. A splendid opportunity for any one who wants to be prepared for the heavy demand next spring. Apply

COLLINGWOOD BRICK CO.
9 2 c Toledo, Ohio.

FOR SALE.

A Bucyrus steam shovel, a bargain for a ready buyer.

Two "Henry Martin" vertical brick machines.

A 125 H. P. "Buckeye" engine.

We are at present operating this machinery and would be pleased to have same inspected.

THE AMERICAN BUILDING BRICK COMPANY,
10 1 d Cleveland, Ohio.

WANTED, ETC.

WANTED.

One second hand six-foot dry pan. Must be in perfect repair and cheap.
INDIANA BRICK COMPANY,
10 1 d Anderson, Ind.

WANTED—AT ONCE.

Portable oil kiln and one lever type kick wheel. Must be in good condition. State price and give full particulars.
JOSEPH PODMORE,
10 1 d m 309 Second St., Troy, N. Y.

WANTED—Experienced tile manufacturer to locate factory near Memphis; we have best location with clay, fuel and on railroad. Address,
C. A. OLCOTT,
10 1 d 46 Porter Bldg., Memphis, Tenn.

WANTED—Position as superintendent or head burner in a fire or building brick plant, fire brick preferred. Thorough in all branches. Address,
BOX 10—A. M. F.,
10 1 d Care Clay-Worker.

WANTED.

Men ready to build clay plant wish to correspond with parties having good proposition in location, market, transportation, labor, fuel. and especially Clay. Address,
CLAY PROPOSITION,
10 2 d Care Clay-Worker.

WANTED.

Position as director of glaze department in an art tile, terra cotta or brick plant. Many years experience in the manufacture of art pottery. Best of references. For particulars, address
CHARLES VOLKMAR,
8 tf d Metuchen, N. J.

WANTED.

4,000 steel pallets, 10 inches wide by 33 inches long. Also 40,000 3 slat, 3 cleat pallets, 10 inches wide by 33 inches long. Prefer pallets 7/8-inch thick.

INDIANA BRICK COMPANY,
10 1 d Anderson, Ind.

WANTED—A first class man to take charge of our machine room who thoroughly understands Boyd Presses, American Dry Pans and who knows the manufacture of high class face brick. Prefer one who understands boilers and engines also, and knows his business thoroughly. We have no use for any other. SOUTHERN,
10 tf d Care Clay-Worker.

WANTED—POSITION.

By a practical all round brick yard man as superintendent or foreman. Can burn with wood or coal, natural draft or forced draft in up draft kilns. Would take some stock in plant. Best of references.

ADDRESS LYNN,
10 1 c m Care Clay-Worker.

WANTED—A man of extended and varied experience, at present in charge of a large face and paving brick plant in northwestern Ohio, would like to change; am capable of designing and erecting complete plants and have operated some of the largest in the country; none but those needing the services of a high class man need answer; highest testimonials. Address
BOX 8—OHIO,
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MISCELLANEOUS

I BRING BUYER AND SELLER TOGETHER—I sell clayworking plants, stores, factories and real estate. If you want to buy, sell or trade any kind of property or business anywhere, write me. Established 1881.

FRANK P. CLEVELAND,
965 Adams Express Bldg., Chicago, Ill.

(Continued on next page.)



"STAG" BRAND
Manganese
Steel
Castings.

Edgar Allen American
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secured in the United States and foreign countries. TRADE MARKS registered. Investigations, opinions and advice in regard to patentability and infringement.

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We carry in stock at all times a large supply of Elevator Buckets, including Caldwell, Avery, Salem, Regular Riveted and various styles of Malleable Iron.

All sizes and gauges for handling different materials.

Special Buckets made to order.

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FOR SALE. New Automatic Cutter.

We have a reciprocating automatic cutter made by the American Clay Machinery Co., and fully equipped, which we will sell cheap if sold at once. This machine was built for us for special work but was never operated. Enquire immediately of

THE DUNN WIRE-CUT-LUG BRICK CO.,
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Columbia Clay Works For Sale.

Sewer Pipe or Drain Tile Plant, near Columbia, Ill., on the Mobile & Ohio R. R. Good Mine and three varieties of Shale, covering 82 acres. Equipped with American Clay Machinery Co.'s machinery—Six 25-ft. down-draft kilns—Private spur, track and locomotive—Advantageous freight rates—Fuel, water and labor all cheap. Offered at a Sacrifice Price. Address

COLUMBIA LOAN CO.

109 St. George St., St. Louis, Mo.

Brick and Tile Plant For Sale.

The owner of an up-to-date tile and brick plant, located in an eastern Mississippi city, a junction point of three large railways, wishes to retire and offers for sale, in whole or in part, his well established, profitable business.

The property consists of 38 acres with an estimated supply of brick and tile material to last 30 or 40 years. The plant is located on a private spur track, connecting with all three railroads and equipped with three 100 horse power boilers and a good 150 horse power engine. The capacity is 75,000 bricks daily.

These bricks sell at an advanced price due to their extra quality. Double last year's output could have been disposed of, proving the good market that exists.

The nearby territory is a rich agricultural section, but needs tile drainage to make the land of the greatest value. Here then is an endless market for this branch of the business.

Labor is ample and obtainable at \$1 to \$1.25 per day. Coal is delivered at the kilns from \$2 to \$2.25 per ton.

This plant can be purchased at about one-third its original cost and is a "big buy" at the price. Full particulars can be obtained by referring to file No. 8639 and writing

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The "Red Brick" brand. Brilliant in tint; easy to mix, go farther than any other and none like them for Brick, Mortar, Cement, etc. Red, Brown, Purple and Black.

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RICKETSON MINERAL PAINT WORKS,
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Books for brickmakers. Inexperienced workmen will find them a source of valuable information. "Clay Glazes and Enamels," \$5.00; tells how to glaze and enamel brick and gives valuable recipes. "Analyses of Clays," \$2.00; a valuable reference book, giving analyses of well-known clays of this and foreign countries. "The Clayworkers' Handbook," \$2.00; a manual for all engaged in the manufacture of articles from clay. "Clays," \$5.00; their occurrences, properties and uses, with special reference to those of the United States. Any or all of these books mailed postage prepaid on receipt of price. Write for list of other valuable books for clayworkers Address **T. A. RANDALL & CO.**

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"CLAYWORKERS' HANDBOOK," by Author of "Chemistry of Clayworking"	2.00
"CLAYS," Heinrich Ries	5.00
"VITRIFIED PAVING BRICK," H. A. Wheeler, E. M.	2.00
"BRICKLAYING," Owen B. Maginnis.....	2.00
"KILN RECORDS," W. D. Richardson.....	1.00
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Art Glass, Mural Decoration, Mosaic,
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THIS WASHER MUST PAY FOR ITSELF

A MAN tried to sell me a horse once. He said it was a fine horse and had nothing the matter with it. I wanted a fine horse. But, I didn't know anything about horses much. And I didn't know the man very well either. So I told him I wanted to try the horse for a month. He said "All right, but pay me first, and I'll give you back your money if the horse isn't all right."

Well, I didn't like that. I was afraid the horse wasn't "all right" and that I might have to whistle for my money if I once parted with it. So I didn't buy the horse, although I wanted it badly. Now this set me thinking.

You see I make Washing Machines—the "1900 Gravity" Washer.

And I said to myself, lots of people may think about my Washing Machine as I thought about the horse, and about the man who owned it.

But I'd never know, because they wouldn't write and tell me. You see I sell my Washing Machines by mail. I have sold over half a million that way.

So, thought I, it is only fair enough to let people try my Washing Machines for a month, before they pay for them, just as I wanted to try the horse.

Now, I know what our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or by any other machine.

I know it will wash a tub full of very dirty clothes in six minutes. I know no other machine ever invented can do that, without wearing out the clothes.

Our "1900 Gravity" Washer does the work so easy that a child can run it almost as well as a strong woman, and it don't wear the clothes, fray the edges nor break buttons the way all other machines do.

It just drives soap water clear through the fibres of the clothes like a force pump might.

So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back and pay the freight, too. Surely that is fair enough, isn't it?

Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is?

And you can pay me out of what it saves for you. It will save its whole cost in a few months, in wear and tear on the clothes alone. And then it will save 50 cents to 75 cents a week over that in washwoman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 60 cents a week, send me 50 cents a week 'till paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself earns the balance.

Drop me a line to-day, and let me send you a book about the "1900 Gravity" Washer that washes clothes in 6 minutes.

Address me this way—H. L. Barker, 800 Court Street, Binghamton, N. Y. If you live in Canada, address 1900 Washer Co., 357 Yonge St., Toronto, Ont.



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Established by the Legislature
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Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

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with the Clayworking
Trades use the**

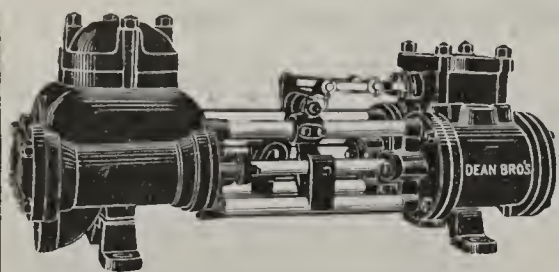
**For Sale
and Want
Columns
of...**

**The...
Clay=Worker.**

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**The Best, Quickest, Cheapest
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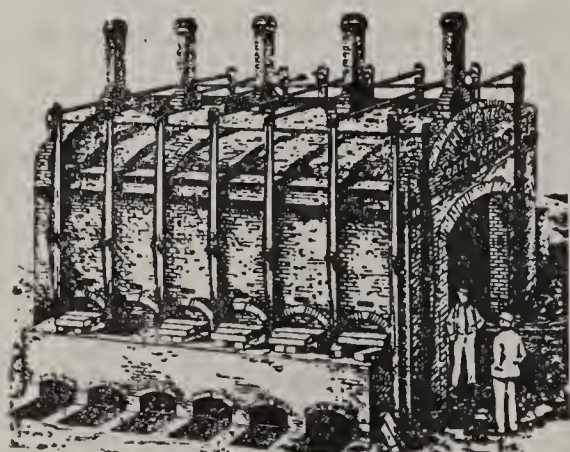
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PUMP
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The Yates Patent Down-draft Kiln. Also Continuous.

If you want to pay dividends, build modern kilns as good burning is the keynote to success. Sixteen of my kilns are in operation at the Shawmut Vitrified Paving Brick Works, Shawmut, Pa. Come and examine results for yourself. Also refer you to D. W. DeRosay, General Manager Corry Brick & Tile Co., Corry, Pa. Other references given if desired.

ALFRED YATES,
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Newton Portable Brick Handling System

This system gives you the advantage of three men taking the place of nine, as here shown. Above is a photograph of elevator and staging in operation, saving you six men over old way of passing and tossing brick; same advantage taking brick out of kiln. Send for circular and special information.

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Pat. Aug. 9, 1909.

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ANY **FIRE BRICK** ANY
SIZE SHAPE

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FIRE BRICK OF DIFFERENT GRADES.

FIRE CLAY TILES OF DIFFERENT SHAPES AND SIZES.

Boiler Tile, Locomotive Tile, Cupola Blocks.
Kiln Floor Tile, Lime Kiln Supplies.
By-Product—Coke Oven Brick.

Fire Clay Liners for Cement Kilns.

Crude Clay in Bulk, Ground Clay and
ground brick in barrels or sacks.

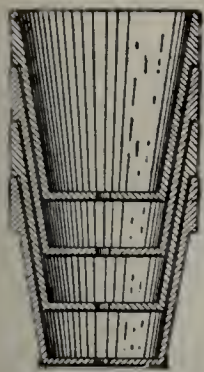
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All Contracts Made as of St. Louis.

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Make Money

WITH THE ONLY SUCCESSFUL

Flower Pot Machine

(PATENTED.)

No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;

4,000 four-inch " 2,000 seven-inch "

Write for Circular and prices.

The Rockwood Mfg. Co.,

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Dennis Improved System of Double Chamber and Double Arch Down Draft Kilns.

Patented April, 14, 1903 and September, 8, 1903.

THESE KILNS BURN ALL HARD BRICK.

Three of these Double Chamber Kilns will burn as many brick in a year as four single arch kilns the same size, because as soon as one side is unloaded you can set green brick, and so have the kiln half set by the time all the burned brick are unloaded. These kilns burn the brick hardest on the bottom. This feature is something new for Down Draft Kilns.

Burn soft mud, stiff mud or dry pressed brick. In proportion to capacity this is the cheapest and strongest kiln on the market and will give better results than any other known kiln.

Plans for Round Kilns, also Single Arch Down Draft Kilns. Plans for taking the heat from a cooling to a green kiln for drying off or water smoking.

Write for printed booklet and testimonials.



Double Chamber Down Draft Kiln

ADDRESS

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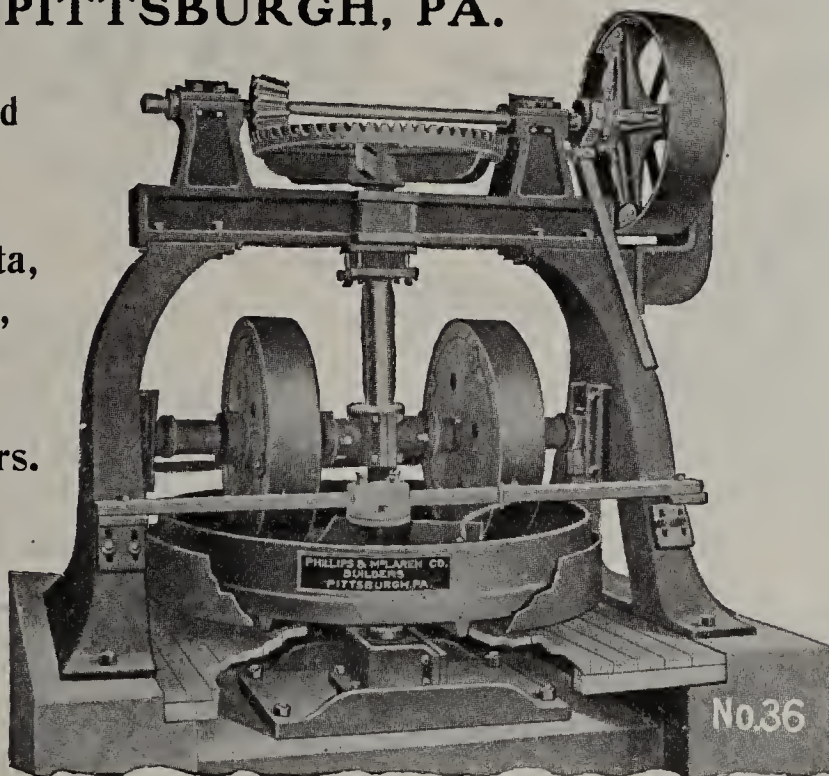
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Builders of
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Dry and Wet
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Sand, Cement, Ore,
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Also
Rock and Ore Crushers.

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kind of Clay or Material to be
ground and capacity desired.

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For Mortar Cement and Brick.

BROWN, BLACK, RED AND BUFF.

Strongest and Most Durable.

Manufactured by

C. K. WILLIAMS & CO.

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Manufacturers of

Red Oxides for Brick-
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Eclipse
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Red, Brown, Buff, Black.

Clinton Hematite Red

The highest grade of
Red Oxide of Iron for

BRICK COLORING

Also all shades of
MORTAR COLORS

Get the genuine, with the
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Sole Importers in the United States of the

Precipitated **G & S** Carbonate
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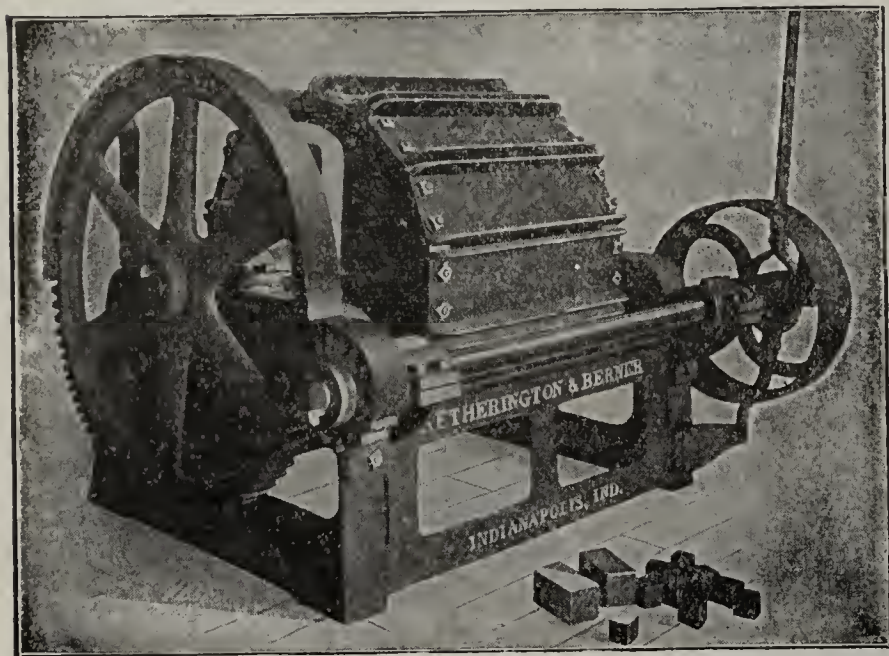
The only preventative for scum and discoloration on Facing Brick and Terra Cotta, neutralizing the Sulphate of Lime in the Clay and Water.

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Every municipality and every manufacturer of paving brick should have a Standard Rattler and thus be able to make frequent tests of brick and block.



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CARBONATE OF BARYTES
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Oxide Tin,
Oxide Cobalt,
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Green Oxide Chrome,
White Oxide Antimony,
Black Oxide Manganese, and
all Chemicals used by the Clay Trades.

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WE CAN SAVE YOU MONEY

FIRST, by actual test, at our expense, **WE PROVE** that we can **SAVE MONEY** for you. **THEN** we license you to use our patented System of **BURNING BY FORCED DRAFT**, charging as royalty a few cents per thousand on your output—a mere **FRACTION** of your **SAVING**. **FINALLY** you apply to us for an exclusive license for your territory (just as the New England Brick Company did) for obvious reasons.

POSITIVE Mechanical **CONTROL OF DRAFT**—Economical to install.

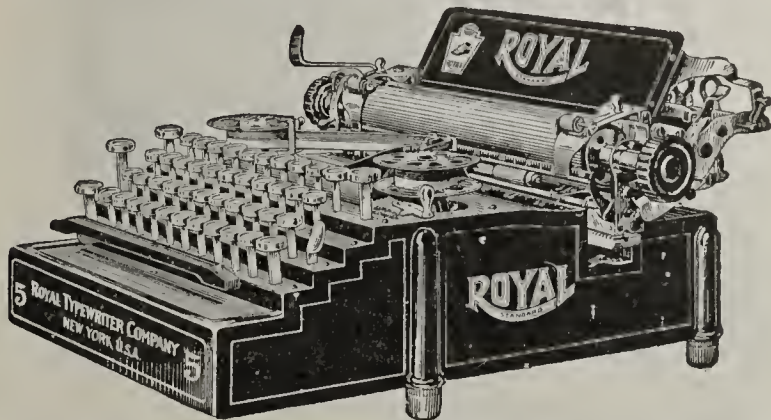
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The LATEST Model of ANY Typewriter on the Market.



HAS TWO-COLOR RIBBON, BACK-SPACER, TABULATOR and many new and valuable patented features that other typewriters do not have.

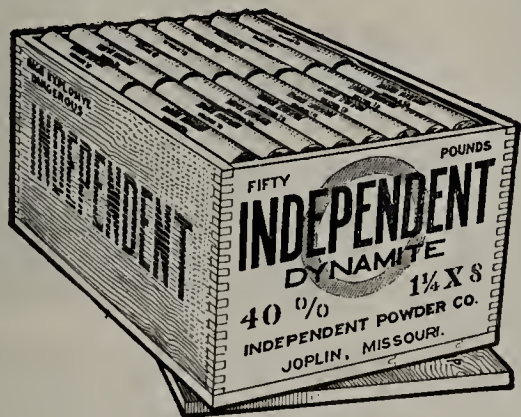
PRICE, \$75

Send for "The Royal Book," 32 pages of typewriter information—the finest typewriter catalog ever issued. Yours for a postal card.

ROYAL TYPEWRITER CO.

Royal Typewriter Building, - - - New York
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QUARRY SPECIAL NO. 4

For Clay, Dirt and Soft Rock.

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For Heavy Work.

INDEPENDENT STUMP POWDER

Best for Stripping.

These three standard powders and the other grades we make will fill all requirements of the CLAY WORKER.

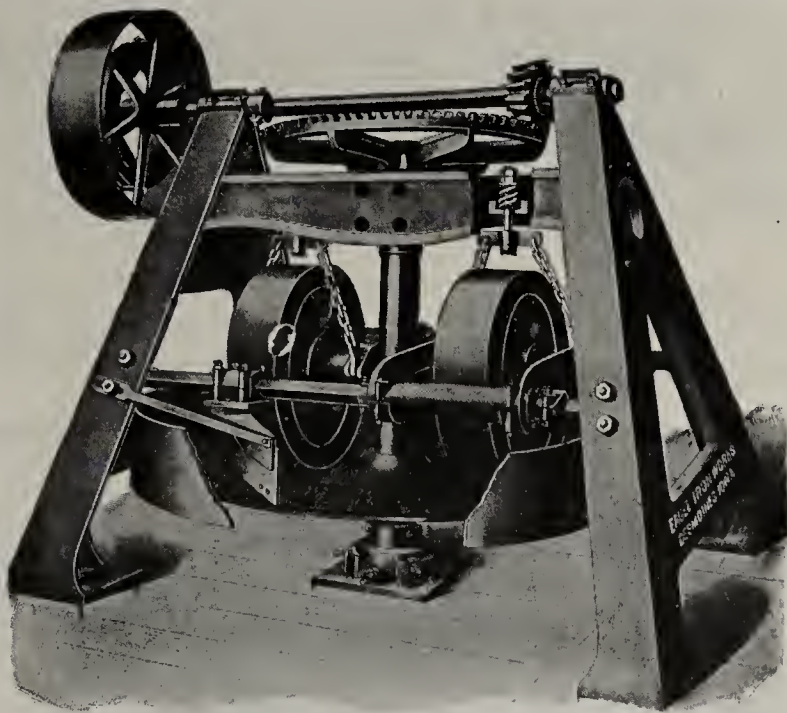
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Prompt shipments from magazines at all important points.

Independent and Suspended Mullers the distinguishing feature of our **DRY PANS**



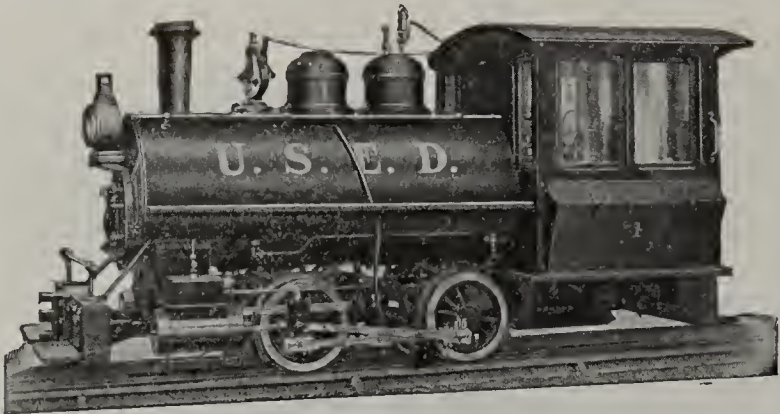
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CLAY HAULAGE

Reduce cost of transportation
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DAVENPORT INDUSTRIAL LOCOMOTIVE



Small Size—Reasonable Cost—Especially built for use of clay products manufacturers, for hauling clay or shale from pits or mines to plant.

CHEAPER THAN HORSE TRANSPORTATION

and will reduce cost of delivering your material to your plant, thus increasing profits,

All About Modern Industrial Railways

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New York, 30 Church St.

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Our Price

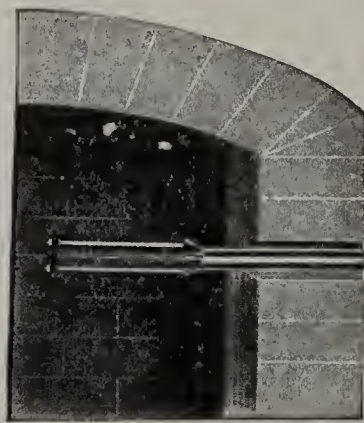
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McClure's	1.50
Current Literature.....	3.00
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\$6.50

Value.....\$10.00

Address all orders to **T. A. RANDALL & CO., Inc., Indianapolis, Ind.**

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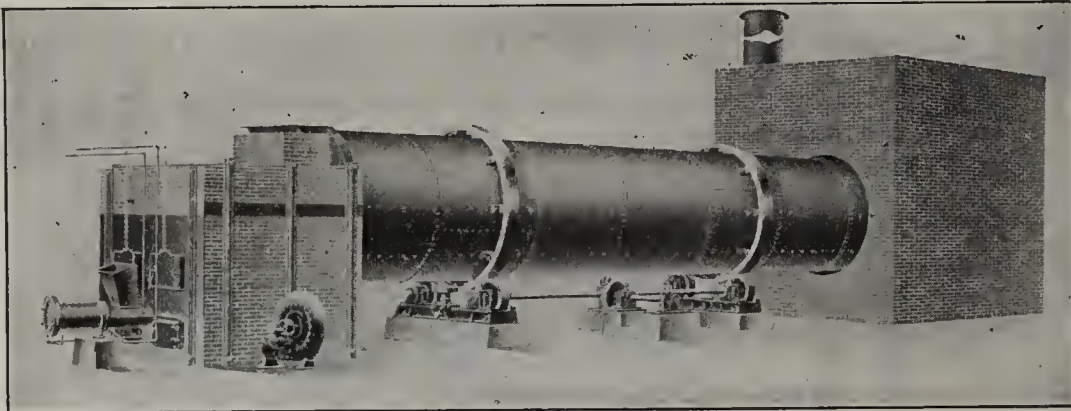


For measuring the temperature of kilns, do away with guess-work. For temperatures to 3000° Fahr.

The Brown
Instrument
Company,

311 Walnut St.,
Philadelphia, Pa.

Pittsburg. Chicago.

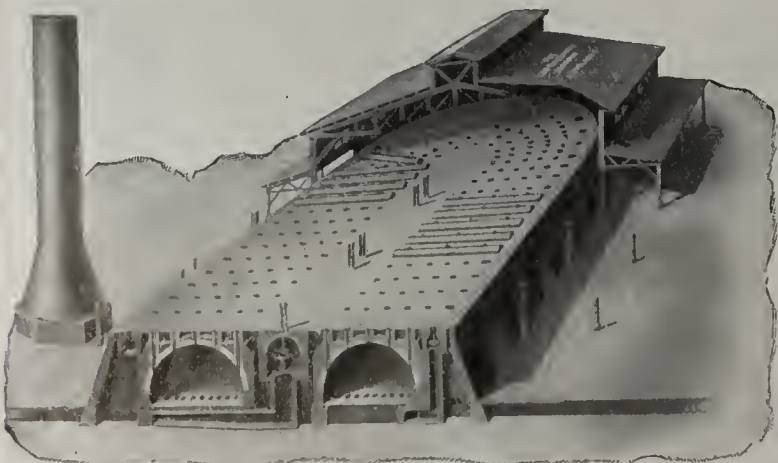


CLAY DRYERS

Increase Capacity of Dry Pan.
Produce Uniform Brick.

Send for Catalog C. B.

AMERICAN PROCESS CO., 68 William Street, New York



REGENERATIVE CONTINUOUS TUNNEL KILN for CLAY PRODUCTS.

The Gas Machinery Company
Cleveland, Ohio

The profits on your investment—your dividends—depend as much, if not more, on the result-producing merits of your kilns as upon your material, your machinery or freight rate.

We have been in the kiln building business for over twenty years; six years ago we perfected and marketed

The Improved Flue System Kiln

and have been busy ever since, winter and summer, building it for progressive BRICK, SEWER PIPE and DRAIN TILE firms.

It has burned every class of clay goods, and has SATISFIED (get that?) every patron.

We will construct new kilns, remodel unprofitable kilns to our plans; or we will sell working plans and specifications on very reasonable terms.

Inquiries solicited, promptly and cheerfully answered.

GEORGE E. SNOWDEN & COMPANY
New Cumberland, West Virginia



An Oil Burning System

Of the *Tate-Jones* type saves time, labor and fuel and insures a very uniform product. It is easy to install and has many advantages over any other type.

Let us explain it to you.

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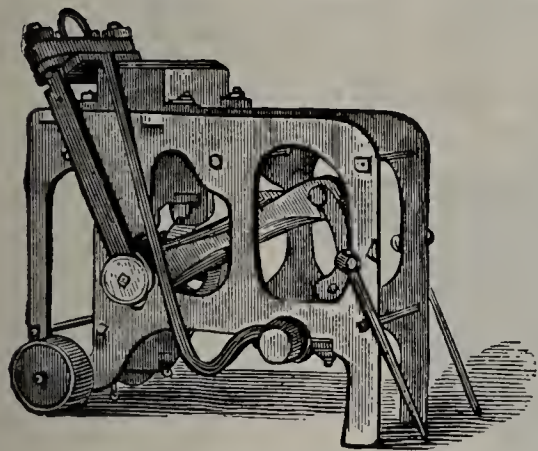
With Chase Flexible and Reversible
Bearing and Folding Deck

The Chase Foundry & Mfg. Co., Columbus, O.

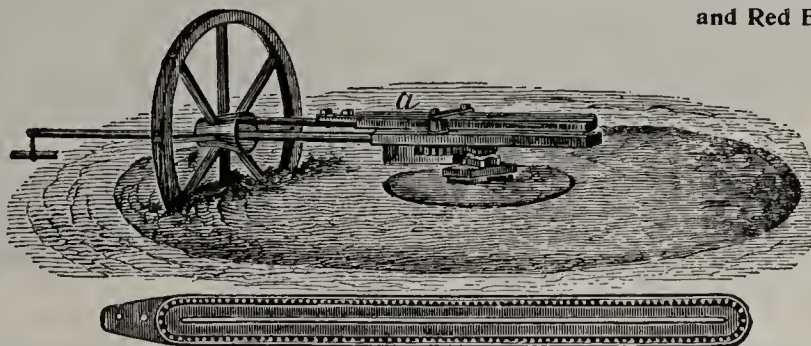
Philadelphia Brick Machine Works.

Fire and Red Brick Presses All Sizes. Machinists and Engineers.

Manufacturer of All Kinds of Machinery Used in the Manufacture of Fire and Red Brick.



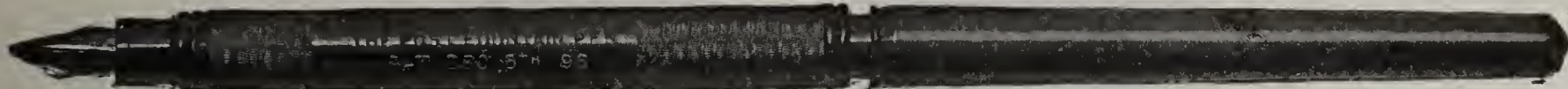
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These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

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REMARKABLE OFFER.

We will send this famous gold-pointed pen, post paid, and THE CLAY-WORKER, for one year, to any address in the United States and Canada for **\$3.00**

"POST" SELF FILLING CLEANING FOUNTAIN PEN.

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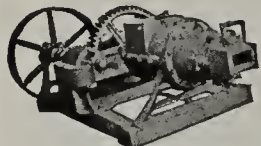
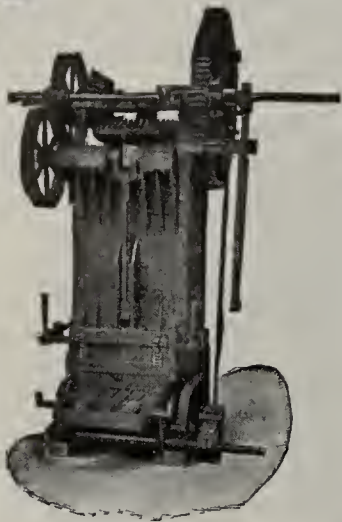
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BRICK MAK- ING PLANTS

For Either
Soft or Stiff-Mud
Processes.

Steam Power
50 Thousand
Animal Power
20 Thousand

We Build the
Most Complete
Line of Yard
Supplies and
CRUSHERS



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STONEWARE, ETC.**

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WITHOUT INCREASING
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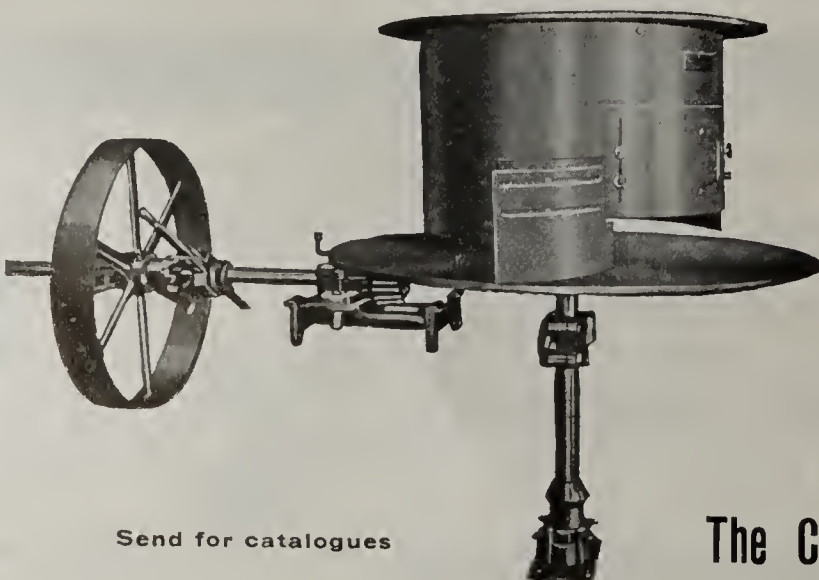
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Made from No. 13, 14, 16 or 18 Gauge Steel.
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Improved Elevating & Conveying Machinery

For Clay Industries

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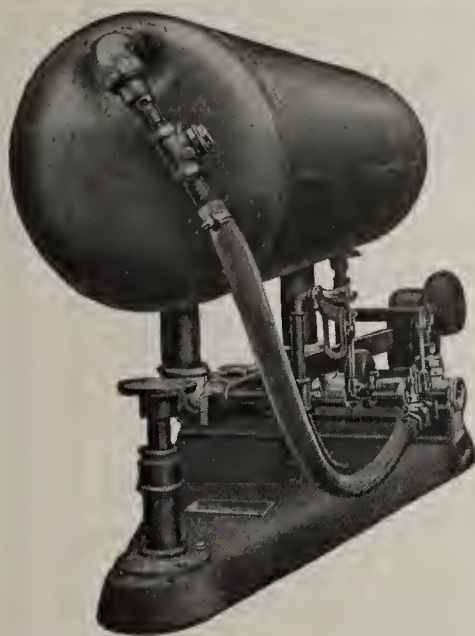
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Vacuum**

and PULLS the accumulated water and air out of your steam lines, insuring rapid circulation. Enables you to cut down your boiler

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Particularly adapted for use in connection with reduced pressure and Exhaust Steam Heating Systems, Dry Kilns, Dryers, Fan Stacks, Etc.

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Morehead Mfg. Co.

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A Complete Line of Clayworking Machinery

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STEAM SHOVELS AND DREDGES.

Ask for our latest Catalog, and write us or wire us for anything you need on any kind of Brick or Tile Plants.

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WARES WE HAVE
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GET RESULTS.

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COMPLETE, EVERY-
THING NEEDED
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WE ARE ENGINEERS
FOR CLAYWORKING
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Plants designed.
Construction superintended.
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Especial attention given to problems in Fuel Economy.
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What One Who Knows Has to Say.

GREEN BAY BRICK CO.

Manufacturers of

Sand Mould Brick.

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Gentlemen—Your favor of the 20th is at hand. You may make us 24 of your best moulds of sizes as follows: 5 brick $8\frac{3}{4}$ in. x $4\frac{1}{4}$ in. x $2\frac{7}{16}$ in.; $\frac{5}{8}$ in. partitions. We want them of the best, at the price you name, \$2.25 each. We can buy moulds for \$1.50. but we buy yours because they are the best. We would like to have the moulds here by May 1st.

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Wallkill, N. Y.

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FIRE-BRICK

HOFFMANN KILN

Burns 1,000 Fire-Bricks
With 5 Cwt. of Slack

and also largest Blocks.



50%

LABOUR
SAVING
GUARANTEED

HAS IT EVER OCCURRED TO YOU
THAT ALL WORKS POSSESSING GENUINE
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The same applies to Hoffmann Continuous Tile, Pottery, Lime
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14 Years of Constant Satisfactory Service In Many Clay Plants

Is the Record of the PERFECT CLAY SCREEN

Why continue with your old clay screen from which today the product is entirely too coarse, tomorrow too fine, next day scarcely anything, and always requiring constant attention.

FIGURE up the cost and let us quote you on a PERFECT CLAY SCREEN that will give you ABSOLUTE CONTROL OF YOUR CLAY. The same fineness every day in the year and you get every pound of clay that is fine enough for your product.

Just think what it costs to have a man cleaning and breaking up your screen, and then not get capacity or proper fineness. THE PERFECT CLAY SCREEN is automatic, self cleaning, and the plates last many times as long as do plates on an ordinary screen. Increased and improved output at less cost, is our GUARANTEE. Let us try, if we don't do it IT WON'T COST YOU ONE CENT.

DUNLAP MFG. CO.

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Rubber Belts Replaced By GANDY

Read this letter—

Colonial Pressed Brick Company
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Gentlemen:

The Gandy Belts are giving excellent satisfaction, and as fast as the rubber belts wear out they are replaced by Gandy, as we are sure they are the most economical made.

Yours truly,
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Sec'y-Treas.

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ANOTHER
USER
testifies to the
superiority of

THE GANDY BELT

in the Brick Industry.

This test in a brick-yard is one of the hardest a belt is ever up against. The dust, sand, grit and moisture destroys the average belt in a short time.

Remember the big saving in first cost of THE GANDY BELT. It is only about $\frac{1}{4}$ the cost of Leather Belting and very much cheaper than Rubber Belting, while it will do the work equally as well. We want to prove this to you.

Write today for samples, booklets and full information.

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How you can always tell The Gandy Belt
1st. The Trade Mark Shown Herewith.
2nd. The Green Edge.
3rd. The Brand—"The Gandy Belt."



ECONOMY

True economy is the sure road to wealth today, just as it has ever been. This is generally conceded, but it is not always certain what constitutes true economy. In the clay line it is oftentimes real economy to replace small capacity machinery with larger in order to meet the demands of a rapidly growing trade. Really it is false economy not to do so, for one must spend money to make money. He is wise who recognizes this truth and promptly replaces outgrown machinery with that equal to his needs. Then, after you have done the wise thing in enlarging and refitting your plant, don't let the outgrown machinery go to the scrap pile. It may prove a boon to some manufacturer starting a small capacity plant for which it will be ample. There are many such and they may be reached through an ad in the For Sale columns of The Clay-Worker. Be wise, not wasteful, and instead of letting your outgrown machinery rust out, advertise it in The Clay-Worker (see forms of ads under heading "For Sale, Wanted, Etc.," in this issue) and convert it into

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To insure insertion in current issue, copy should be furnished early in the month.

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THE CLAY-WORKER,
Indianapolis.

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(PATENT PENDING.)



No Chains, Belts or Gears.

No Shifting Lever.

No Extra Moulds.

Mould always ready to be taken out at the proper time.

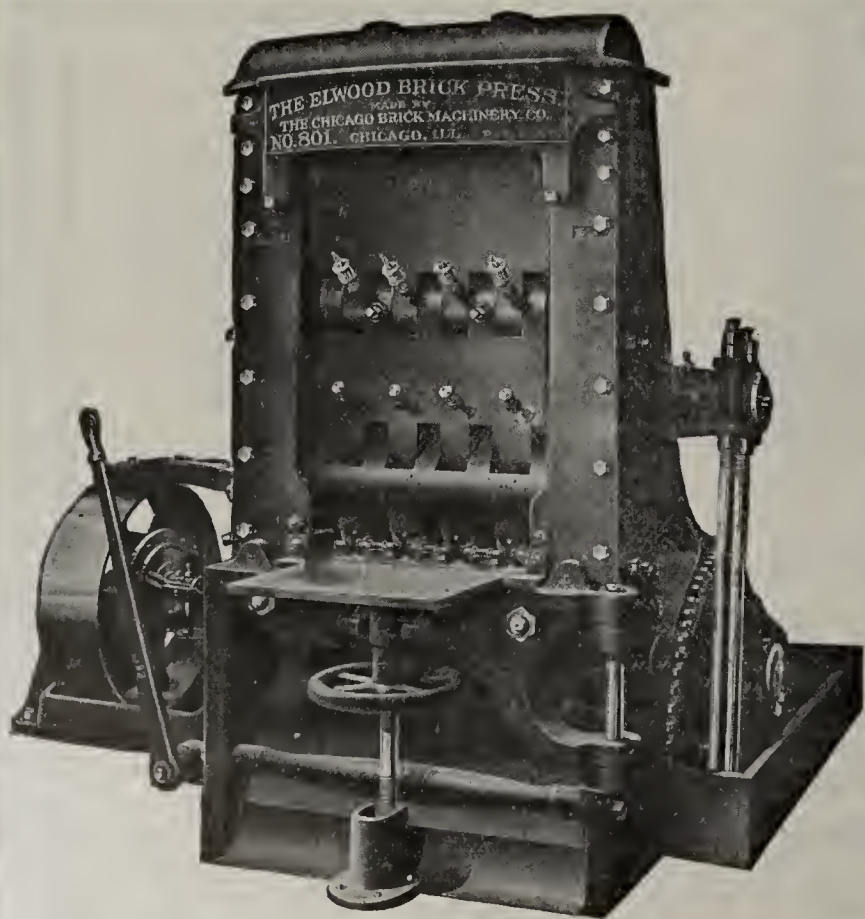
Impossible to break a Mould.

Light running, almost balanced in all positions.

For circulars and prices explaining it more thoroughly, write

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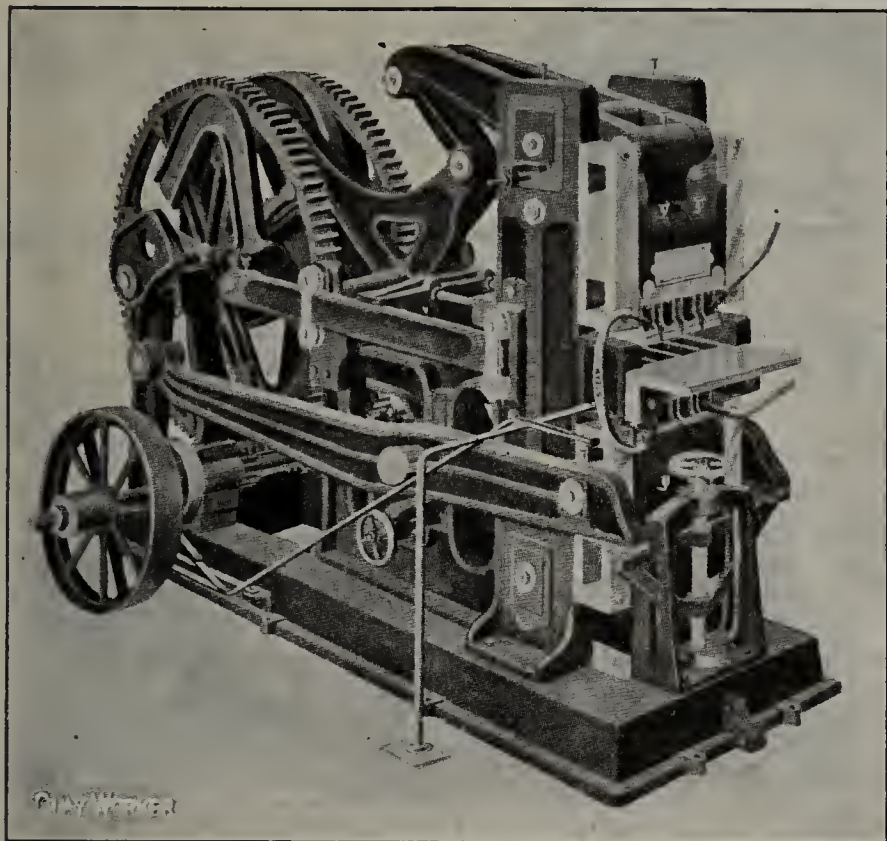
**BUILT FOR HEAVY DUTY.
ALWAYS MAKES GOOD.**

**WE ALSO HANDLE EVERYTHING
USED ON A BRICKYARD.**

CHICAGO BRICK MACHINERY CO.

Sold Also by
MANUFACTURERS EQUIPMENT CO.
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Special Mold Box In The Fernholtz Brick Press

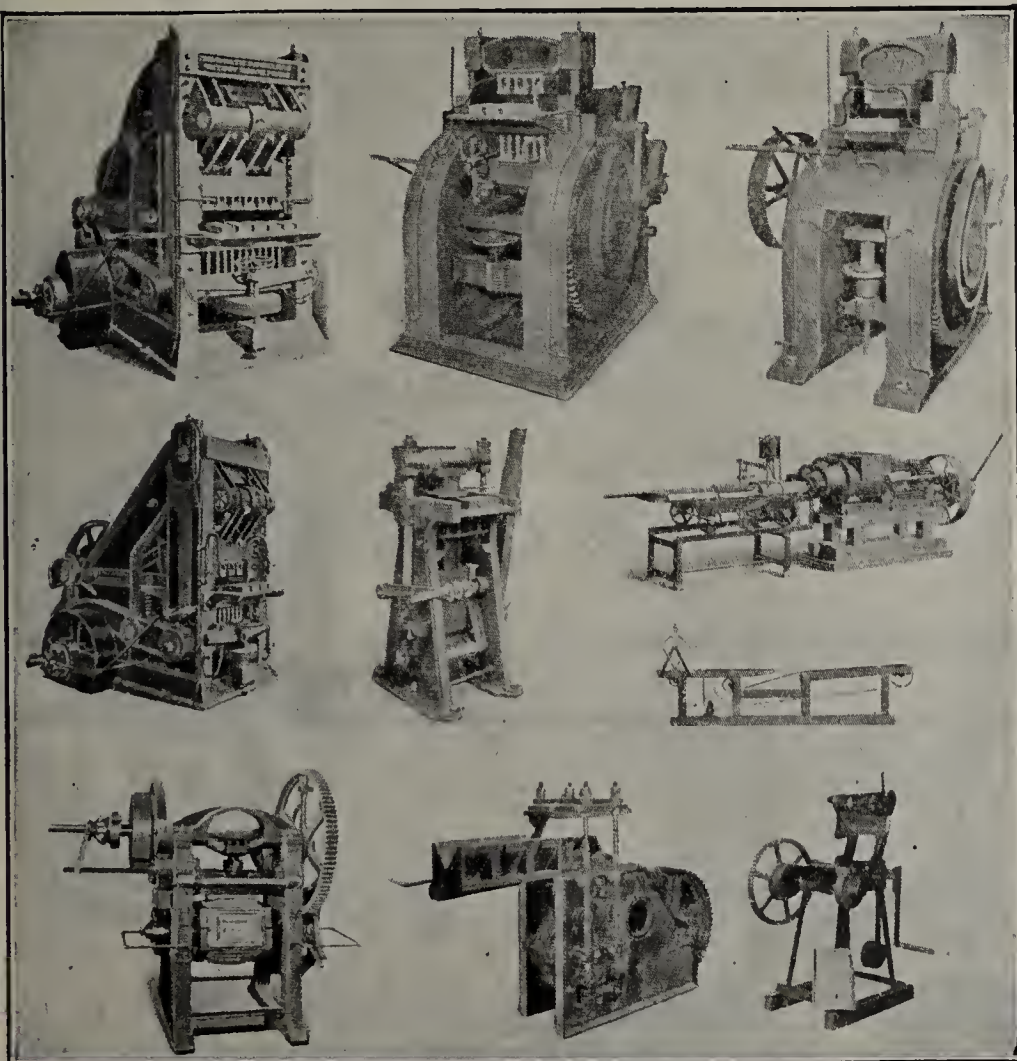
The Mold is the heart of a brick machine and our press is fitted with a specially designed mold box which produces bricks with sharp, straight edges and corners. The Mold Box being assembled before placing it in the machine makes it possible to change molds in the shortest possible time.

Our press has many other special features which are fully explained in our catalog which we want to send to interested parties.

The Fernholtz Brick Machinery Co.

Boyle and Vandeventer Aves.

ST. LOUIS, MO.



PRESS BRICK and

Roofing Tile Machinery

*The Best and Most Practical
and for All Capacities.*

GUARANTEED AGAINST BREAKAGE.

*WE ALSO HAVE THE BEST KILNS
AND FURNACES.*

Selling Agents for **Schurs Perfect Oil Burners**, for kilns of all kinds—boilers and every place where heat is wanted. Over 10,000 in use.

*Write for prices and full information
and catalog.*

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GRATH, St. Louis.

Long Distance
Phone
Bell, Main 235.



Worth Its Weight In Gold

Every Clayworker in the Land Should Have
a Copy of Prof. Bleininger's Book

THE EFFECT OF HEAT UPON CLAYS

It contains valuable information on burning and drying, told in a plain and practical way, and is invaluable to the burner or superintendent. This comprehensive book should be in every clayworker's library.

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Price \$2.00

Sold Only by

T. A. RANDALL & CO.

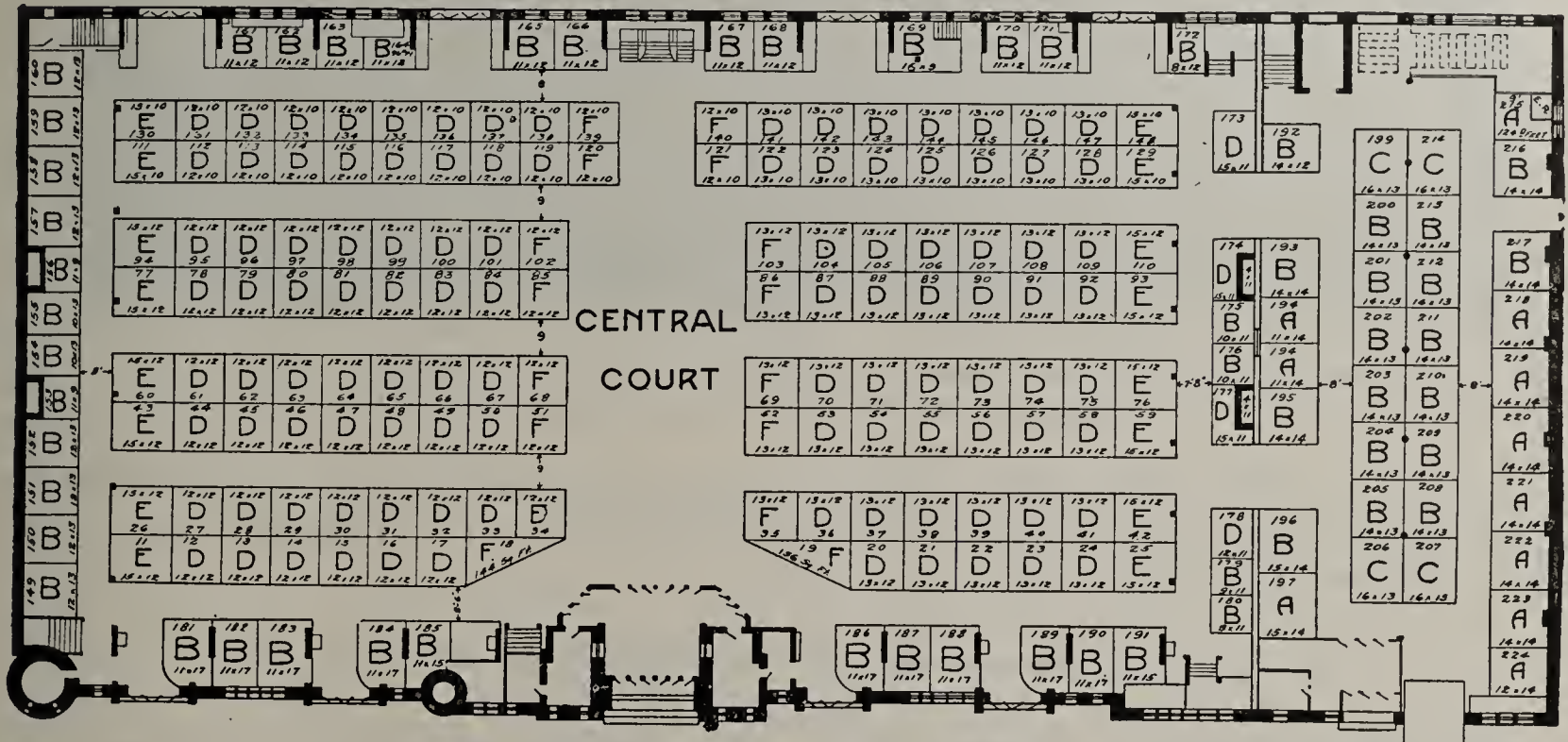
Indianapolis, Ind.



Attention, Mr. Clayworker!

Here's a Means of Boosting Your Business.

Place an Exhibit of Your Products in the Great Clay Products Show--To be Held at the Coliseum, Chicago, February 26 to March 8, 1913.



Floor Plan of the Coliseum.

The Architects and Contractors Will be There.
The Prospective Builders Will be There.

Thousands of people who will sooner or later be in the market for YOUR PRODUCTS will attend this great exposition, and will be directly or indirectly influenced by the exposition as to the character and kind of material which they purchase.

You Cannot Afford to Stay Out—This is YOUR Show

It will benefit your interests and help in increasing your sales anyway, but it will be doubly valuable if you have your products properly displayed in suitable exhibit space for the inspection of

100,000 PAIRS OF EYES

Write NOW for floor plan and particulars regarding reservation of space. You cannot afford to wait until the last minute.

The Clay Products Exposition Co.
 815 Chamber of Commerce Bldg., CHICAGO



Eggertsville or "Dead Man's Curve," Buffalo-Rochester Road, Constructed June, 1910, by the New York State Highway Department. Above photograph taken May 10th, 1912

This is one of the photos used by Mr. T. A. Randall in his illustrated paper on "Brick Roads" before the American Highway Association, this month. More than one vehicle per minute passes over this road.

— :: —

The Wire-Cut Lug Block is best. It is meeting with general favor, and one after another of the leading paving brick plants of the country are adopting it—

BECAUSE

It is not injured by repressing.
Uniform lugs keep all brick an equal distance apart.
Admits free flow of bonding material.
Greatly reduces percentage of culls and seconds.
Square corners make the smoothest pavement possible
(rounded edges being entirely unnecessary and a distinct disadvantage in securing a perfect surface.)

We are making provisions for a Permanent Publicity and Educational Campaign during the Entire Life of our Patents. This Practically Insures Business for the Manufacturers of Wire-Cut-Lug Blocks.

We Will License Only Reputable Manufacturers whom we are satisfied are able to produce No. 1 Paving Blocks.

We do not manufacture—we merely license manufacturers to make this block.

The Dunn Wire-Cut-Lug Brick Co.
CONNEAUT, OHIO

Patented in the United States and Foreign Countries.

240,000,000

WIRE-CUT-LUG BLOCK

The Metropolitan Paving Brick Co., Canton, Ohio, and The Bessemer Limestone Co., Youngstown, Ohio, two of the biggest and best known manufacturers of paving brick, have joined the family of Wire-Cut-Lug Licensees.

The licensing of these two companies, whose combined annual output is 150 million blocks, fulfills a prediction, made two years ago, that the Wire-Cut-Lug process would revolutionize the paving brick industry.

The affiliation of the METROPOLITAN and BESSEMER companies with the Wire-Cut-Lug licensees is complete recognition of the Wire-Cut-Lug block. All of our licensees are permitted to continue the manufacture of repressed blocks as formerly, but the earlier licensees have abandoned it entirely, owing to the superiority of their Wire-Cut-Lug product.

Would the METROPOLITAN and BESSEMER companies have made this change from the old repress method of making paving brick had they not been fully convinced, to the minutest detail, that the Wire-Cut-Lug process is the final word in paving brick manufacture?

Could they afford to take this step without satisfying themselves that Wire-Cut-Lug block is the future paving material?

During the year 1910	{ Corry Brick & Tile Co., United Brick Co.,	Corry, Pa. Conneaut, Ohio.
During the year 1911	{ Sterling Brick Co., Reynoldsville Brick & Tile Co., Danville Brick Co., Paterson Clay Products Co.,	Olean, N. Y. Reynoldsville, Pa. Danville, Ill. Clearfield, Pa.
During the year 1912	{ Wabash Clay Co., Clinton Paving Brick Co., Alton Brick Co., Deckman-Duty Brick Co., Tuna Valley Pressed Brick Co., Foster Paving Block Co., Metropolitan Paving Brick Co., Bessemer Limestone Co.,	Veedersburg, Ind. Clinton, Ind. Alton, Ill. Cleveland, Ohio. Bradford, Pa. Bradford, Pa. Canton, Ohio. Youngstown, Ohio.

WATCH THIS LIST OF MANUFACTURERS GROW.

The combined product of these companies will be 240 million blocks annually, or enough to pave a sixteen-foot roadway 650 miles long.

Hundreds of cities already have admitted Wire-Cut-Lug blocks in their specifications, and the number of city engineers recognizing their merit is growing. You cannot afford to defer action in the consideration of the Wire-Cut-Lug proposition.

Write us for further evidence.

The Dunn Wire-Cut-Lug Brick Co.
CONNEAUT, OHIO.

Patented in the United States and Foreign Countries.

THE CLAY-WORKER'S POCKET KIT.

Worth its Weight in Gold to Every Factory Superintendent and Foreman.

EMBODIES

1. Pocket Knife.
2. Leather Punch.
3. Swedging Awl.
4. Wire Cutter.
5. Wire Pliers.
6. Alligator Wrench.
7. Hoof Hook.
8. Screw Driver.
9. Screw Bit.



INVALUABLE TO
Yard Superintendents,
Factory Foremen,
Mechanics, Miners,
Farmers, Horsemen,
Sportsmen and
ALL WORKINGMEN.

This is Not a Cheap Knife, But a First-Class Combination Tool Built for Practical Use.

CUTS OFF BARBED FENCE WIRE AS EASILY
AS AN ORDINARY 8-INCH PLIER.

Can be carried in the pocket and used as an ordinary knife, but is far stronger and more useful.

"A Stitch in Time Saves Nine."—So it is about a clay plant, a bolt tightened at the right time may save a serious breakdown, causing loss of time and money. How often would this be avoided if the superintendent or foreman had the right tool within reach when wanted. How often are these little, but very important details neglected because the necessary tool is not convenient, or has been mislaid, and how much time is lost in consequence. Avoid all this by carrying in your pocket the C. W. Pocket Kit. You will find use for it a hundred times a day.

One Tool Does Not Interfere With the Free Use of
Another. Each One Works Independently.

A Great Premium Offer.

This POCKET KIT, which is a marvel of mechanical ingenuity, will be mailed to any address, postage prepaid, for \$1.50.

Or we will mail this POCKET
KIT and THE CLAY-WORKER
for One Year to any address in
the United States or Canada for

\$2.50

THE C. W. Pocket Kit is built for practical use, and is not filled with knickknacks or flimsy makeshifts as is the case with ordinary combination knives. Instead it is a practical, efficient combination. Its workmanship is first-class. All rivets are countersunk. The temper is drawn in Screw Driver, and Point of Awl to prevent either from breaking. It is no more clumsy or awkward to carry in the pocket than an ordinary three-bladed knife. The blades are made of the best 85 carbon cutlery steel, and tempered to withstand hard usage.

The Pliers and Wire Cutters are Drop-Forged TOOL steel (not steel castings), and tempered especially to do the work required of them, and give entire satisfaction in handling and cutting fence wire, baling and binding wire, harness rivets, etc.

The Leather Punch will be found indispensable for making various sized holes in leather for buckles, rivets, belt lacing, etc.

The Leather Punch acts as a wedging awl or marlin spike WHEN TURNED TO THE LEFT; especially adapted for use in LACING BELTS, untying knots, etc. Besides being a perfect leather punch and swedging awl, this tool is a perfect screw bit, making a tapering hole in wood for various sized screws WHEN TURNED TO THE RIGHT.

The Screw Bit and Screw Driver features of this knife are perfect in their operation.

The Lace Hook and Hoof Hook formed on end of plier handle will be found convenient in many ways.

T. A. Randall & Co., Publishers The Clay-Worker, Indianapolis:

You will please send me THE CLAY-WORKER POCKET KIT and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued,

beginning with the issue. Enclosed find \$.

Name

Postoffice

Street and Number

County State

The Claycrafter

Supplement

BRICK MACHINERY

Wonderful Progress.

A short generation ago machine brick making was in its infancy, the few machines in use so crude as to mark but a slight advance over the prevailing hand and horse power method of the times.

The invention of the auger brick machine however, after all doubts and misgivings had been dispelled, began to lend a tremendous impetus to clay manufacture.

Once installed into popular favor, there seemed for a while to be no limit to the ever increasing demand for heavier and larger capacity machines, which found machinery builders rivalling each other in the production of these colossal types.

Up to this point little attention had been bestowed on the mechanical features of his plant by the average clay man, putting up the best he could with annoying stoppages and breakdowns, giving no especial study to machinery operation—it failed to interest him.

About this time something happened that began to turn his mind towards mechanical subjects. The automobile began its great campaign of education. First it was gasoline versus steam. The millions spent in the popular press for the enlightenment of the general public began to attract his attention. Buy an auto he must, if not now, as soon as he could afford it. What better then, than begin to post himself on the mechanical fea-

tures of the various types bidding for his favor.

In pursuing this investigation what more natural then, than he should look a little closer into the operation of his own machinery. Engine, shaftings, gearings, clutches, transmission, rolling stock, everything had a new interest to him now—there's no mistake about this, gentlemen, the country is machinery interested, and we can certainly thank the automobile industry largely for it.

This interest is taking form in every branch of mechanics in this country. Interest of an active kind that is demanding better types of machines from the manufacturers. Not the type that "looks" and "listens" good, but the one that "makes good," and for which the interested and experienced buyer is willing to pay the price. This has placed the progressive machinery builder decidedly on his mettle to produce not larger and heavier types, but rather to perfect those sizes previously attained; improvement in shaftings, and gearings and bearings, methods of lubrication, and general rigidity and strength reinforcement; this with the idea paramount of minimization of power and stoppage and repairs.

This company has caught the inspiration of the times, and our greatest concern is to make "good machinery better." Our products whether in machinery, dryers, kilns, will be found to be leaders of their class.

And if painstaking attention to detail and an inborn desire to please prevails, we propose to keep them there. The C. W. Raymond Co., Dayton, Ohio, U. S. A.

THE
RAYMOND
PATENTED
METALLIC RADIATION
DRYER
THAT'S ALL



A GREAT ADVANTAGE

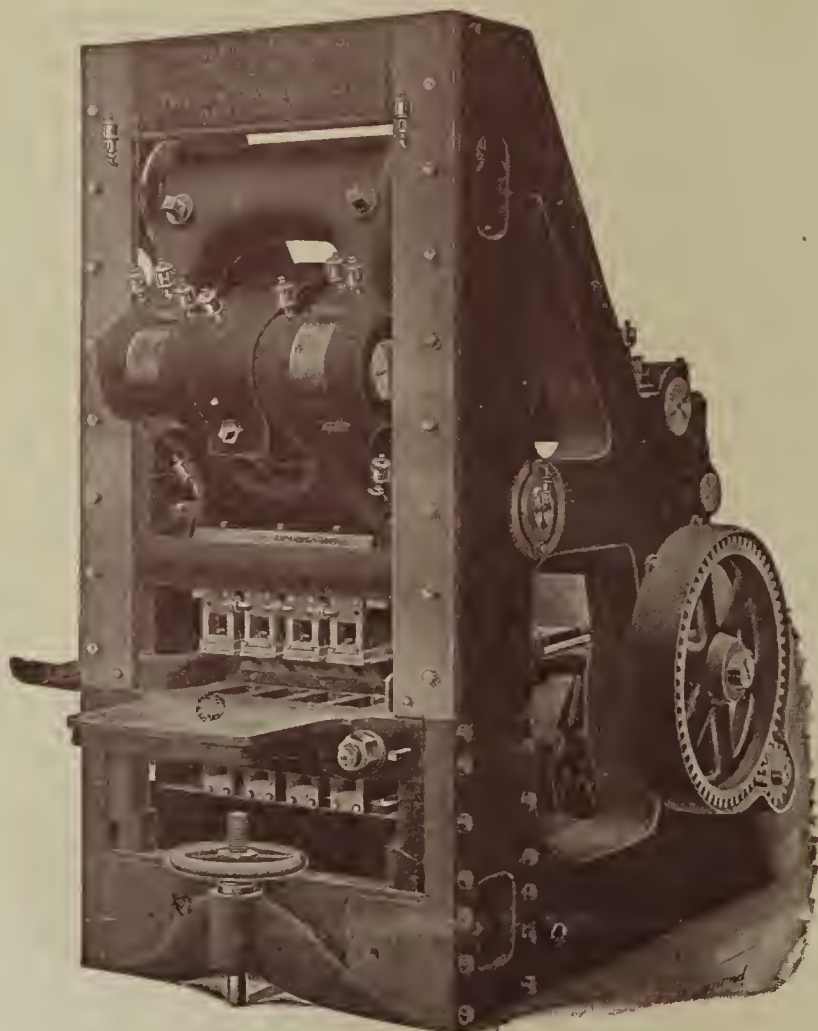
in Brick Machinery
is that quality called

FOOL PROOF

Not every

Yard is blessed with the best mechanics, and it is a question whether it would pay to have a high priced operator constantly with the machine.

Better have a machine that anyone can operate and keep going.



The BERG DRY PRESS

Exemplifies
In The Highest Degree

**SIMPLICITY, STRENGTH
and STAYING QUALITY.**

Perfection of Product and Ease of Operation and Repairs help to make this machine Leader of its Class. Write for details.

**The C.W. RAYMOND
COMPANY**

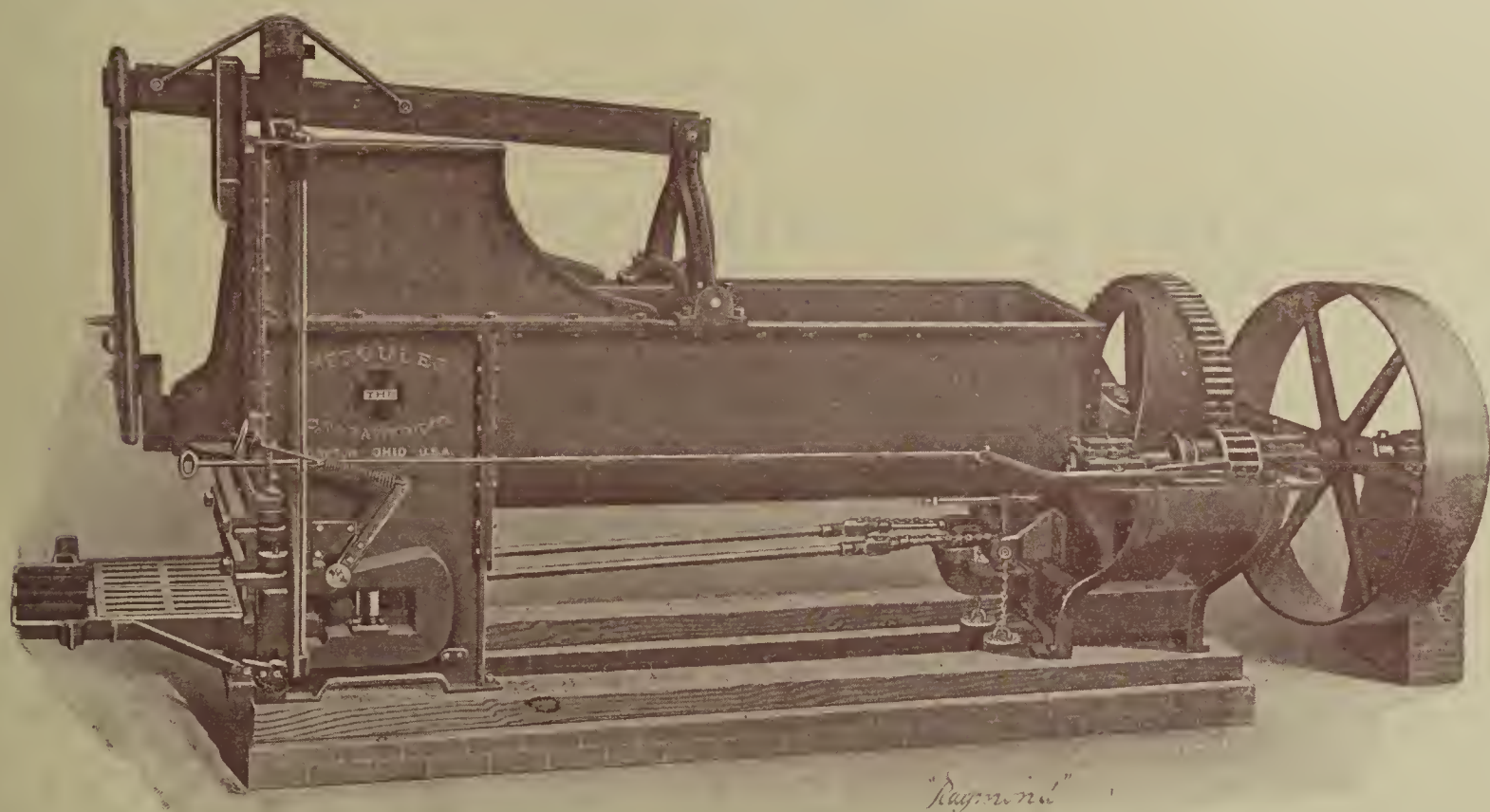
The Strongest Power in the
World of Clayworking
Machinery

Dayton, Ohio, U.S.A.

THE RAYMOND HERCULES NO. 4

SOFT MUD BRICK MACHINE

Leading Fire Brick Manufacturers all over this country are coming to know this machine as the Greatest Fire Brick Machine ever placed on the American market. Scores are in use in leading plants and each season the increasing demand for High Grade Fire Brick is adding to its long list of patrons.



The same qualities of strength, endurance and dependability also place this machine pre-eminent in Building Brick Manufacture, where it is known from Coast to Coast. This is an old, thoroughly tried and constantly improved line, embodying every modern and desirable feature known, and in sizes and models to fill every requirement for any type of soft mud ware.

Write for details today, to

THE C. W. RAYMOND COMPANY

The Strongest Power in the World of Clayworking Machinery

DAYTON,

OHIO,

U. S. A.

Mention THE CLAY-WORKER.



Who Pays For It?



Your Competitor bought a

Producer Gas Fired Continuous Kiln

He says, that its actual saving in Fuel and Labor, and Higher Percentages of Better Ware will reimburse him in full in

About Three Years.

Then He's Not Really Paying for It—merely advancing on it.

His Customers

Are not taxed to pay for it, for selling prices remain stationary.

Did it ever occur to you, that

YOU PAY FOR HIS KILN?

There's nobody else to do it.

You Pay For It, in Loss of Business, Loss of Prestige, Loss of Profits, Inability to Control Prices, Discrimination in favor of Delivery, and Color and Quality. Think it over.

Would You Rather

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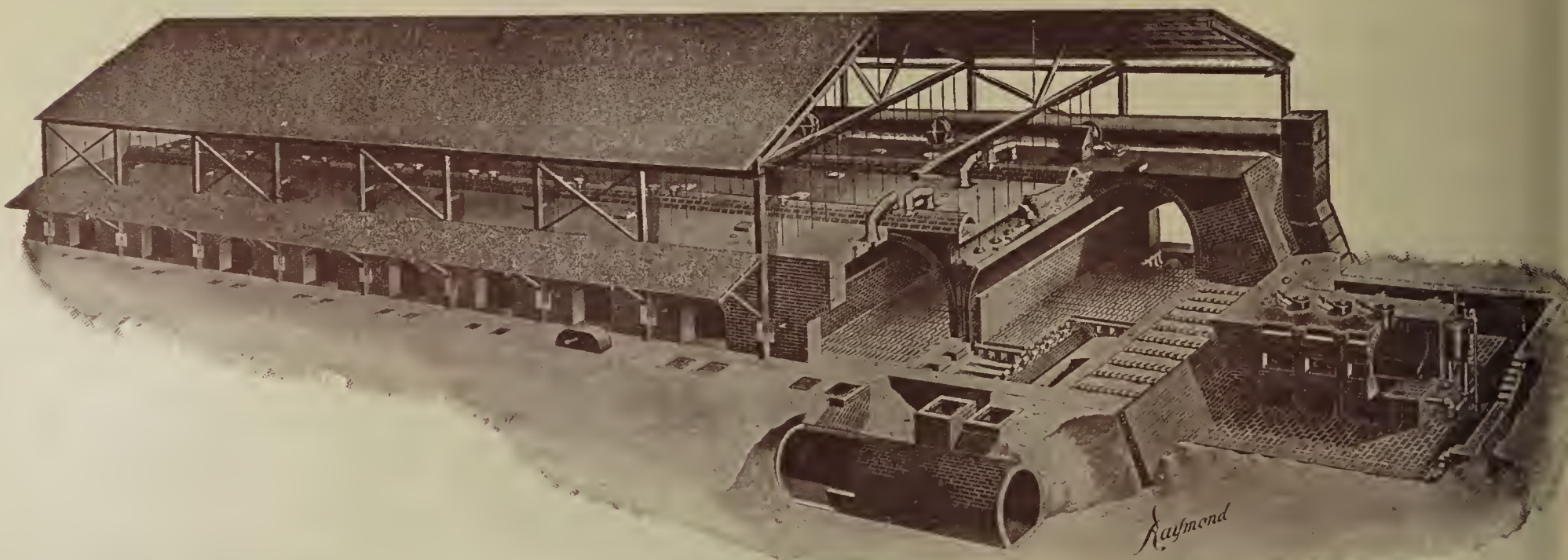
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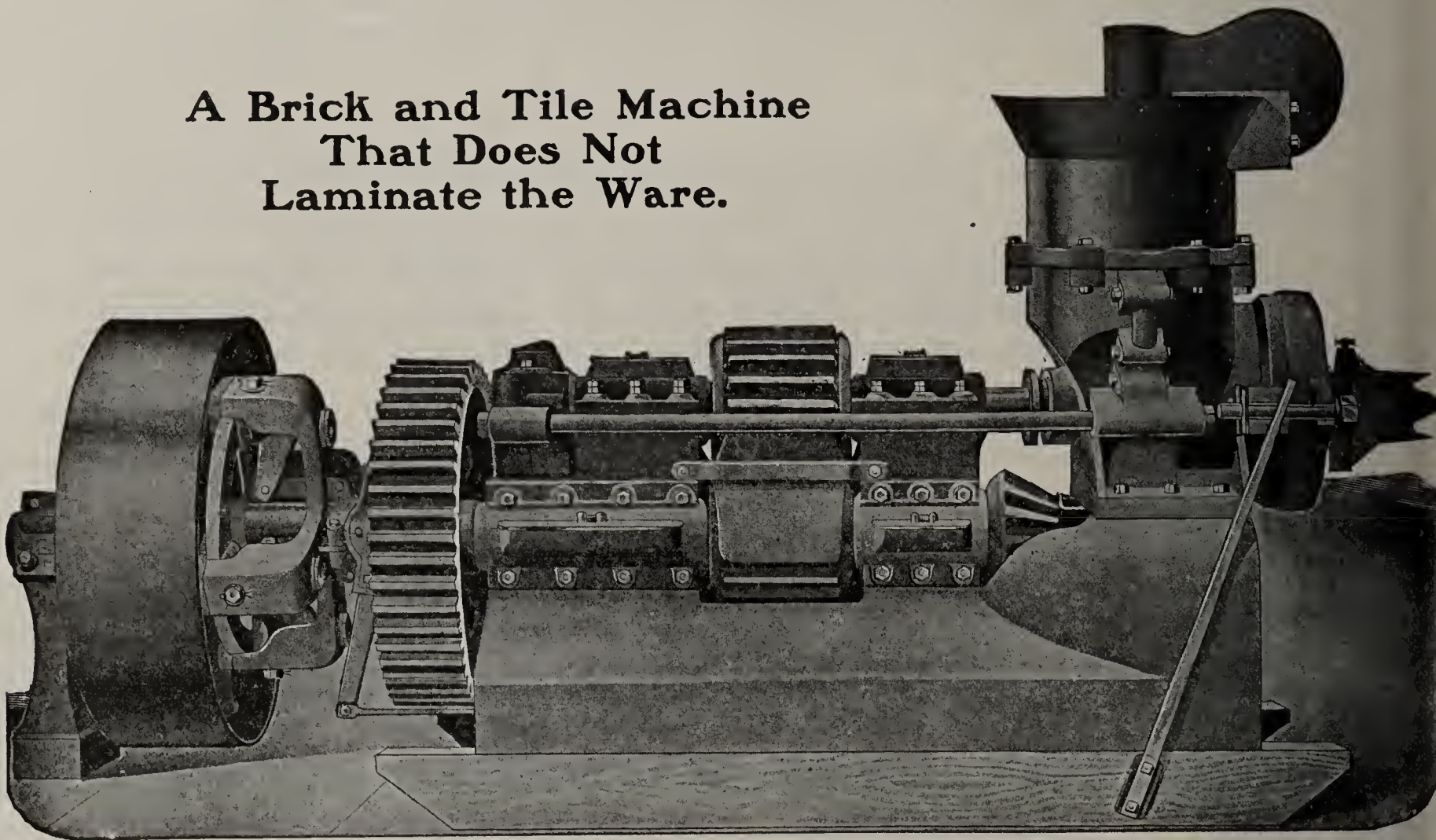
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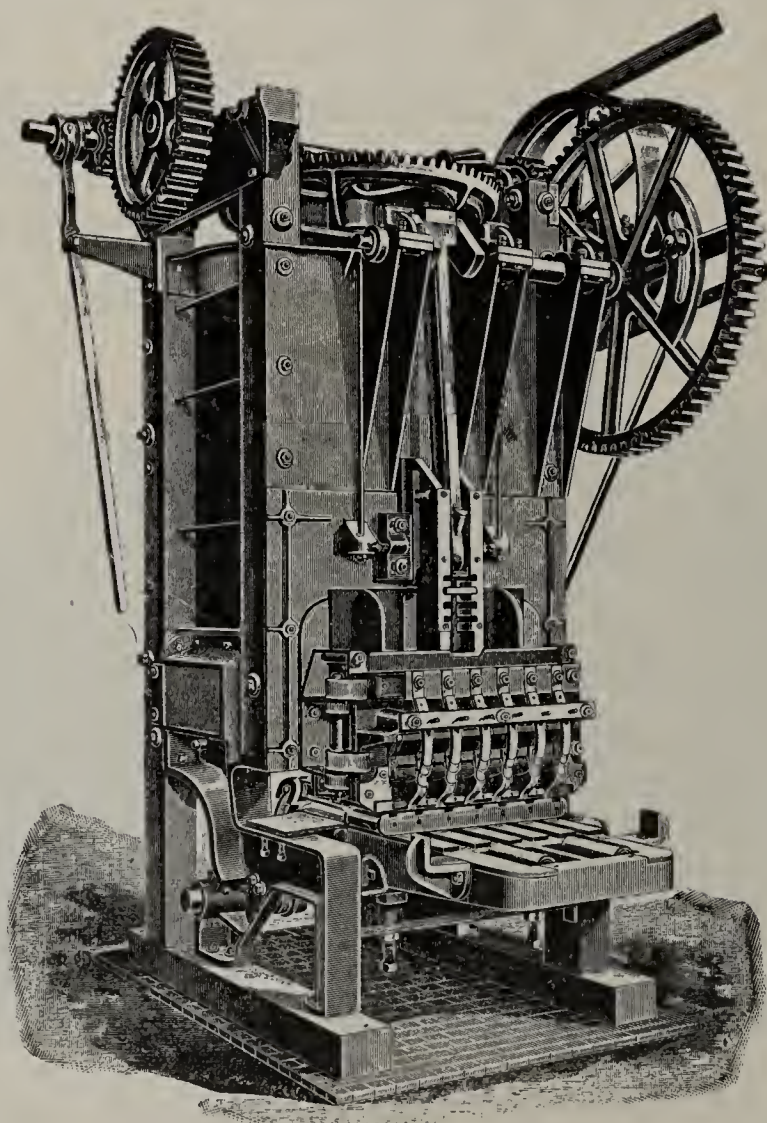
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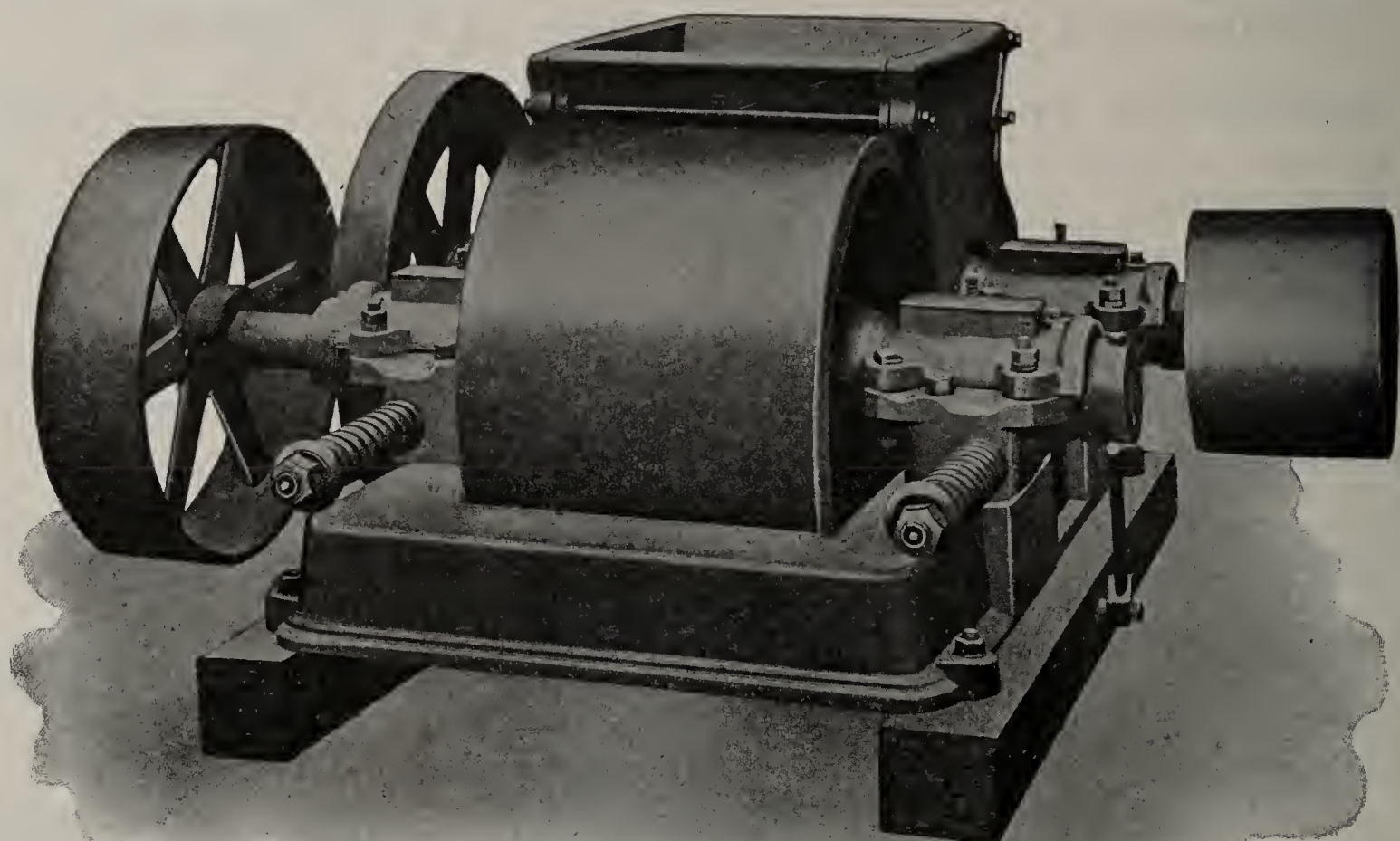
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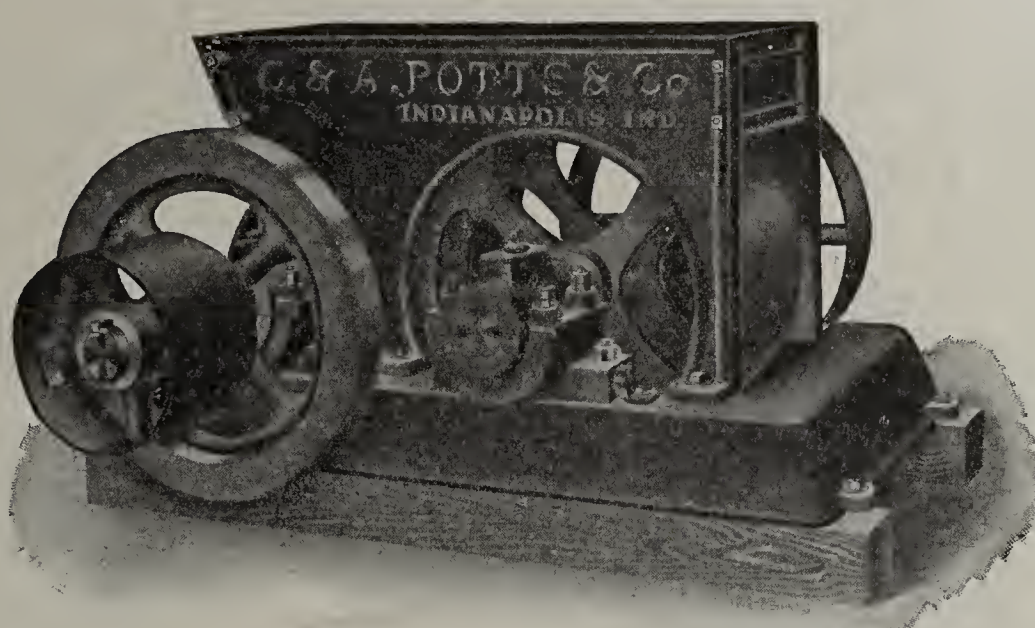
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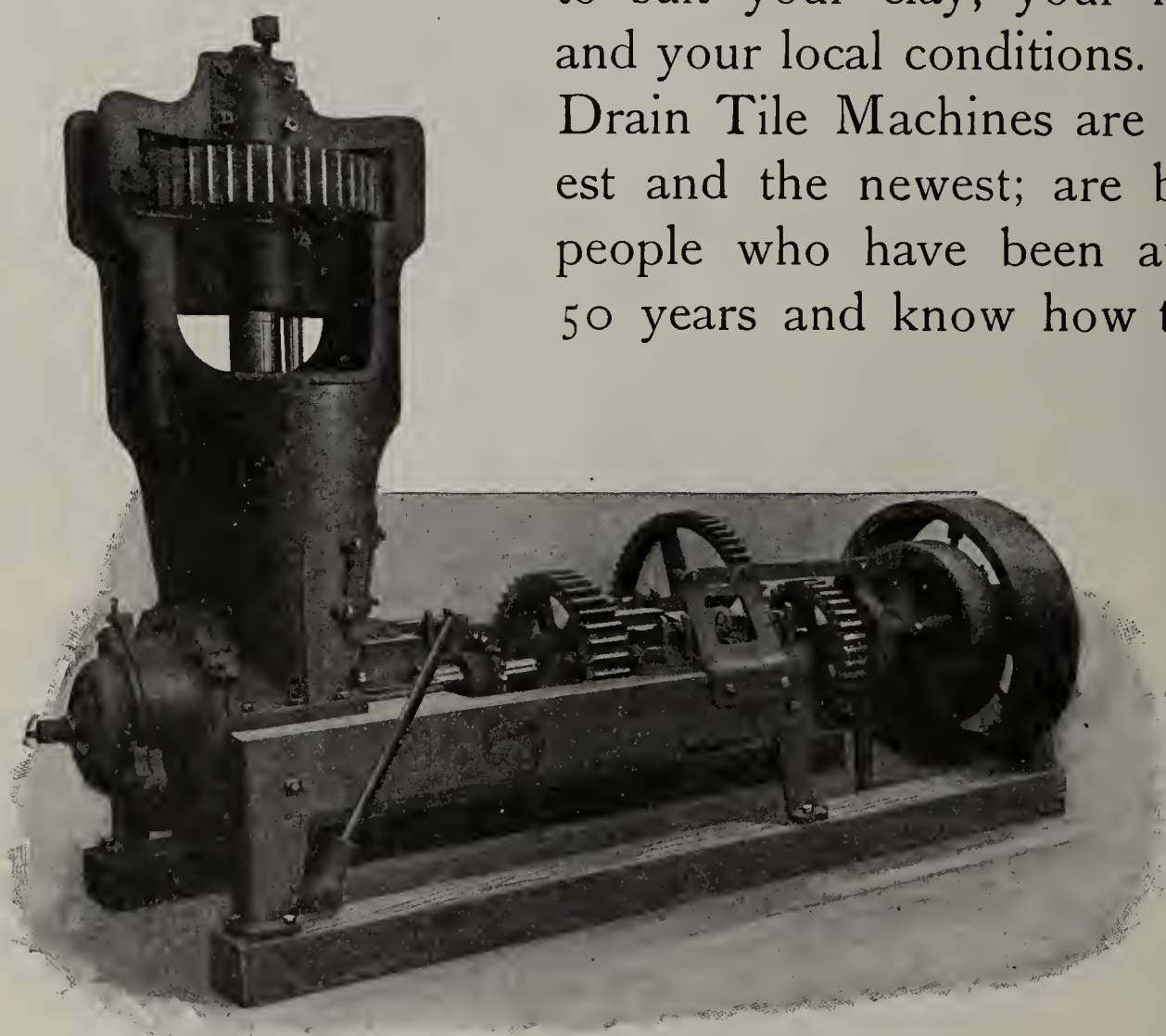
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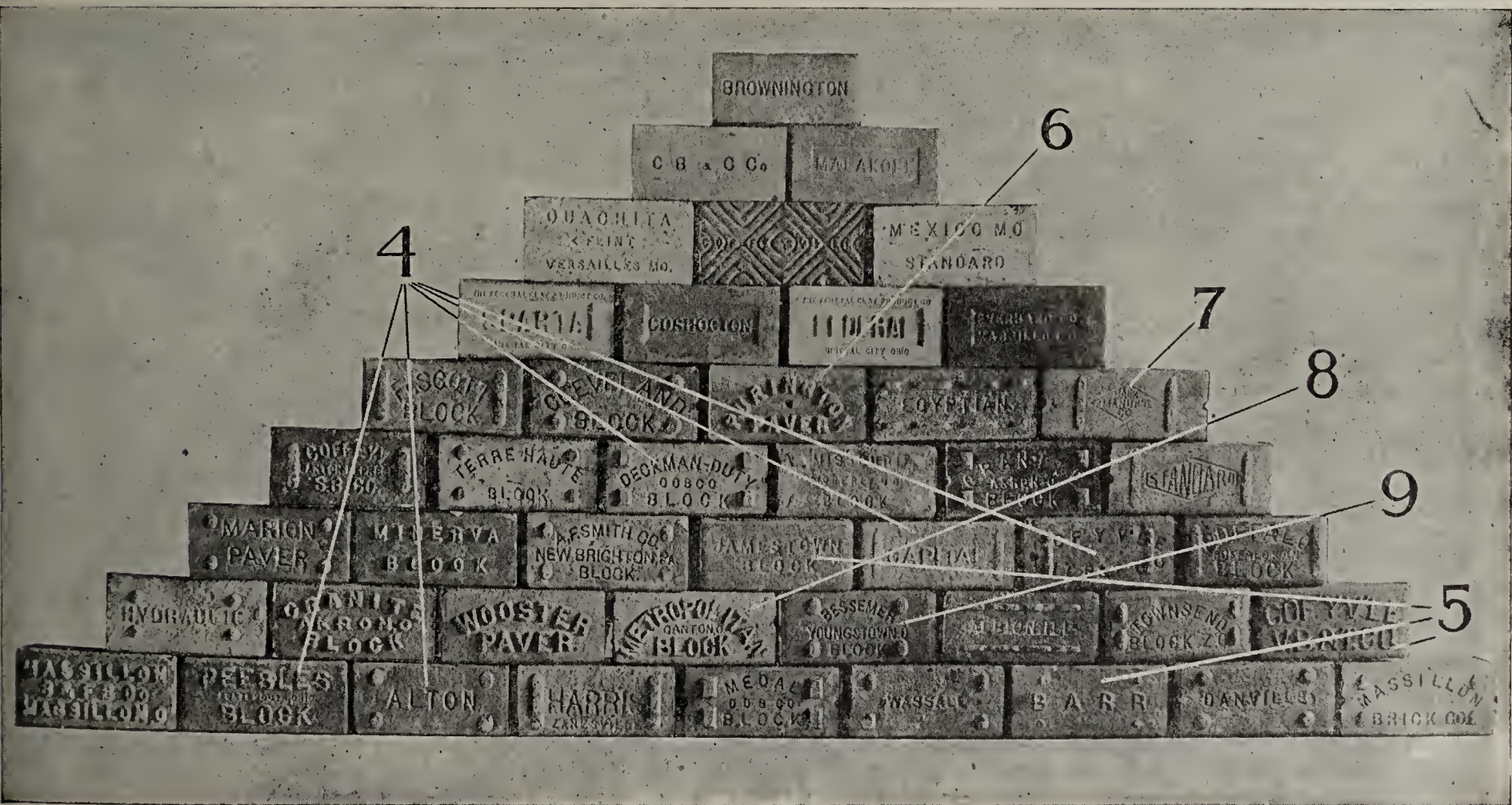
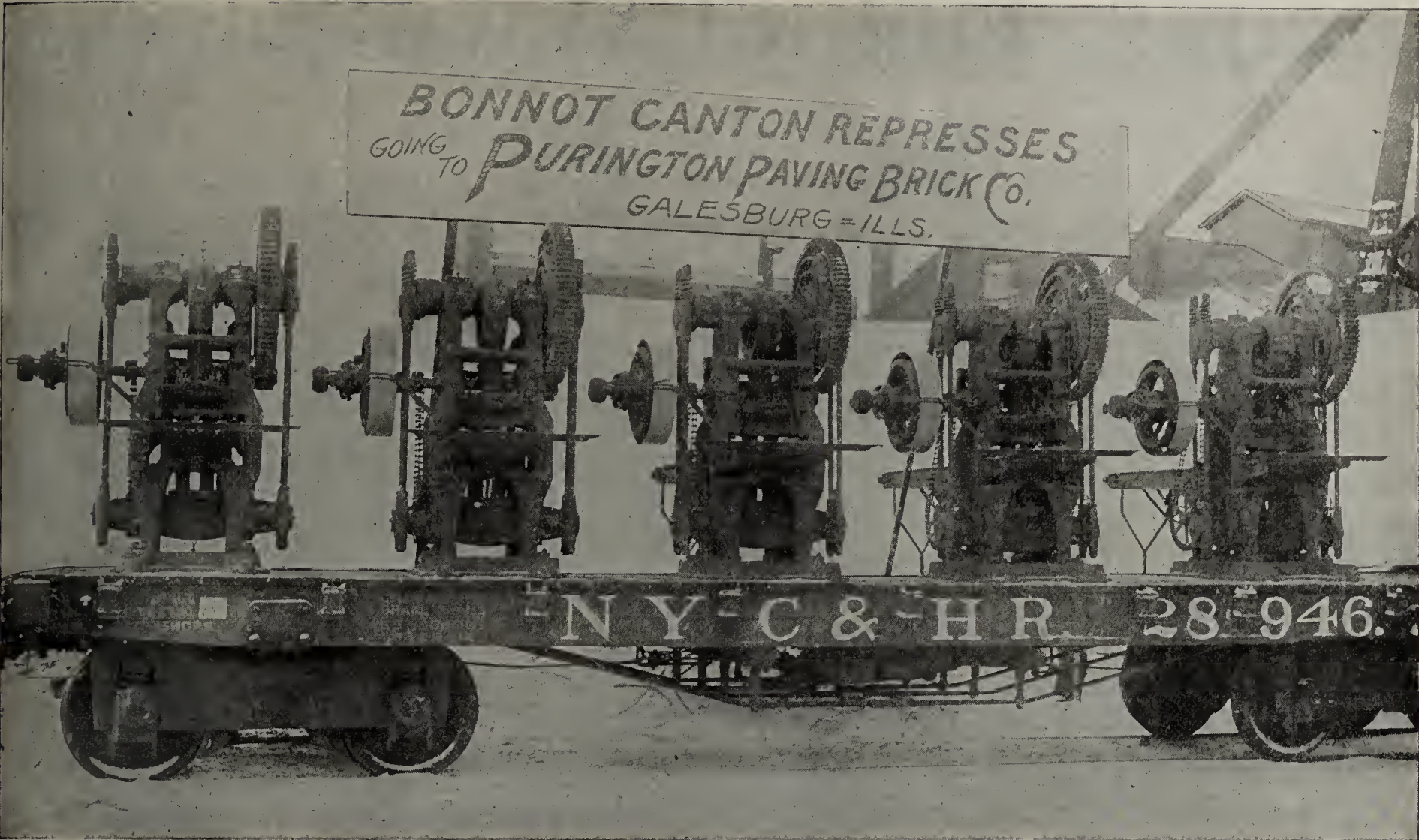


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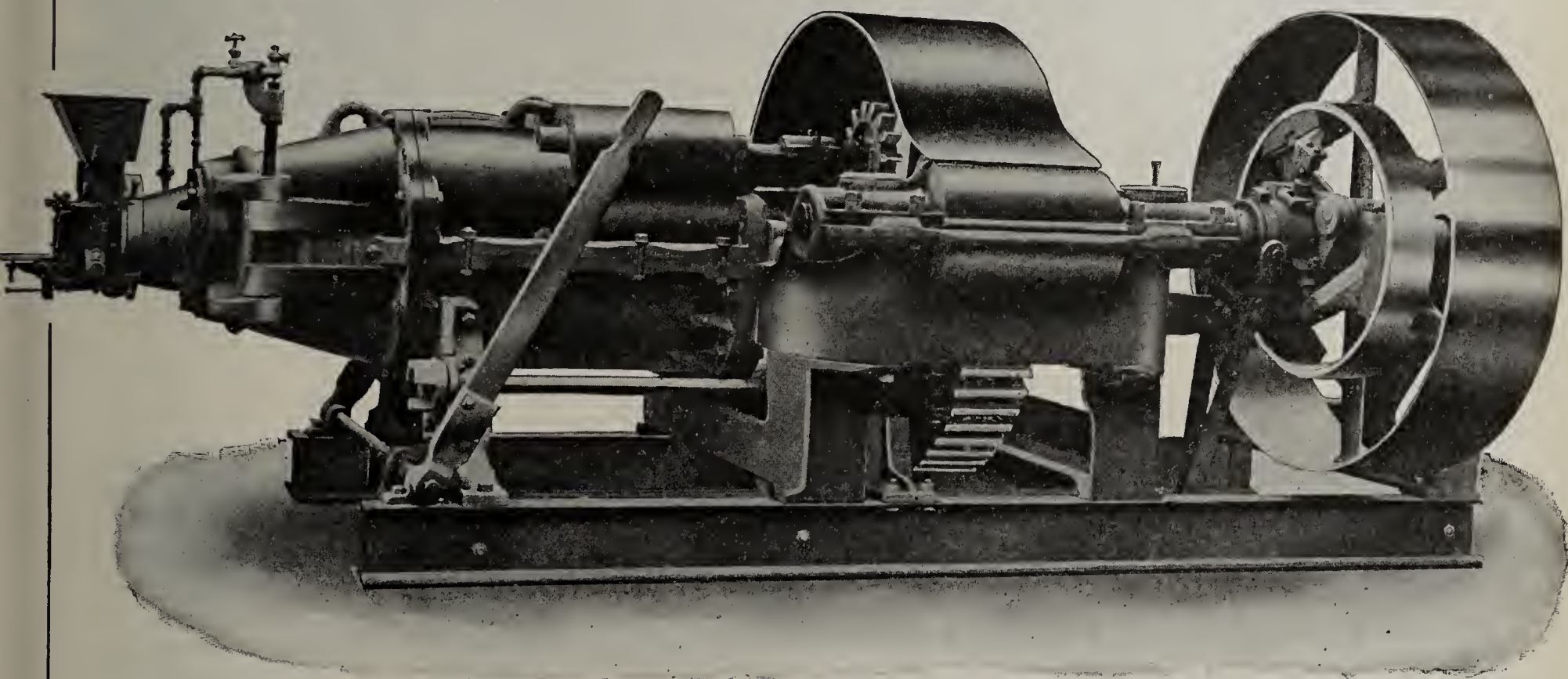
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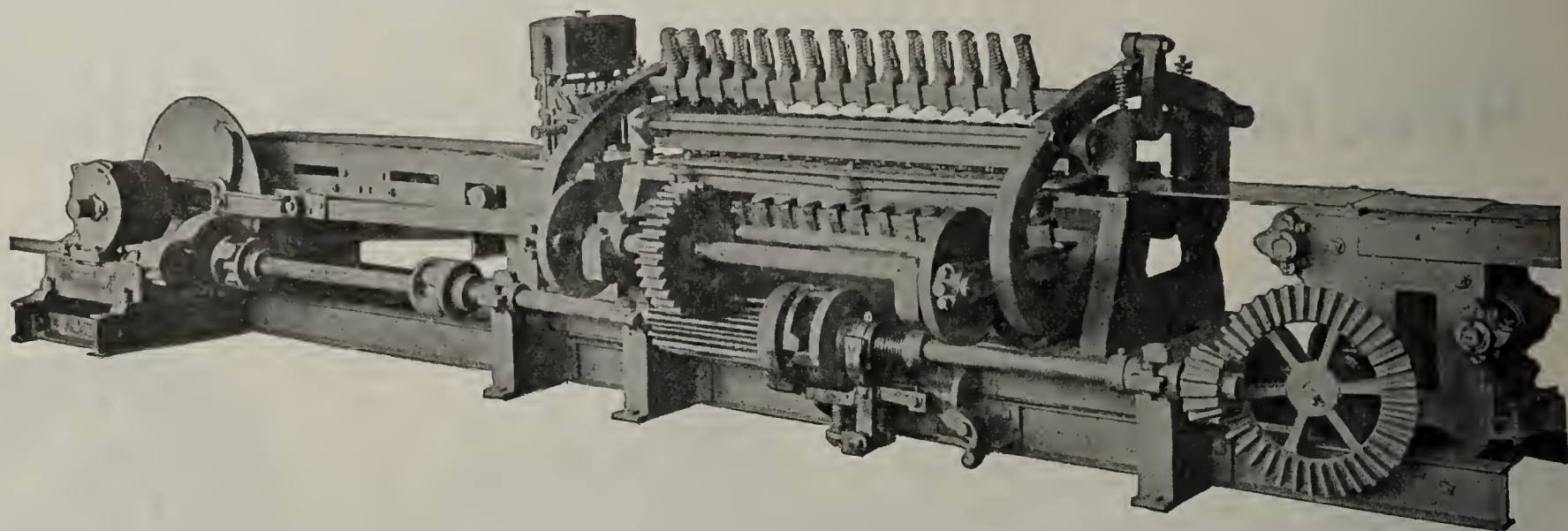
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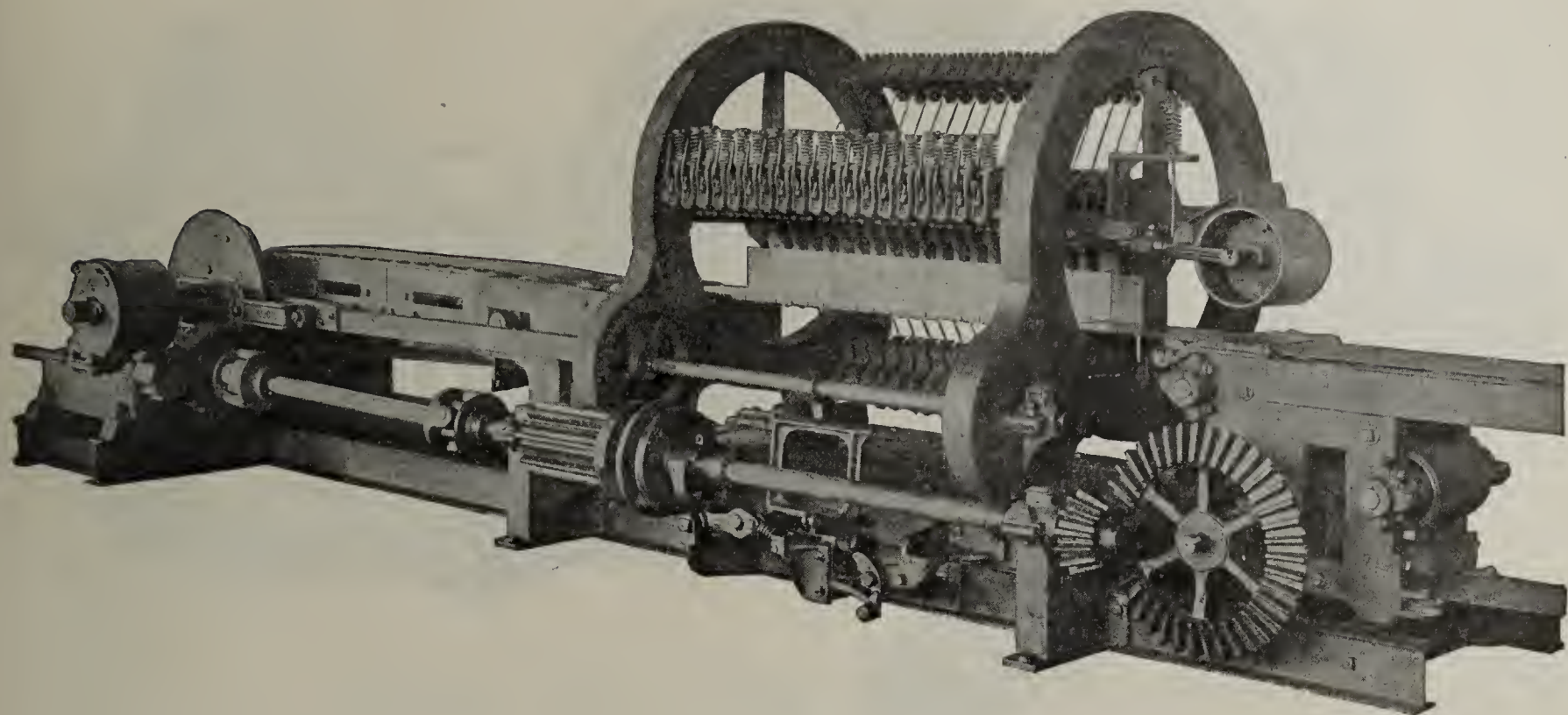
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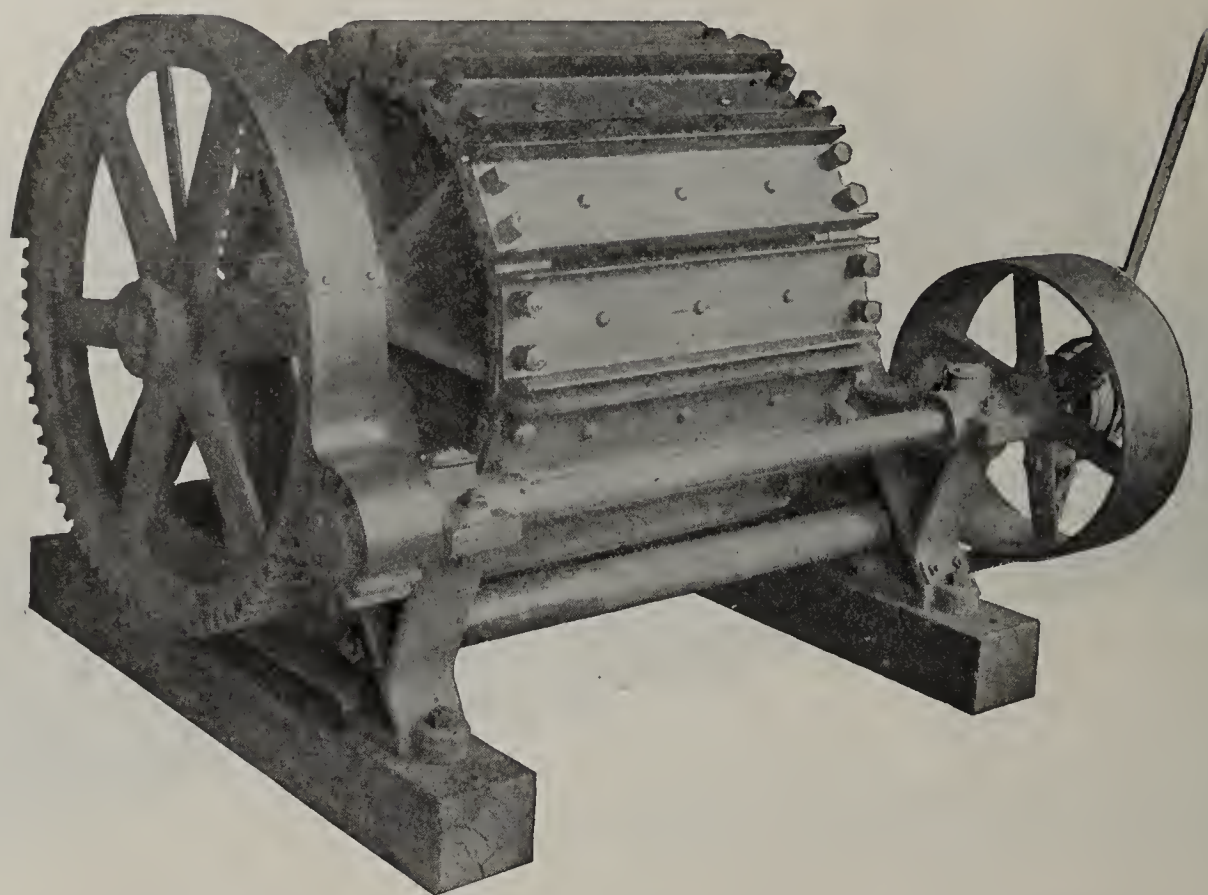
The above illustration shows the Model C 20 Cutter, which is an improved model of our well-known Size 16. It is intended for capacities up to 7,500 standard size brick per hour—18 brick are cut at each cut. At this speed the cutting reel makes only a little over two revolutions per minute, remaining stationary between cutting strokes. It is not necessary to stop the brick machine to renew broken wires, as this gives ample time.

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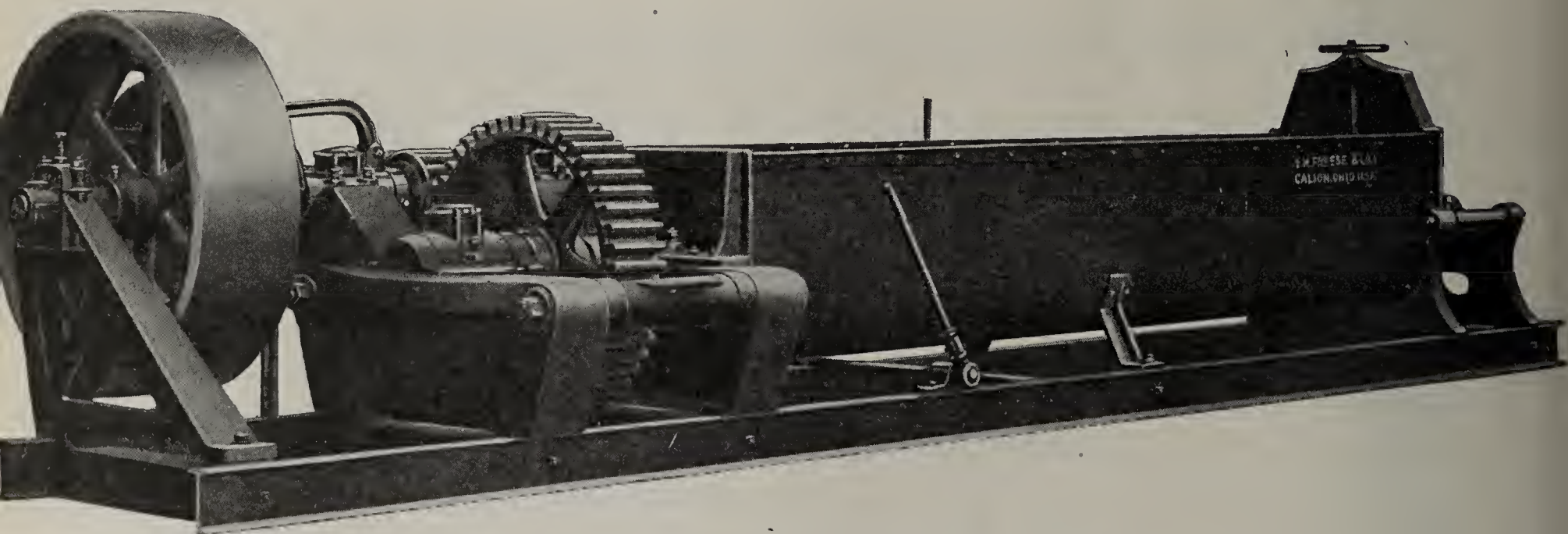
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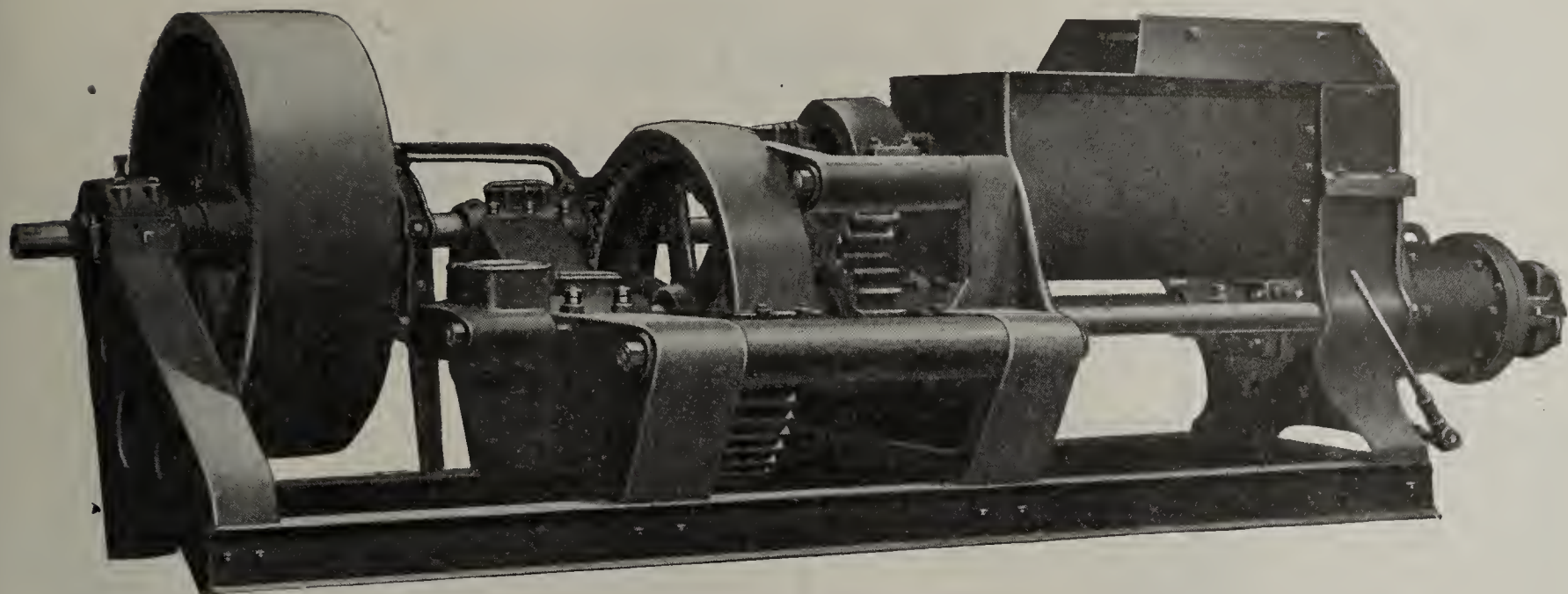
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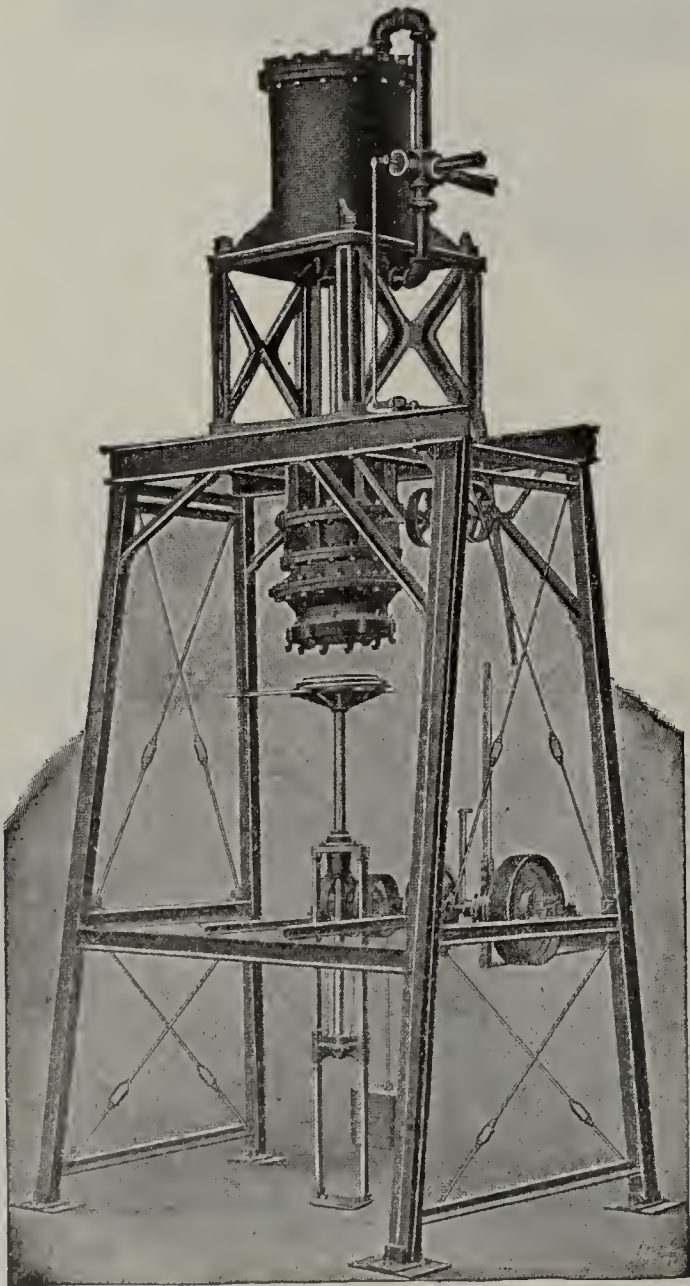
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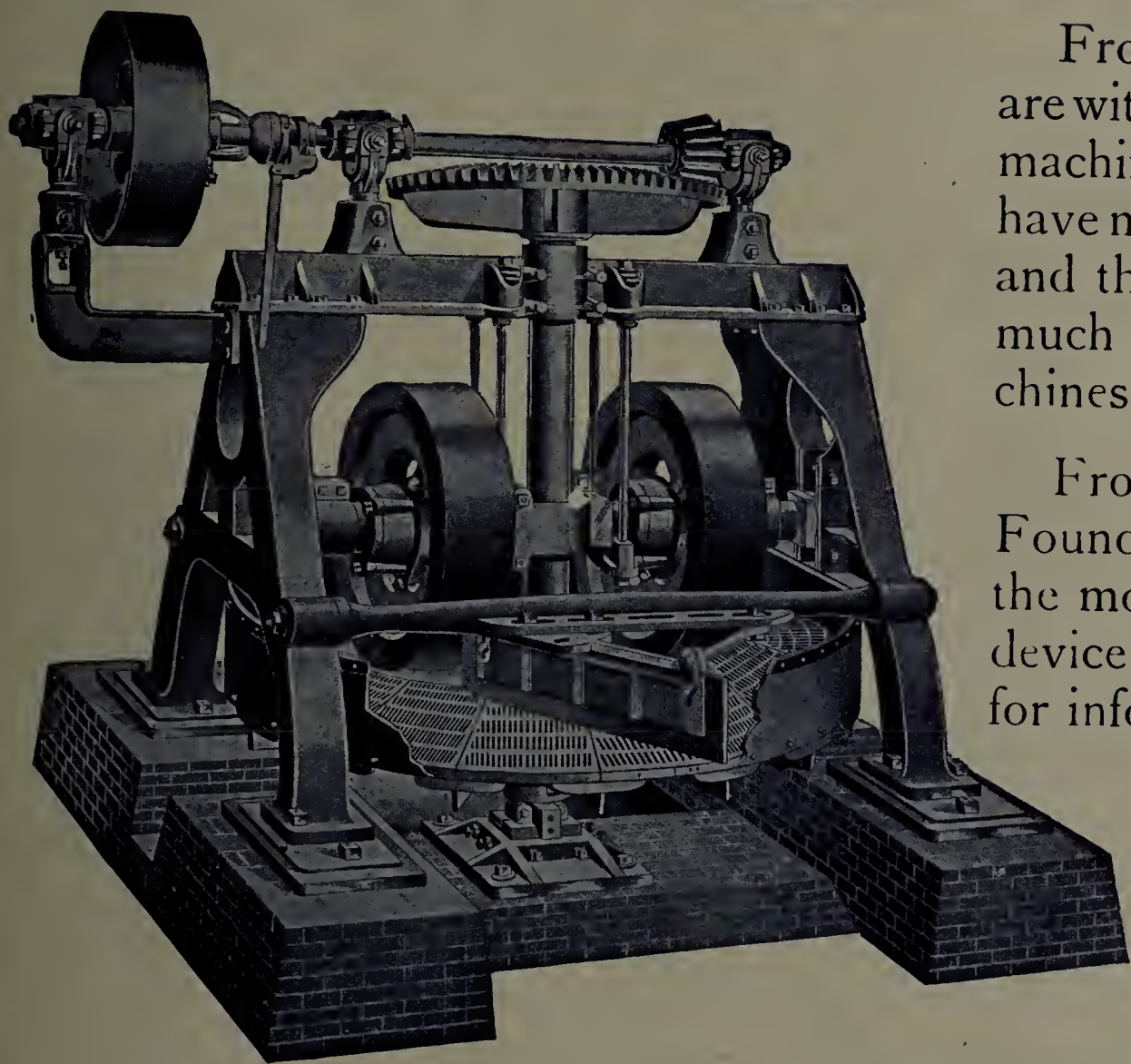
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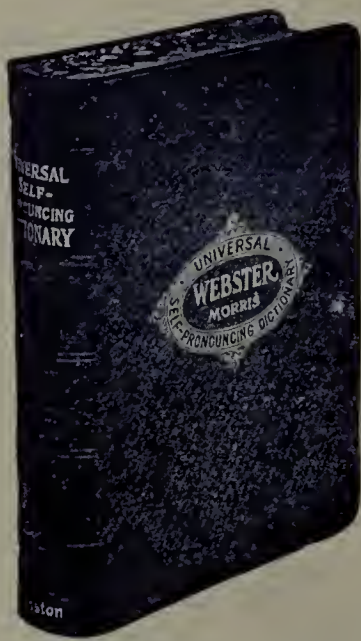
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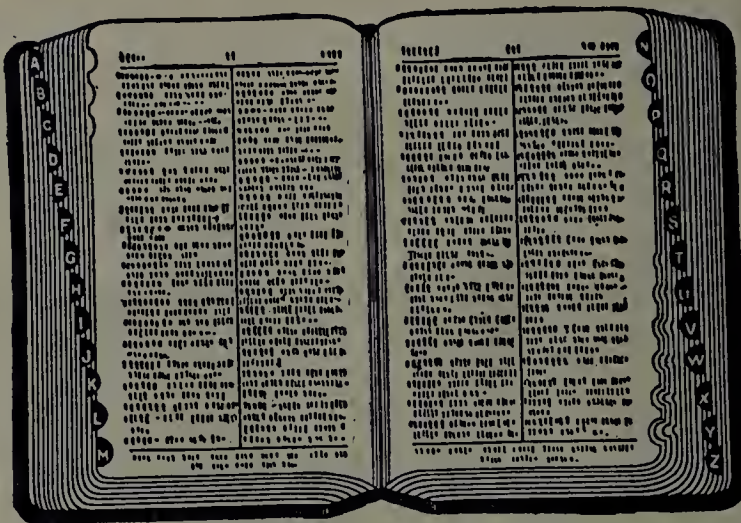
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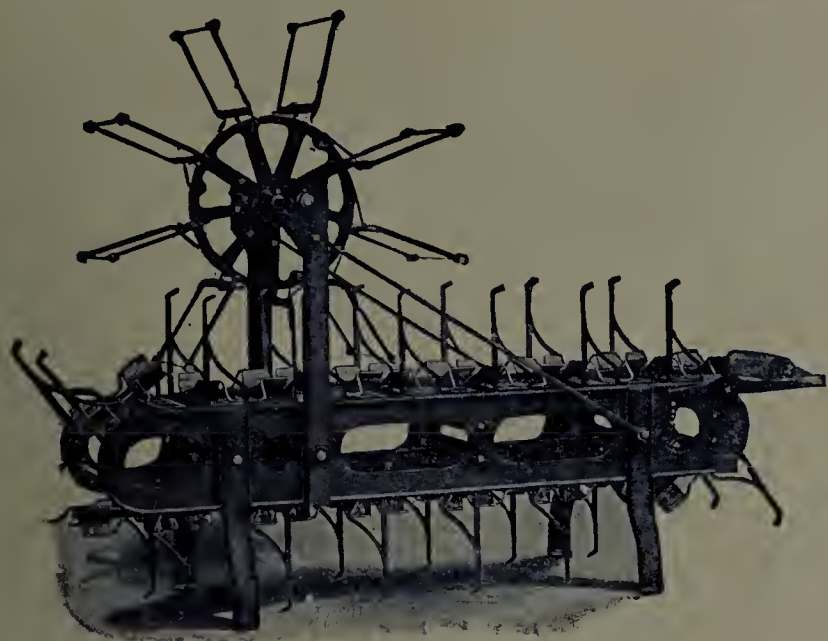
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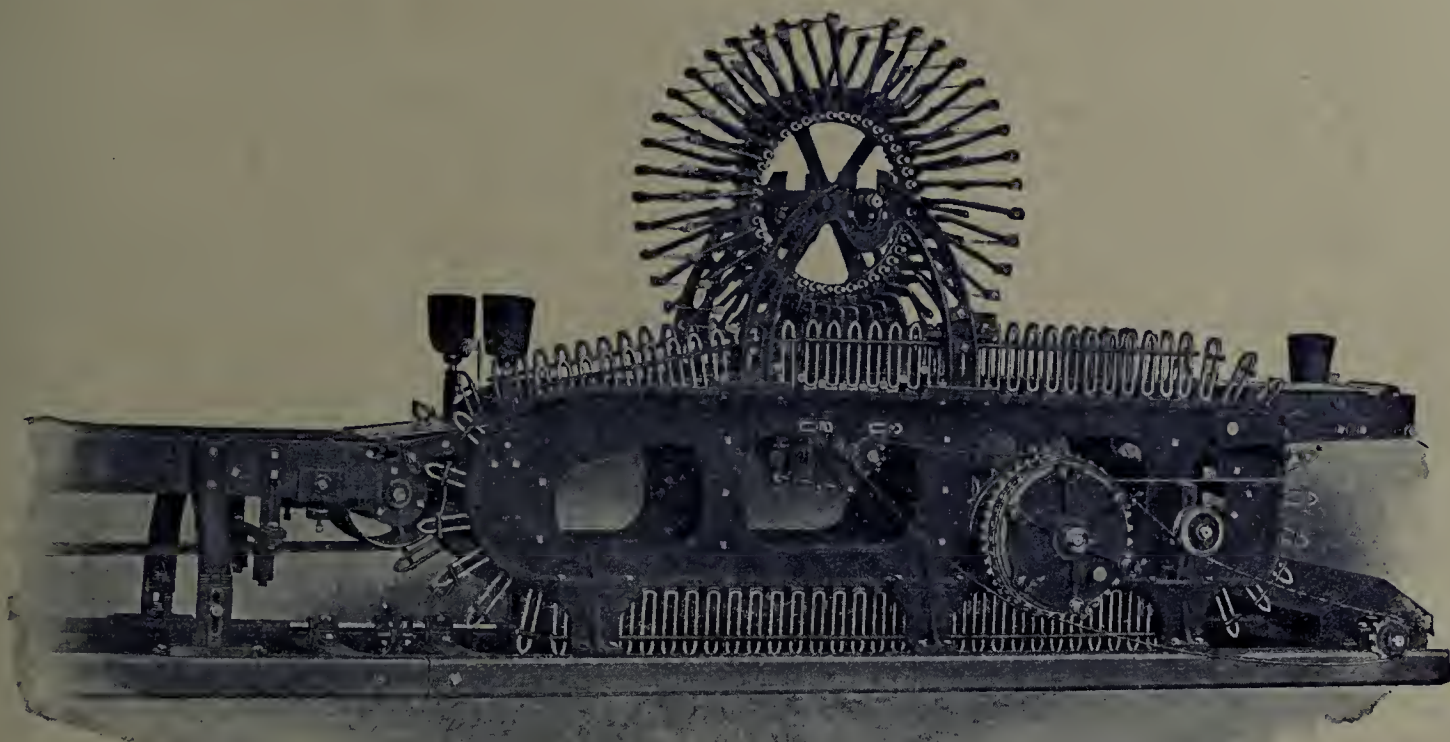
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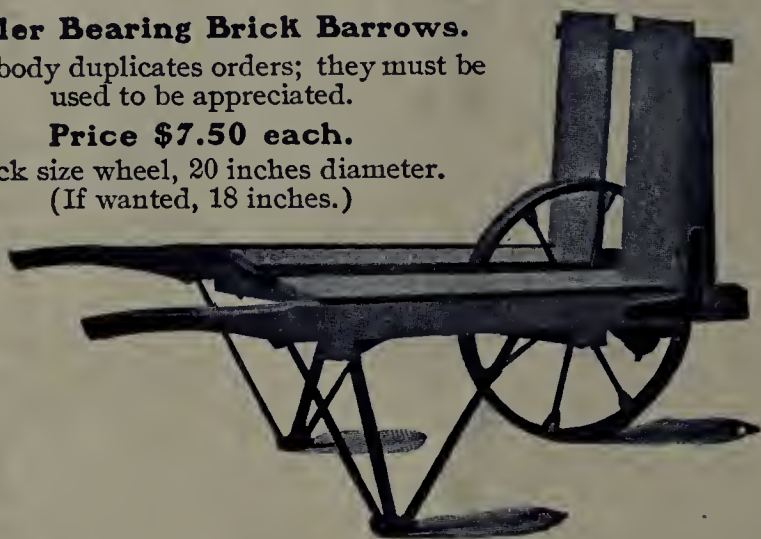
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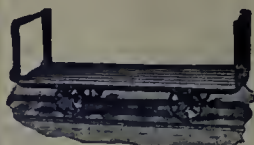
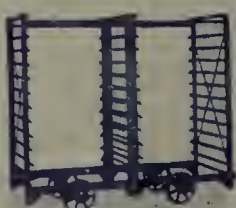
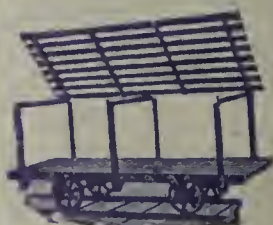
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THE CLAY-WORKER

PUBLISHED
MONTHLY
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INDIANAPOLIS

NOVEMBER, 1912



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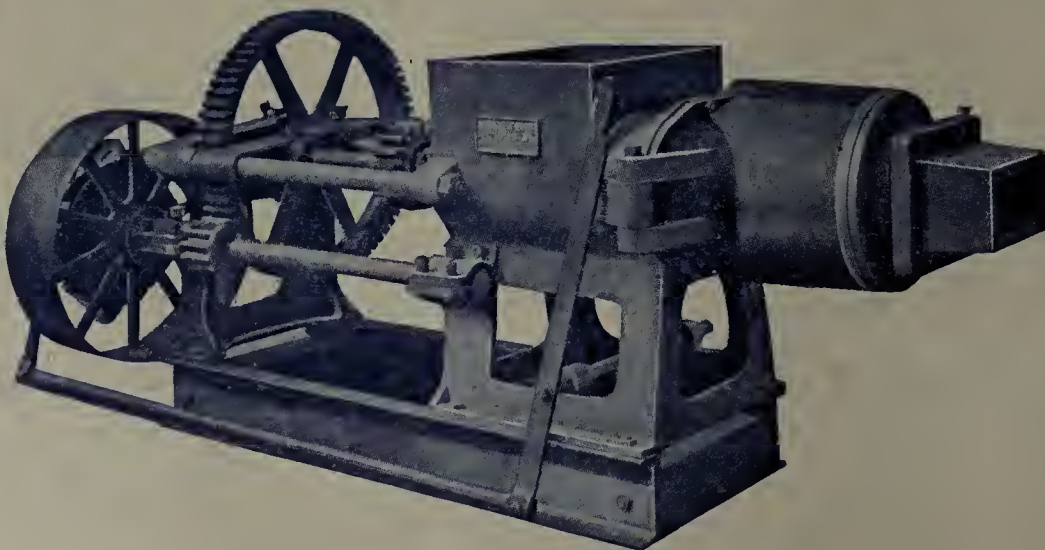
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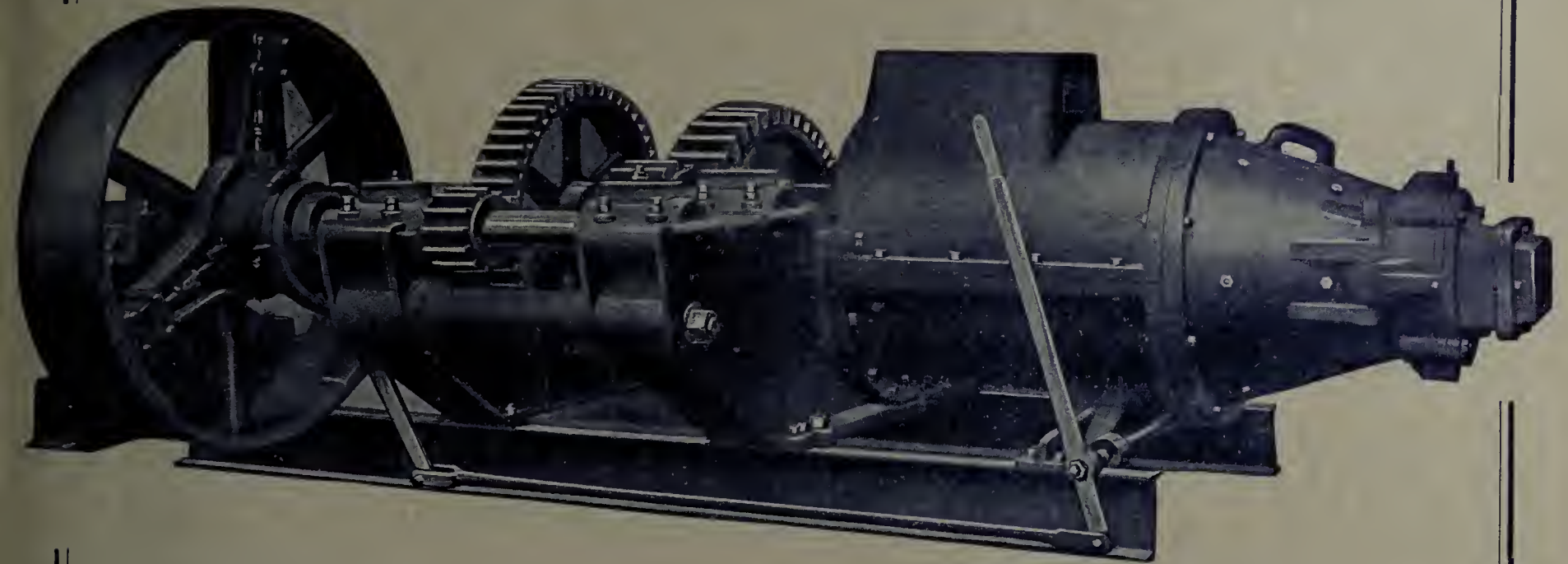
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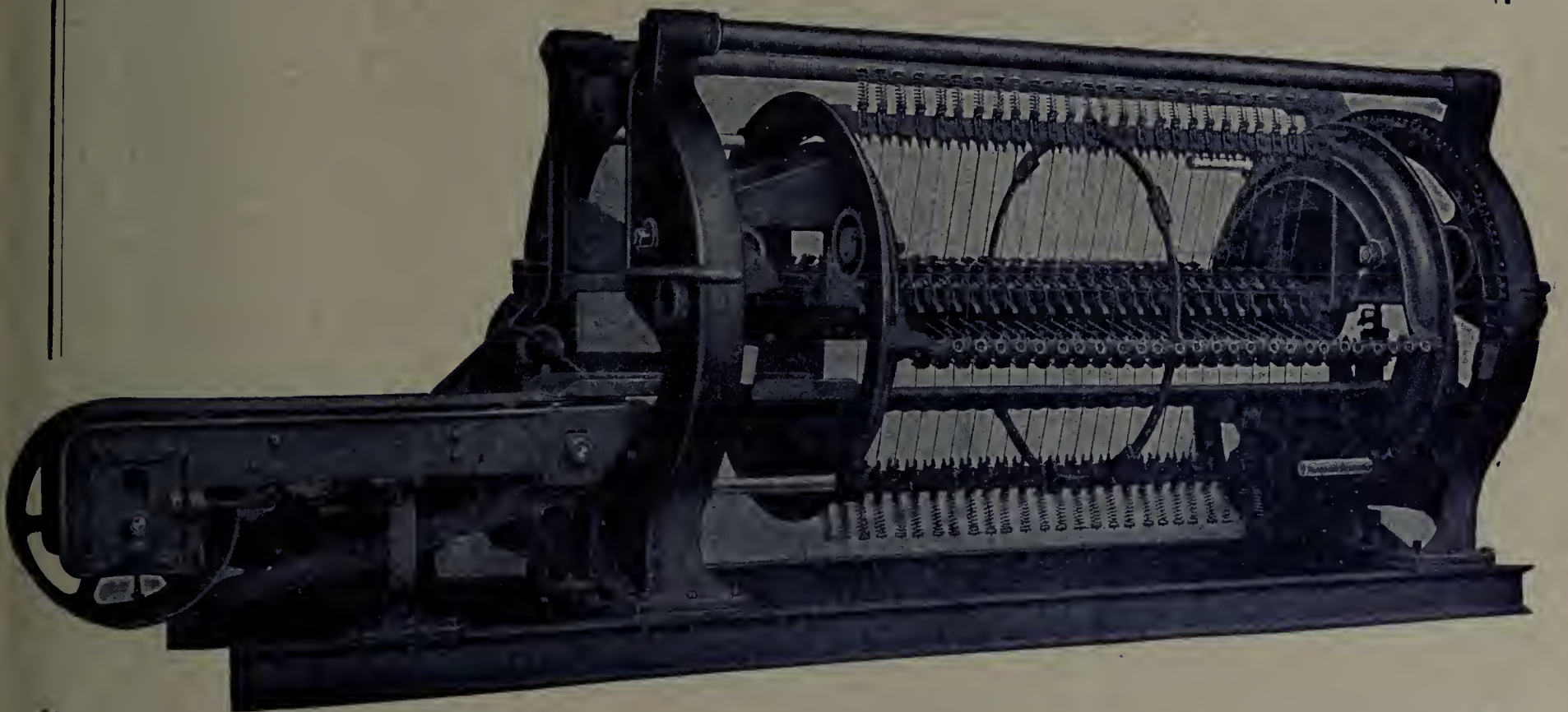
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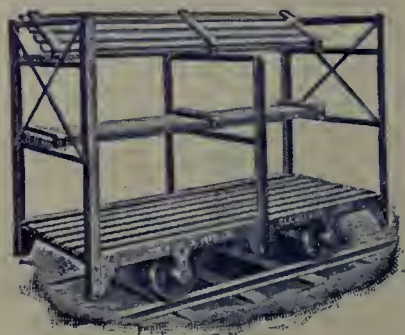
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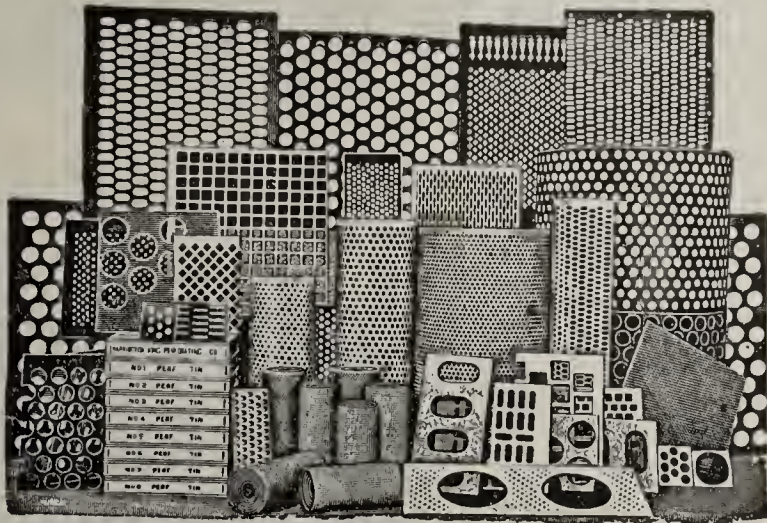
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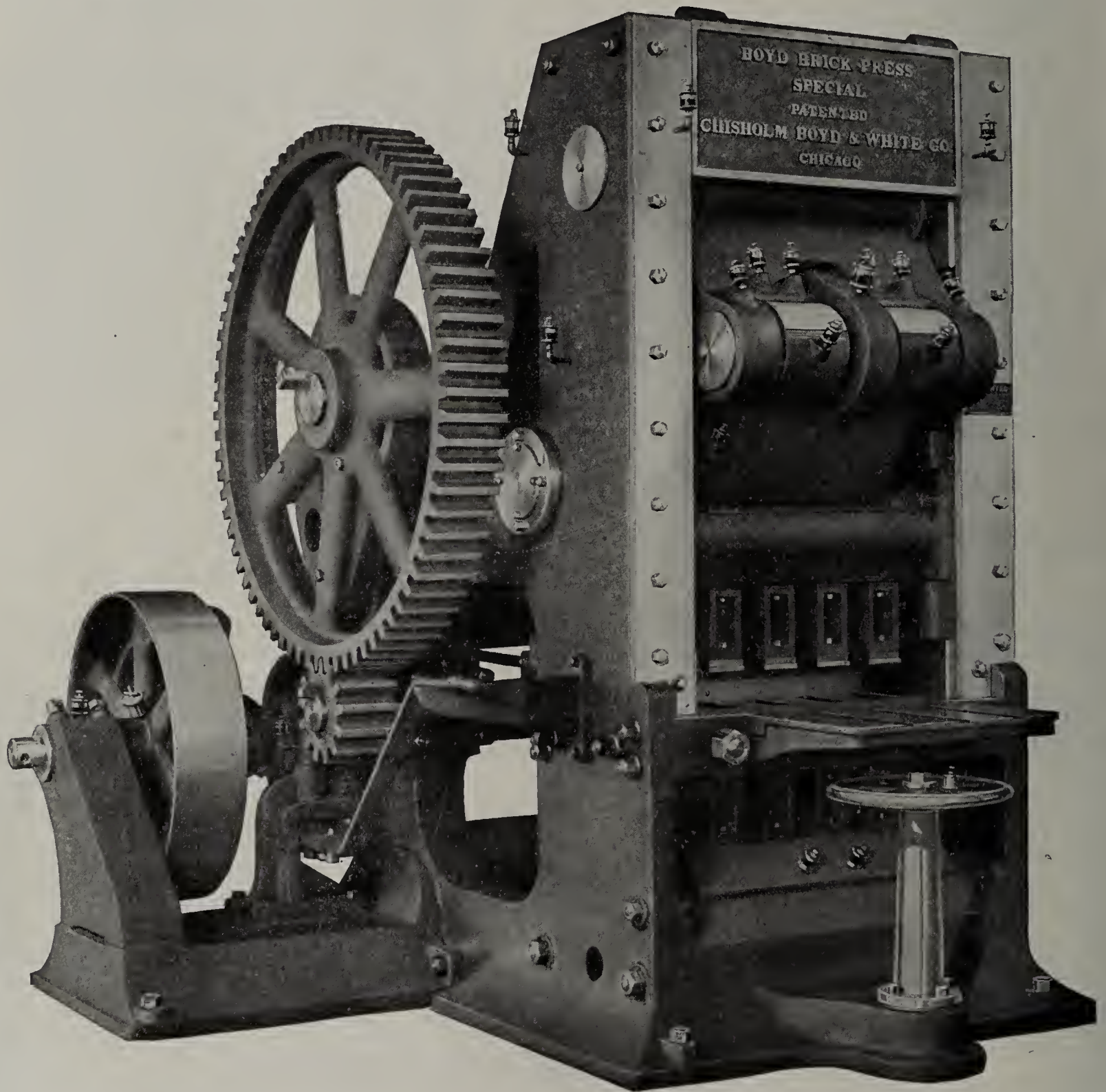
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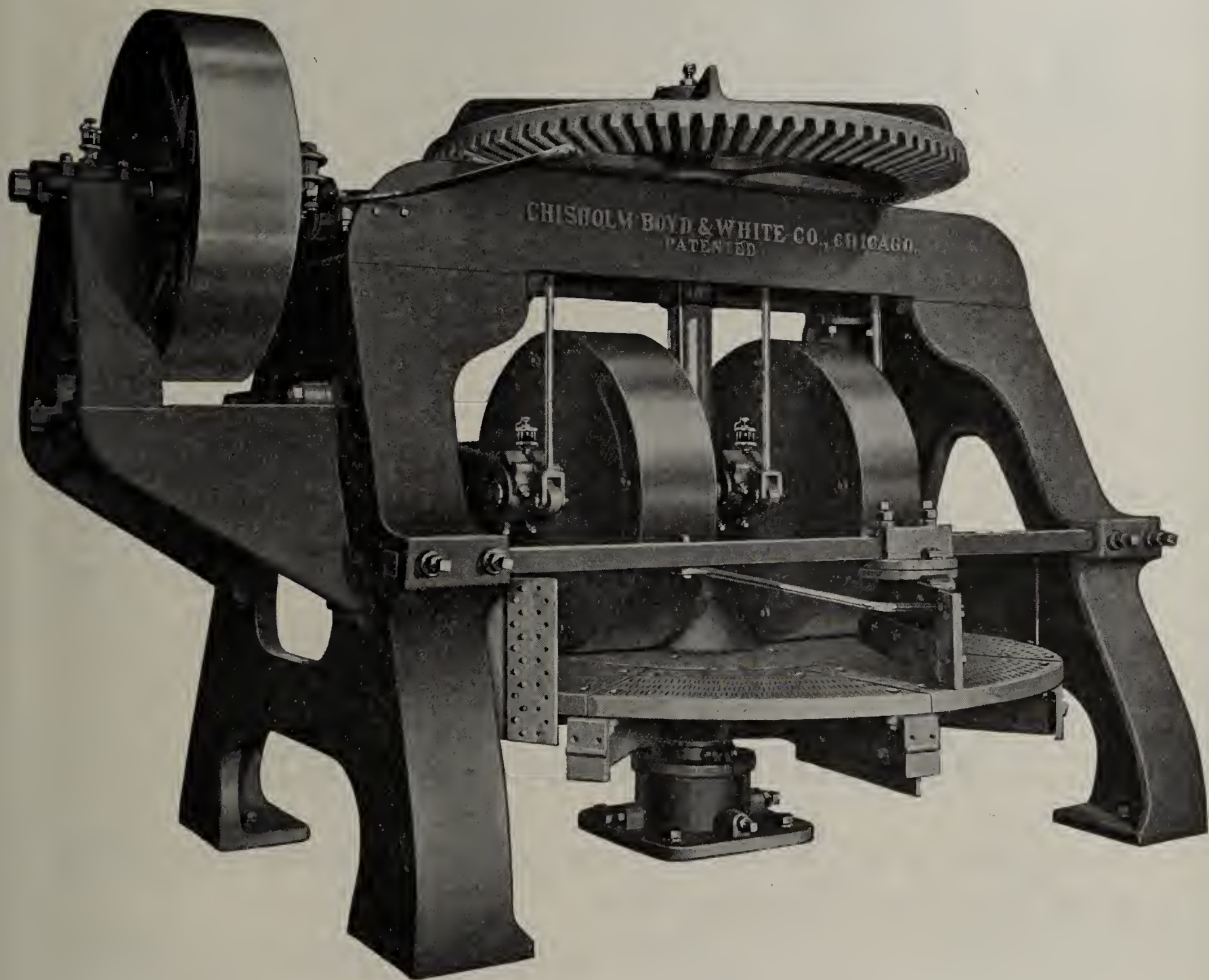
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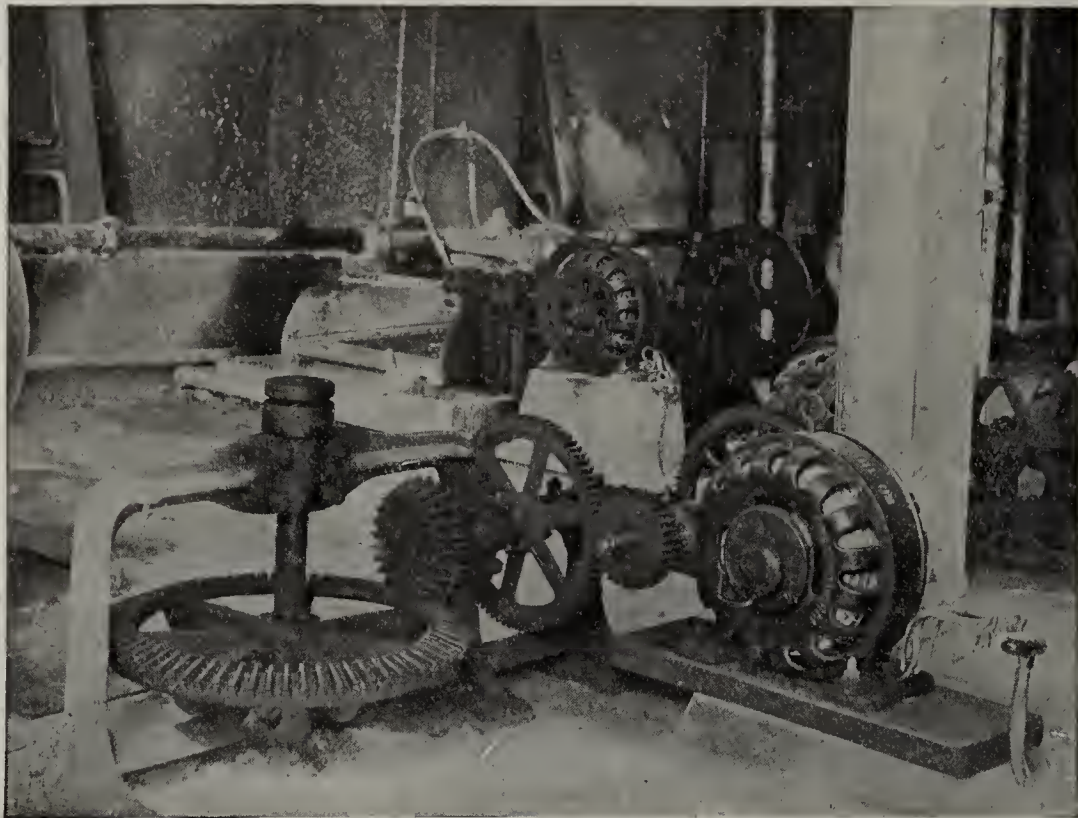
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American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Eastern Brick Machinery Co.
Freese & Co., E. M.
Hensley, J. W.
Ohio Ceramic Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.
Wellington Machine Co.

Dynamite.

Independent Powder Co.

Electric Equipment.

Westinghouse Electric & Mfg. Co.

Electric Instruments.

Brown Instrument Co., The

Electric Shovels.

Thew Automatic Shovel Co.

Electrical Furnaces.

Brown Instrument Co., The
Richardson-Lovejoy Engr. Co.

Electrical Locomotives.

Atlas Car & Mfg. Co.

Electrical Supplies.

American Clay Machinery Co.
Raymond Co., The C. W.

Elevating Equipment.

(See Conveyors.)

Engines.

American Clay Machinery Co.
Chambers Bros. Co.
Frost Mfg. Co.

Engineers

Callaway Eng. Co., Ed H.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

Explosives.

Independent Powder Co.

Fans.

American Blower Co.
American Clay Machinery Co.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

Feed Water Heaters.

American Blower Co.
American Clay Machinery Co.
Frost Mfg. Co.
Morehead Mfg. Co.
Standard Dry Kiln Co.

Filler (Paving).

Barrett Mfg. Co.

Filter Presses.

American Clay Machinery Co.
Raymond Co., The C. W.
Stevenson Co., The
Taplin, Rice-Clerkin Co.

Fire Brick and Fire Clay.

Bloomfield Clay Co.
Chicago Ret. & Fire Clay Co.
Evens & Howard Fire Brick Co.

Fire Clay.

Evens & Howard Fire Brick Co.

Fire Proofing.

Evens & Howard Fire Brick Co.

Floor Tile.

Chicago Ret. & Fire Brick Co.
Evens & Howard Fire Brick Co.

Flower Pot Machinery.

Baird Machine & Mfg. Co.
Rockwood Mfg. Co., The
Taplin, Rice-Clerkin Co.

Friction Clutch Pulleys.

(See Supplies.)

Furnaces.

Brown Instrument Co., The
Illinois Supply & Con. Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Tate, Jones & Co.

Gas Fire Continuous Kilns.

Raymond Co., The C. W.

Gears.

(See Supplies.)

Granulators.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Gravity Carriers.

Mathews Gravity Carrier Co.
Taplin, Rice-Clerkin Co.

Gravity Haulage.

American Clay Machinery Co.

Hand-Power Presses.

American Clay Machinery Co.
Carnell, Geo.
Illinois Supply & Con. Co.
Mueller Bros.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Stevenson & Co.

Hand Winch.

(See Supplies.)

Hangers.

(See Supplies.)

Hoists.

(See Supplies.)

Hollow Block Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.

Freese & Co., E. M.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.

Hollow Partition Tile.

Evens & Howard Fire Brick Co.

Illustrators.

Lamb, J. & R.

Jacks.

(See Supplies.)

Kilns.

American Clay Machinery Co.
Boss, J. C.
Chisholm, Boyd & White Co.
Dennis, F. W.
Gas Machinery Co.
Hoffmann Construction Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Snowden & Co., G. E.
Shumaker, J. H.
Vogt, Anton.
Yates, Alfred.

Kiln Doors, Castings and**Frames.**

(See Supplies.)

Kiln Floor Tile.

Chicago Ret. & Fire Brick Co.
Evens & Howard Fire Brick Co.

Kiln Irons.

Tecktonius Mfg. Co., E. C.

Kiln Furnaces.

Illinois Supply & Con. Co.

Kiln Lugs.

Tecktonius Mfg. Co., E. C.

Knives.

(See Supplies.)

Locomotives.

Davenport Locomotive Works.

Manganese.

(See Coloring Materials.)

Mechanical Draft.

American Blower Co.
Boss, J. C.
Rodgers Engr. Co., The L. E.

Mineral Paint.

(See Coloring Materials.)

Molds (Brick).

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Mentz, George B.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wellington Machine Co.

Mold Sanders.

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Hilton Sanding Machine Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wallace Mfg. Co.
Wellington Machine Co.

Mortar Colors.

(See Coloring Materials.)

Motors.

Westinghouse Electric & Mfg. Co.

Oil Burners.

Illinois Supply & Con. Co.
Tate, Jones & Co.

Packing Hay.

Interstate Hay Co.

Paints.

(See Coloring Materials.)

Pallets.

Ohio Ceramic Engineering Co.
Ohio Galvanizing & Mfg. Co.

Pans (Dry and Wet.)

(See Dry and Wet Pans.)

Patents.

Scientific American.
Watson & Boyden.

Paving Brick or Block.

(See Brick.)

Perforated Sheet Metal.

Caldwell & Sons Co., H. W.
Harrington & King Perf. Co.

Pitch (Paving).

Barrett Mfg. Co.

Plows.

(See Scrapers.)

Portable Track.

Atlas Car & Mfg. Co.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.

Pottery Machinery.

American Clay Machinery Co.
Baird Machine & Mfg. Co.
Crossley Machine Co.
Raymond Co., The C. W.
Rockwood Mfg. Co.
Stevenson Co., The
Taplin, Rice-Clerkin Co.

Power Plant Equipment.

Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.
Westinghouse Electric & Mfg. Co.

Powder.

Independent Powder Co.

Presses.

(See Brick Machines, also Sewer Pipe Machinery, also Roofing Tile Machinery.)

Pug Mills.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Mueller Bros.
Raymond Co., The C. W.
Steele & Sons, J. C.
Scott-Madden Iron Works Co.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Pulleys.

(See Supplies.)

Pulverizers.

Bradley Pulverizer Co.
Illinois Supply & Con. Co.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.

Pumps.

Dean Bros. Steam Pump Wks.
Pulsometer Steam Pump Co.

Pyrometers.

Brown Instrument Co.
Ceramic Supply & Constr. Co.
Rodgers Engr. Co., The L. E.

Rails and Railway Equipment.

Atlas Car and Mfg. Co.
Arbuckle & Co.
Davenport Locomotive Works.
Ohio Ceramic Engineering Co.
Scott Madden Iron Works Co.

Rattlers (Paving Brick).

Ceramic Supply & Constr. Co.
Freese & Co., E. M.
Hetherington & Berner.
Phillips & McLaren Co.

Recording Gauges.

Brown Instrument Co.
Ceramic Supply & Constr. Co.

Represses.

American Clay Machinery Co.
Bonnot Co., The
Chambers Bros. Co.
Fate Co., The J. D.

(Continued on Page 496.)

REPEAT ORDERS PROVE OUR CLAIM

That the use of the Mathews Gravity Brick Conveyor will save **more time and labor** than any other investment made for standard brick manufacturing equipment of equal cost. The following letter is simply a sample of many repeat orders received by us every month:

Athens, Ala., July 10, 1912

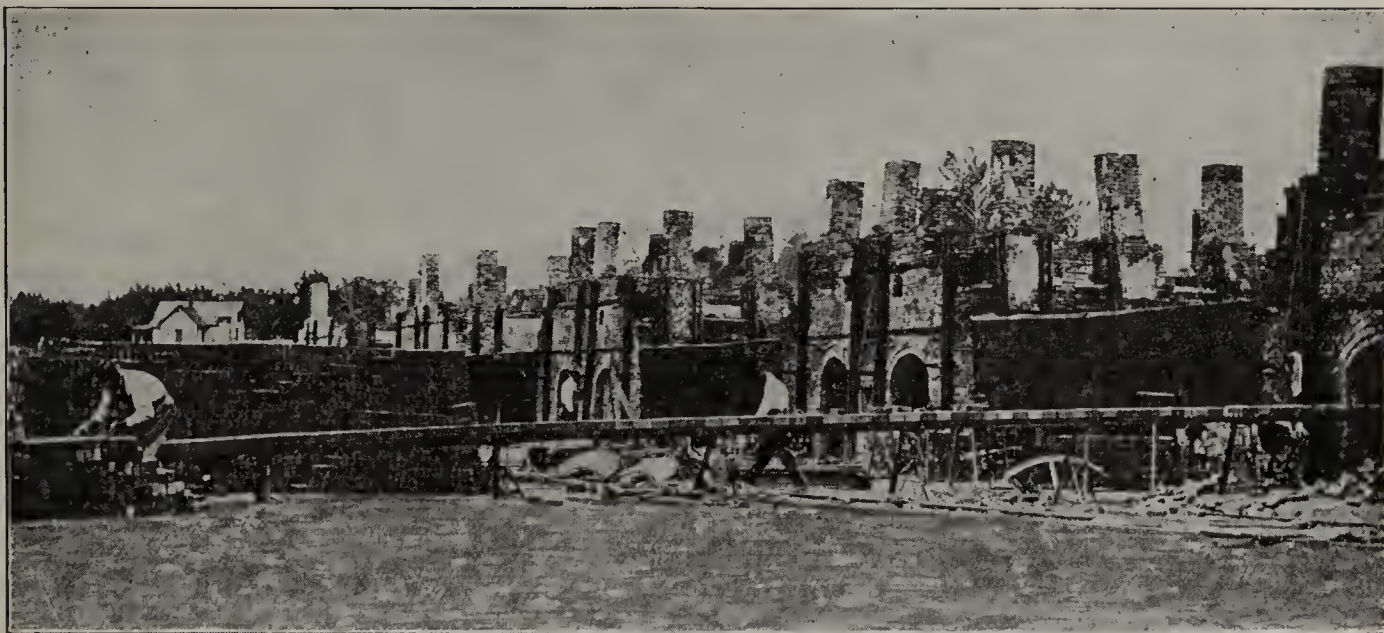
Mathews Gravity Carrier Co.
Ellwood City, Pa.

Dear Sir:

Conveyer arrived in good shape, and I like it so well you may ship twenty feet more at once. Make it in two ten feet sections. I think this will do me for a while. See if you can't get it to me some quicker than the first.

Athens Brick Co.

By N. L. Cardin.



A line of Mathews Gravity Brick Conveyers, long or short, set up between any two points—such as from kilns into cars, or from kilns to stock piles, will save miles of travel back and forth, pushing a heavy wheelbarrow one way full and back empty. Think of the useless time and expensive labor you have to pay for by this old-style method. Think of how many sections of Gravity Conveyor you have already paid for in this way but do not own. How many more are you going to pay for before you actually own a conveying system? A letter to us will put you in the way of getting all necessary information without further delay? Will you write it?

BRANCH FACTORIES:

British Mathews, Ltd., London, Eng.
Canadian Mathews Gravity Carrier Co., Toronto, Ont.

BRANCH OFFICES:

New York: 30 Church Street, Room 726.
Boston: 164 Federal Street, Room 50.
Philadelphia: 1002 Drexel Bldg.
Rochester: 1459 South Ave.
Chicago: 9 South La Salle St.
St. Louis: P. O. Box No. 568.
San Francisco: Hicks, Nell & Marks, 604 Mission St.



Main Office and Factory
ELLWOOD CITY,
PENN., U. S. A.

Buyers Ready Reference List—Continued.

Freese & Co., E. M.
Illinois Supply & Con. Co.
Mueller Bros.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Taplin, Rice, Clerkin Co.
Stevenson Co., The

Revolution Indicators.

Brown Instrument Co.
Ceramic Supply & Constr. Co.

Revolving Steam Shovels.

Thew Automatic Shovel Co.

Rock Crushers.

American Pulverizer Co.
Phillips & McLaren Co.

Roofing Tile Machinery.

American Clay Machinery Co.
Ill. Supply & Construction Co.
Mueller Bros.
Raymond Co., The C. W.
Taplin, Rice-Clerkin Co.

Rope.

(See Supplies.)

Rotary Dryers.

American Clay Machinery Co.

Sand Dryers.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Fate Co., The J. D.
Hensley, J. W.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wellington Machine Co.

Sand Lime Brick Machinery.

American Clay Machinery Co.
Anderson Fdry. & Mach. Wks.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Fernholtz Brick Machinery Co.
Illinois Supply & Constr. Co.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.

School of Ceramics.

Illinois University.
New Jersey State School.
New York State School.

Scrapers, Plows and Clay Gatherers.

Arbuckle & Co.
Eagle Iron Works.
Ill. Supply & Construction Co.
Scott-Madden Iron Works Co.

Screens.

American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Bonnot Co., The
Ceramic Supply & Constr. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Freese & Co., E. M.
Harrington & King Perf. Co.
Illinois Supply & Constr. Co.
Mueller Bros.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.
Stevenson Co., The

Sewer Pipe.

Evens & Howard Fire Brick Co.

Sewer Pipe Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Taplin-Rice-Clerkin Co.
Scott-Madden Iron Works Co.
Stevenson Co., The

Steam Gauges.

(See Supplies.)

Steam Shovels.

Scott-Madden Iron Works Co.
Thew Auto. Steam Shovel Co.

Steam Specialties.

Dean Bros. Steam Pump Wks.
Frost Mfg. Co.
Morehead Mfg. Co.
Pulsometer Steam Pump Co.
Standard Dry Kiln Co.

Steam Traps.

American Blower Co.
Frost Mfg. Co.
Morehead Mfg. Co.
Standard Dry Kiln Co.

Steel Pallets.

Ohio Galvanizing Co.
Ohio Ceramic Engineering Co.

Supplies.

American Clay Machinery Co.
Anderson Fdry. & Mach. Wks.
Arbuckle & Co.
Atlas Car & Mfg. Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Carnell, Geo.
Ceramic Supply & Constr. Co.
Chambers Bros. Co.
Chase, Fdy. & Mfg. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White.
Eastern Brick Machinery Co.
Fate Co., the J. D.
Freese & Co., E. M.
Hensley, J. W.
Illinois Supply & Constr. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Newton, A. C.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons., J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Switches.

Atlas Car & Mfg. Co.
Ohio Ceramic Engineering Co.

Tempering Wheels.

Carnell Geo.
Raymond Co., The C. W.

Thermometers.

Brown Instrument Co.
Ceramic Supply & Engr. Co.
Rodgers Engr. Co., The L. E.

Tile Machines.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Illinois Supply & Constr. Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Time Recorders.

Brown Instrument Co.
Ceramic Supply & Con. Co.

Tracks and Switches.

(See Rails.)

Transfer Cars and Turn Tables
(See Supplies.)

Unloading Device for Pans.

American Clay Machinery Co.
Raymond Co., The C. W.

Voltmeters.

Brown Instrument Co.

Wheels and Axles.

(See Supplies.)

Wheelbarrows.

(See Barrows.)

Wet Pans.

(See Pans.)

Wire.

(See Cutting Wire.)

CROSSLEY The Name That Stands for Quality.

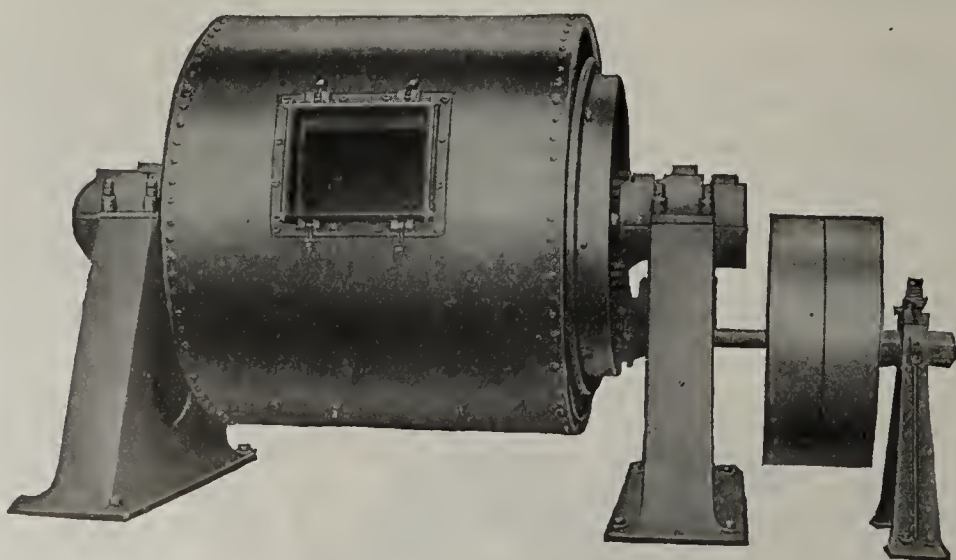
(Every Machine We Sell is Our Agent Because it Sells Another.)

We manufacture a complete line Electrical, Porcelain, Tile, Clayworking, Clay Washing and Refining Machinery.

COMPLETE INSTALLATIONS A SPECIALTY.

We lay out your buildings, placing the necessary machinery in same in the most approved manner, furnishing boilers, engines, motors, etc., and turn same over to you ready for use.

Our 35 years of experience in this line has made us experts and our engineering department is always at your service and if you have any knotty problems, submit them to us.

**Ball Mill or Grinding Cylinders**

These mills are made in 4 sizes; 2 ft. 6 in., 3 ft. 6 in., 4 ft. 6 in. and 6 ft. 8 in. We call your attention to the large bearings and substantial housings with the internal gear drive which not only insures life to the machine but makes it very compact and durable.

The 6 ft. 8 in. mill is fitted with hardened and ground roller bearings which reduces the friction to a minimum, thus being a great saver in fuel and power.

These mills are lined with hickory porcelain or silex lining whichever is desired.

THE CROSSLEY MACHINE CO.,

General Machinists and Founders

TRENTON, N. J., U. S. A.

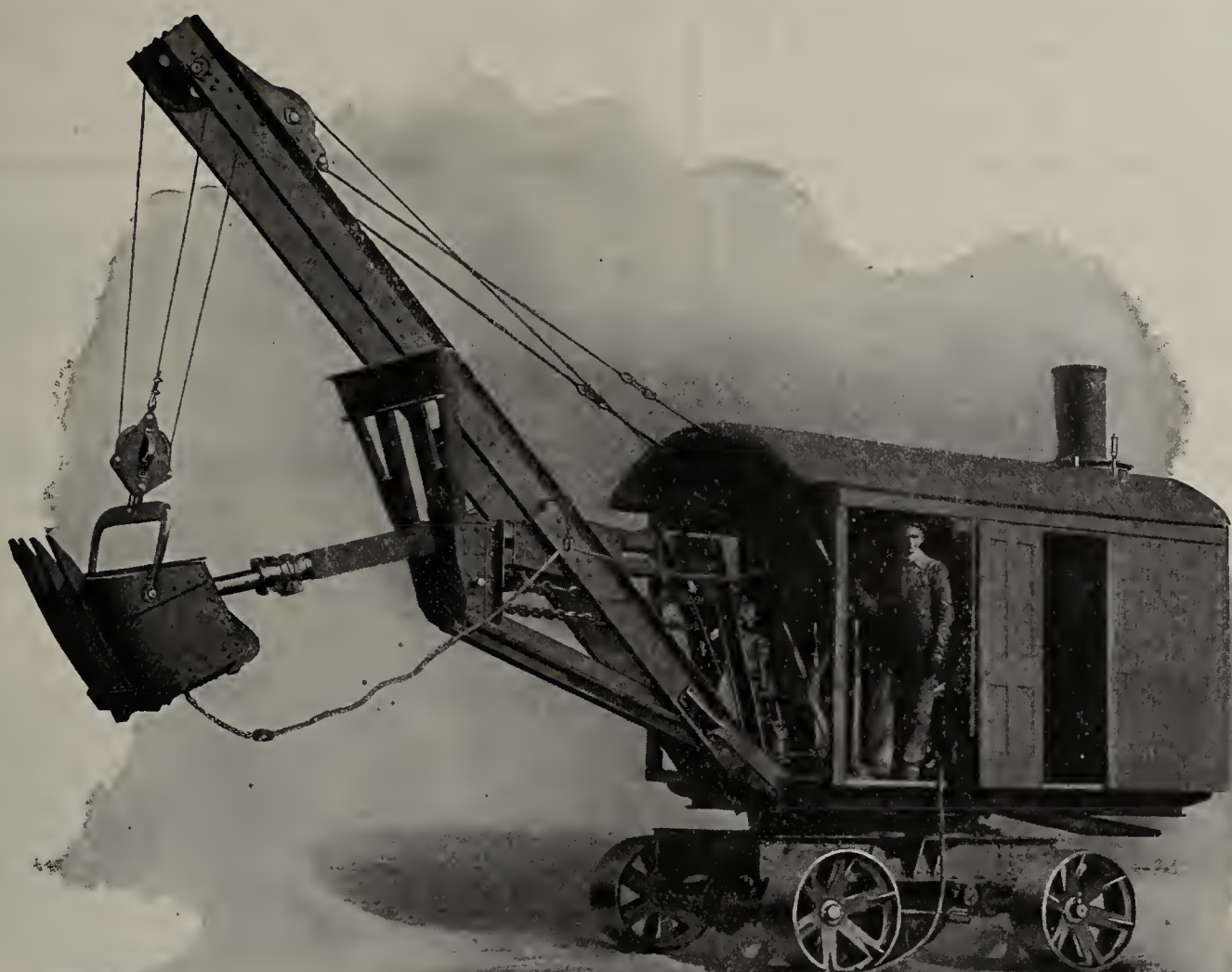
SEND FOR OUR LATEST CATALOG.

Handle Your Clay With One Man and a **THEW SHOVEL**

For many years we have been furnishing full circle swing steam shovels to the brick manufacturers of the country. We are the pioneers in this field and have created the demand for this type of shovel. We have studied the peculiar requirements of the clay-working industries and have designed shovels to meet these requirements. We offer today a complete line of shovels for this purpose, machines recognized everywhere as the standard of excellence.

THEW Shovels are not like others. They possess features of design not found in other shovels, features that are valuable as to convenience and economy of operation. Several hundred are now operating in brickyards and every one is giving satisfaction.

WE REFER YOU TO ANY OWNER OF A THEW SHOVEL ANYWHERE



Type No. 0 Thew Shovel—Mounted Upon Traction or Car Wheels.

STANDARD SIZES

Type 0,	15 Tons,	$\frac{5}{8}$ yard dipper;	capacity 100 M brick for ordinary clays.
Type A-1,	20 Tons,	$\frac{7}{8}$ yard dipper;	capacity 150 M brick for ordinary clays.
Type 1,	30 Tons,	$1\frac{1}{8}$ yard dipper;	capacity 200 M brick for ordinary clays.
Type 2,	35 Tons,	$\frac{3}{4}$ yard dipper;	capacity 125 M brick for ordinary shales.
Type 4,	50 Tons,	$1\frac{1}{4}$ yard dipper;	capacity 200 M brick for difficult shales.

The above rated outputs are for one man operation and may be doubled by using a fireman and extra laborer on ground.

THE THEW AUTOMATIC SHOVEL CO., Lorain, Ohio

The National Paving Brick Manufacturers' Association

Will send you free, upon request, any or all of the following booklets:
 "Directions for Laying Brick Street Pavements." "The Dependable Roadway."
 "Vitrified Brick Pavements for City and Country."

Address WILL P. BLAIR, Corresponding Secretary, 830-834 Brotherhood of Locomotive Engineers' Building, Cleveland, Ohio

SHAWMUT VITRIFIED PAVING BRICK WORKS

Shawmut, Pa. Alfred Yates, Gen. Mgr.

Vitrified Shale and Fire Clay Paving Bricks and Blocks.

Burned in Yates' Patent Kiln.

Samples and prices on application.

THURBER BRICK COMPANY

Manufacturers of

THURBER VITRIFIED PAVING BLOCK AND BRICK

ARTHUR S. GOETZ, General Sales Agent,

Works at Thurber, Texas.

Fort Worth, Texas.

PAVING BUILDING • BRICK AND BLOCK • SIDEWALK FOUNDATION

The Barr Clay Co.

C. C. Barr, Pres. • Streator, Ill.

The Danville Brick Company,

Manufacturers of the Unsurpassed

Danville Paving Block.

Danville, Ill.

LET US QUOTE YOU PRICES.

PROMENADE TILE

Chocolate Red

Highest Vitrification—Lowest Absorption.

BEST BY TEST.

KUSHEQUA KERAMIC COMPANY,

Kushequa, Pa.



All persons are warned against INFRINGEMENT.

FISKE & COMPANY, Inc.

BOSTON.

NEW YORK.

OXBLOOD RED FRONT BRICKS
DEVONSHIRES and REPRESSED

KUSHEQUA

Highly Vitrified by Natural Gas.

Tough Paving Blocks, Beautiful in Color and Finish.

KUSHEQUA BRICK CO., Kushequa, Pa.

ALTON BRICK COMPANY

Makers of High Quality Brick for

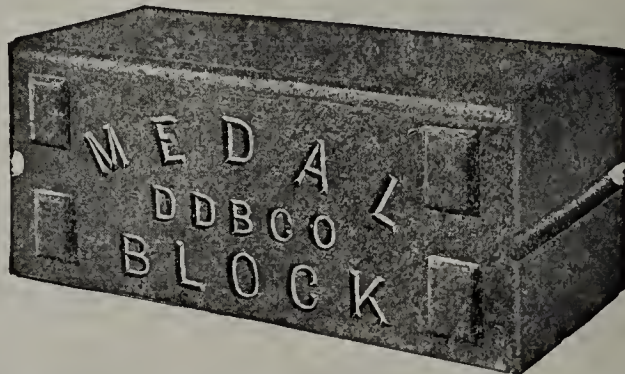
Roadways and Permanent Buildings.

Repressed and Dunn Wire-Cut-Lug Block.

ALTON, ILLINOIS.

The Deckman-Duty Brick Co. Cleveland, Ohio.

Manufacturers of



WEARS SMOOTHLY WITHOUT CHIPPING.

Murphysboro Paving Brick Company

Manufacturers of

The Celebrated

EGYPTIAN PAVING BLOCK

The Block That Stands the Test.

Prices and samples furnished
upon application.

MURPHYSBORO, ILL.

"Best Paving Block Made"



Daily Capacity

500,000

The Metropolitan Paving Brick Co.

Canton, Ohio

Terre Haute Vitrified Brick Co.,

Manufacturers of

High Grade Vitrified PAVERS.

Samples Free.

Address

Terre Haute Vitrified Brick Co.,
Arcade Building, Terre Haute, Ind.

Marion Brick Works

Montezuma, Ind.

MARION PAVERS

A Strictly High Class Paving Block.

Also

FANCY FACE BUILDING BRICK,
COLONIALS, ANTIQUES, ETC.

C. C. ORTHWEIN, Pres.
W. P. WHITNEY, Gen. Man.

L. A. CULVER, JR.,
Sec. and Treas.

The Wabash Clay Company,

MANUFACTURERS OF ALL SHALE

PAVING BLOCKS and PIONEER BUILDING BRICK.

Our leading brands are CULVER BLOCKS, WABASH STANDARDS, "SPECIALS," for crossings on macadam streets, GUTTER BLOCKS, COLUMBIAN SIDEWALK BRICK and PIONEER BUILDING BRICK.

Our material has for over twenty years successfully stood the heaviest traffic of Indianapolis, Terre Haute, East St. Louis and dozens of other large cities of Indiana and Illinois. We ask investigation and comparison by those seeking the best paving material. Samples furnished on application.

Office and Works at VEEDERSBURG, IND.

CLINTON PAVING BRICK CO.

Clinton, Indiana

Are manufacturers of repressed vitrified shale paving brick of unquestioned merit and also licensees of DUNN'S Wire-Cut-Lug Block, which is the acme of perfection for street paving material.

Write us for samples and prices.

Clinton Paving Brick Company
Clinton, Indiana

Do You Want Clay?

WE OWN AND OPERATE EXTENSIVE DEPOSITS OF THE VERY BEST GRADES.

Fire Clays, Terra Cotta Clays, Kaolin, and Fire and Moulding Sands.

Have been in the business for TWENTY-FOUR years, and are prepared to meet every reasonable demand. Unsurpassed shipping facilities. Prices and samples free.

The BLOOMFIELD CLAY CO.,

(C. A. Bloomfield, Treas. and Manager)

P. O. Box 413.

METUCHEN, N. J.

Bessemer Limestone Company

Youngstown, Ohio.

Manufacturers of

BESSEMER BLOCK.

The Most Uniform Shale Paver
Made.

PURINGTON PAVERS

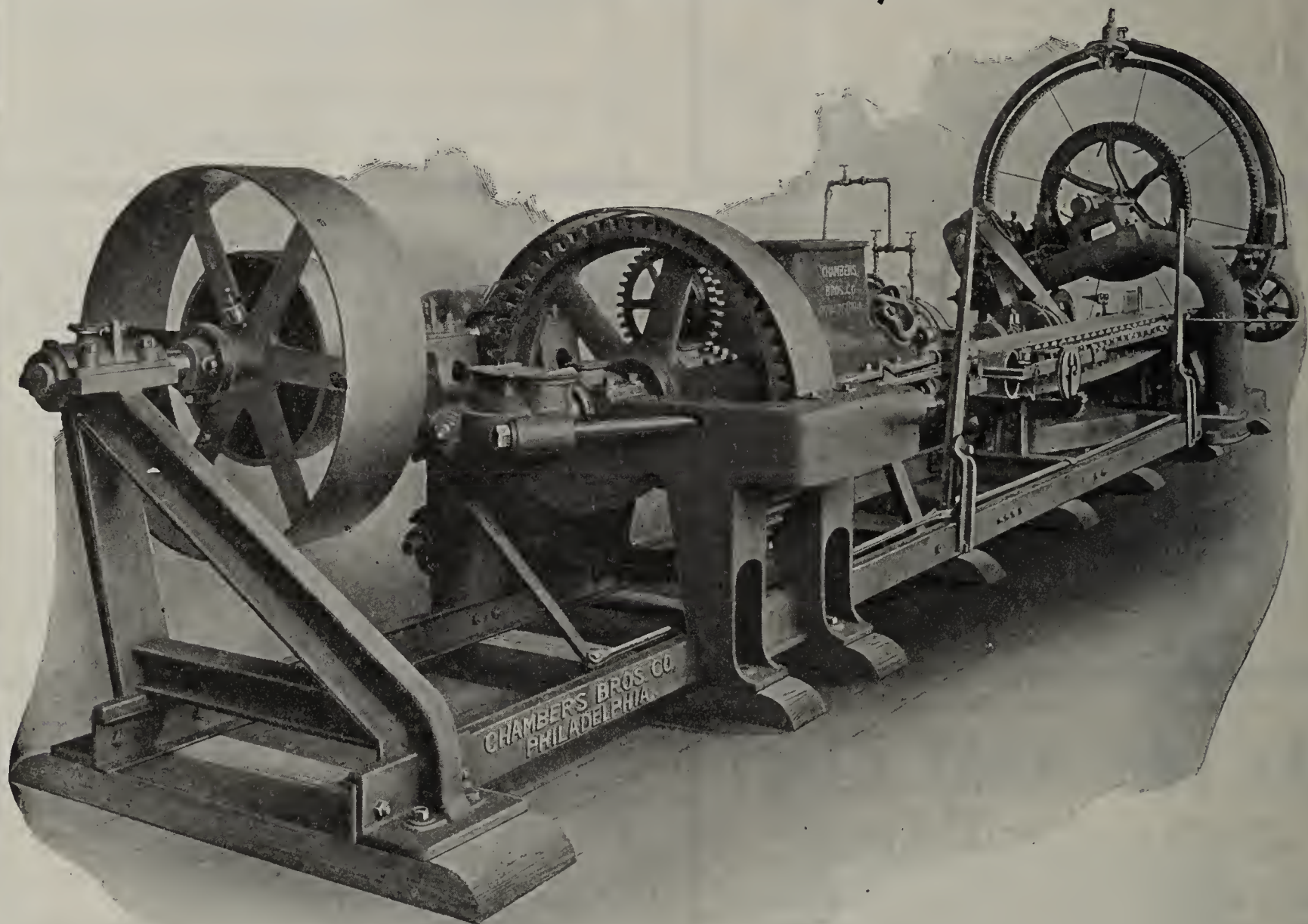
ARE MADE OF



THE PURINGTON PAVING BRICK CO.

GALESBURG, ILL.

The Chambers Brickmaking Machinery



The No. 10 Auger Brick Machine with No. 5 Automatic Side Cutter.

Cuts Building Brick, Hollow Brick and various thicknesses and lengths of Furnace Block Material.

Auger Brick Machines of Various Capacities with Rotary End-Cut and Side-Cut Tables.

Special Machines for Street Paving Block

Chambers Brothers Company

Fifty-Second and Media Sts.
PHILADELPHIA, PA.

524 West Jackson Blvd.
CHICAGO, ILL.



KEYSTONE REPRESS NO. 3

**For Repressing Furnace Block and Large
Sizes of Refractories.**

The No. 3 Keystone is a development brought about in connection with the demands of our customers in the Fire Brick Trade.

It delivers a repressed block as much as **6 $\frac{5}{8}$ in. thickness.**

Pressing two brick at a time the limit is **6 $\frac{1}{2}$ by 13 in.**

One block at a time as large as **11 by 16 $\frac{1}{2}$ in.**

One tile at a time as large as **13 $\frac{1}{2}$ by 16 $\frac{1}{2}$ in.**

Key and wedge brick and cupola block.

STEEL CROSS-HEAD. Both upper and lower cross-heads are of steel and of such dimensions as put these parts beyond breakage. The wearing surfaces are ample, those in the cross-head being babbitted where working against the steel guides.

THE CAM is 6 in. face of large diameter, and fitted with a hardened steel shoe.

ROLLER and PIN Are very important items in a machine of this kind. The roller is of very large diameter, made of hardened steel, and has a phosphor-bronze sleeve running on a hardened tool steel pin. The provisions for lubrication and for removal of roller and pin are most excellent.

These are only some of the features embodied in the Keystone No. 3 that do not show in the picture.

Chambers Brothers Company

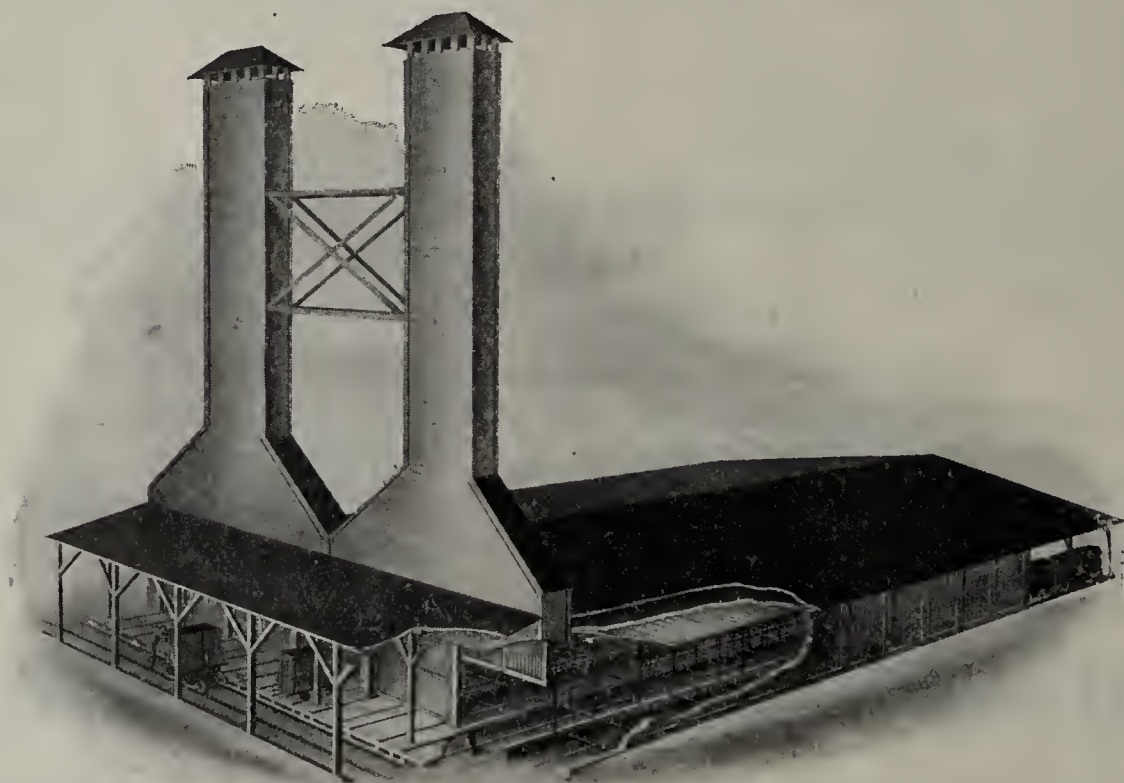
Fifty-Second and Media Sts.
PHILADELPHIA, PA.

524 West Jackson Blvd.
CHICAGO, ILL.

You remember the man who married the homely woman with a fine voice. When he saw her face in the light of dawn he woke her up and hollered: "*Sing!*"

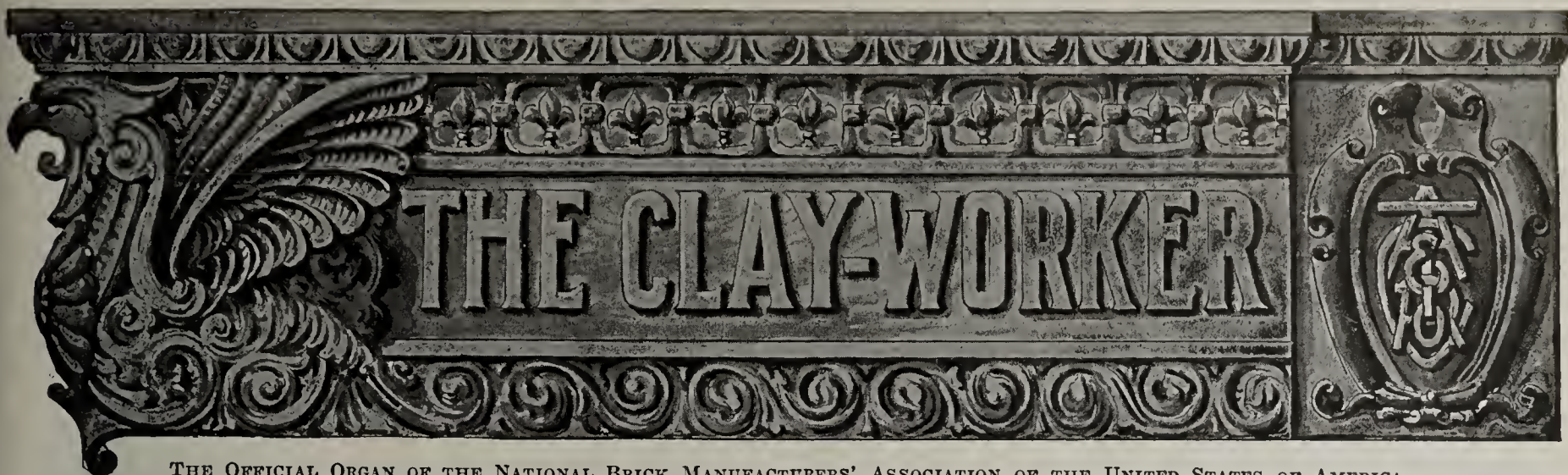
The moral is that just *one* good feature isn't enough---in a wife or in a drying system. If you install a drier that's all right in one way and all *wrong* in others, you'll be waking up in the morning and yelling: "*Stung!*"

What makes The Standard Steam Drier such a "good buy" is the *all-round* satisfaction it gives in drying *all varieties* of clays. It is efficient and economical beyond any other. Write for the catalog. Address: The Standard Dry Kiln Co., 1547 McCarty St., Indianapolis, Ind.



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Written for THE CLAY-WORKER.

A CITY OF BRICK HOMES.

Apartment House Builders Acknowledge Superiority of Burnt Clay Building Materials.

TOLEDO IS A CITY with a history. It is a city over which the filmy veil of romance throws an added charm. Its natural beauties are so great that it brings out the artistic instinct in the most prosaic. Since time begun the Maumee, which empties its silvery stream

into the blue waters of Lake Erie at Toledo, has been noted for its beauty, even the savage Aborigine becoming a poet under its influence.

With the beauties of nature abounding in such profusion it would not be in the heart of man to defile it with ugly structures, and Toledo is a city of beautiful homes and handsome buildings of all kinds.

The Toledo Art Museum, whose fame has been heralded from one end of the country to the other, is said to be one of the most beautiful buildings in the United States, fully equal to the Greek structure from which it was copied. This



The Beautiful Brick Lincoln Apartments, Toledo, Ohio.

splendid edifice of gleaming white marble is set in the most exquisite surroundings, the silvery plashing of waters in the fountain mingling with the voices of birds as they chirp and twitter musically in the clumps of shrubbery and brilliant flower spaces which adorn the grounds.

Pressed brick is a favorite building material in Toledo and the greater share of the better homes, as well as business structures, are of brick. The magnificent \$100,000 home of S. O. Richardson, of the Libbey Glass Co., now under construction on Collingwood avenue, is of pressed brick and will be one of the show places of Toledo's residence district. Several other handsome residences are now under construction, in all of which pressed brick is used, while Toledo has no small number of brick homes scattered about the city,

and in the summer brick buildings are much cooler, making them ideal for all seasons of the year. The brick apartment, once built, and this is especially true if an art brick is used, does not have to be repainted every three years, as is true of frame structures, but grows more mellow and beautiful with the passing years. Tile roofing is also favored, as the reshingling of a house every seven or eight years, as is required with the shingles used in these days, is an expense of anywhere from \$60 to \$75 at the lowest calculation.

Aaron Chesborough, owner of the Miltimore, the Tufford Arms and Herald Arms, three of the most prominent apartments in Toledo, who is said to be contemplating the erection of another and still finer structure than any he has yet erected, in conversation with a CLAY-WORKER representative



La Florence Apartments, One of the Finest in Toledo, Ohio,

some few of them old timers, which have weathered the storms for more than half a century.

Toledo is specially favored in its apartment houses. It has some unusually beautiful, convenient and unique apartment structures, all of brick, with the exception of a few very small apartments, are of brick. Among the best known of Toledo apartment houses are the Miltimore, Lincoln, Scottwood, LaFlorence, Tufford Arms, Herald Arms, Williston, Jackson and Empire apartments. These are all brick structures of varying styles of architecture, but with a couple of exceptions are plain and without fancy work.

There are many reasons given by apartment house owners as to why brick is preferred, chief of which are the cheaper upkeep and better heating facilities. Brick houses retain the heat much better in winter, thus lessening the fuel cost,

said: "Why do I build brick apartment houses? They are better looking and they are cheaper in the end. I've learned something new with every apartment house I have constructed and should I build again there would be some radical departures from anything which has yet been put up for me. My maiden venture in Toledo was the Tufford Arms, which is really a row of attached houses, in the English style, eight in number. Brick and plaster were used in this building, the upper story being of plaster, ornamented and finished with considerable wood. The roof was of tile. The first trouble was experienced when the metal lath used rusted through, the plaster cracked and the entire plaster part had to be done over. I thought I was getting the best of everything, but experience proved this a fallacy. After replastering there was no further trouble from this source, but every

two or three years there is a painting bill of no small dimensions to be taken care of. When I came to build the Herald Arms, which is really a terrace, rather than an apartment house proper, I thought I had learned something. I eliminated the plaster, using brick of a kind and quality that does not need painting or cleaning and used much less wood, so that there was much less expense on the upkeep of the Herald Arms than of its mate, the Tufford Arms. Later followed the Miltimore, an apartment of an entirely different character than either of the others. This was built of brick, with cut stone trimmings, with verandas of wood. While the upkeep is not heavy so far as painting and exterior work is concerned, when I build again the wooden terraces will be succeeded by copper, which, like building brick, costs considerable more in the beginning, but is there for all time and in a few years has more than paid for itself in upkeep.

"There is no more satisfactory proposition from the land-

of plaster and brick. A box hedge surrounds the grounds and is so planted as to give a terraced effect. Beautiful vines growing over the walls, clumps of choice shrubbery and well chosen flower effects not only heighten the English effect but are noticeably artistic. The interior of the eight houses comprising the group is finished in hardwood, with hardwood floors, and of course every modern convenience is furnished. There are stationary ice boxes, porcelain plumbing, tile bath room floors and Yaryan heat. There is also partial janitor service. Each apartment has a living room, reception hall, dining room, kitchen and butler's pantry on the first floor. The second floor contains three bedrooms, a living room, bath, closets, etc. On the third floor are located the servants' rooms and bath. This makes it possible for tenants to enjoy complete privacy even to the exclusion of their own servants from their rooms except on such occasions as they are wanted. Children are not excluded from these apart-



The Herald Arms. A Fine Brick and Terra Cotta Apartment.

lord's standpoint than a good apartment house, properly handled. There is an original saving of expense in the ground necessary to erect such a building, so that less money is paid for real estate than in the case of separate houses with lots. Rents are better and vacancies are rare, at least that is the case in Toledo. There is less expense in upkeep and much less petty annoyance."

The Tufford Arms and Herald Arms are specially distinctive apartments and are unique in Toledo. They are not really apartments at all, but terraces. A row of attached houses, whose occupants have all the seclusion and desirable features of a private home, combined with the conveniences of the apartment house. The grounds are adorned with shrubbery and wide walks, while in the rear each tenant has his own separate back yard, which, if desired, can be used for garden purposes.

The Tufford Arms is of the English style of architecture,

ments if properly behaved and taught not to injure the surroundings. The interior is finished in white enamel and mahogany, a copy of some of the old English interiors.

The Herald Arms, built of brick, stone and terra cotta, was designed after the chateaux of France. The general plan is the same as the Tufford Arms. The interior finish and decorations were copied after the old leathers and old time decorations corresponding to the period of which the building is representative. A feature is that no two suites are decorated or finished alike. One of the most popular features is a billiard hall on the third floor.

The Miltimore is of an entirely different style of architecture, being copied from the French Renaissance. This building is of red brick, with stone trimmings, and is surrounded by beautiful grounds, a triumph of the landscape gardener's art. There are eight apartments of twelve rooms each, and every apartment is so protected with sound proof

walls and such privacy that tenants scarcely realize that it is an apartment house at all. Each suite contains a reception hall, living room, parlor, dining room, three private bed rooms with private baths. Two servant's rooms and baths, a kitchen and butler's pantry go with each apartment, but are entirely separate from the apartment itself. There is a large colonial hall connecting all the rooms. The stairways are all of marble and iron, absolutely fireproof. There are self-operating electric elevators in front and rear. There is a billiard room and ball room for the exclusive use of tenants. Delicious water, cold and sparkling, is furnished by an artesian well. There are stationary ash boxes and complete janitor service. While these apartments come high they are never empty.

The Lincoln, corner Monroe street and Lincoln avenue, is a six-apartment house, each apartment having seven rooms and two baths. This building is strictly colonial in style, constructed of terra cotta red brick, of a peculiarly mellow appearance. This is refined by the cut stone foundation, sills and coining. The counter sunk or raked joint softens the texture of the wall, breaking up the surface and giving a delicacy of appearance that can be secured in no other way. A feature of this apartment is that each flat is furnished with a separate laundry room in the basement. The partitions are of brick and the equipment includes stationary wash tubs and dryers. Large, well ventilated locker rooms go with each suite. The inside finish is of bird's eye maple and oak, the floors corresponding. The structure is absolutely fireproof and has a slate roof. The exterior is adorned with greenery, Virginia creeper and roses rioting over the walls in graceful profusion. The apartment sets back from the street and has a yard 100 feet deep, which is surrounded by a brick wall that adds no little to the artistic appearance of the whole. This wall, beside adding to the beauty of the grounds, retains the warmth of the sun, reinforcing the flowers and vines which adorn the walls and decorate the yard. This building is owned by Irving E. Macomber, of the real estate firm of Macomber Bros., and president of the Auburndale Brick Company.

Said Mr. Macomber: "Our apartments are never empty, being much cheaper for tenants than private homes, if heat, janitor service, care of lawns, care of decorations, water supply and all the little ordinary leaks of the average household are considered. I believe in the brick apartment because it reduces the cost of maintenance, because of its durability, and because it is a fuel saver, brick structures being warm in winter as well as cool in summer."

Perhaps the largest apartment house in Ohio is the Scottwood, which has 90 apartments, of from two to seven rooms each. These apartments are located at Scottwood avenue and Monroe street and are known far and wide by automobile tourists, by whom it is frequented.

Half of the apartments are devoted to light housekeeping, the other half being really an apartment hotel for the convenience of people requiring a few rooms temporarily, like automobile tourists or persons moving into the city and waiting on permanent locations. The building is six stories high, of pressed brick, terra cotta and stone, and presents an imposing appearance. The walls are sound proof, so that no matter how small the apartment the tenant is assured of absolute privacy. The fire protection is unusually good and the ventilation perfect. There is a private telephone system and although the apartments rent from \$35 to \$75 a month tenants are generally waiting for the rooms, while the reverse is never true. There is a regular dining room, where meals are served three times a day, presided over by the best chef that money can secure. This dining room, or restaurant as it is sometimes called, is well patronized by the regular tenants, as well as transient visitors. Mrs. Calkins, the owner of the building, looks after its management and is one of the successful business women of Toledo.

The LaFlorence apartments, erected by a wealthy Italian

citizen of Toledo, has a distinctly foreign aspect, as well as name. It is a striking building of brick, terra cotta and stone and is surrounded by magnificent grounds. There are sixteen apartments of six rooms each and children are allowed on the first floor only. There is adequate fire protection and every possible convenience. Like the other apartments the LaFlorence is never empty and Mr. Chiesa, the owner, believes emphatically not only in the apartment building as a business success, but in the brick apartment. The brick used in this structure is of a peculiarly soft and beautiful ivory tint.

Taken altogether it is not to be questioned that Toledo apartments are a success and that the brick apartment is superior to every other. Toledo apartments compare very favorably to those of other cities, having some unique structures, peculiar to this city alone.

A magnificent terrace is just being finished at the corner of Winthrop and Parkwood avenues, which is of brick and will compare favorably with anything in the city. All over the city apartment houses and flat buildings, with the exception of the two-flat buildings, are of brick, while on Ashland avenue stands a group of terraces which were formerly some of the finest homes in the city. So successful did this venture prove that in various portions of the city there are perhaps fifteen or twenty of such brick apartments, constructed from old brick mansions that in earlier days were the scenes of many a gay occasion.

A prominent Toledo building material man, advising a prospective apartment builder, said: "Apartment houses should always be of fireproof material, all partitions should be of brick of hollow construction, rafters of steel, between hollow tile, with green or red tile roof. The exterior should be of art brick. Such a building will cost but little for maintenance, will be handsome in appearance, take but little fuel, and be wholly satisfactory. Something brand new, which is being tried out with considerable success in Toledo, is a new clay fireproof material, to be used in soundless partitions. This material is fireproof, but will permit nails to be driven into it. It has been used in the Scott High School, one of the most magnificent brick structures in Toledo, and indeed in this entire section of the country.

PROGRESS IN POTTERY.

Evidence of substantial and healthy progress in the pottery industry in this country is shown by the figures of the United States Geological Survey on the pottery industry for 1911. The total value of the pottery marketed in 1911 was \$34,518,560, an increase of practically three-quarters of a million over the previous year.

This increase in product came largely in the lower grades of china, sanitary ware and porcelain electrical supplies, and the volume of business was larger even than the gain in value indicates, for there was pretty general complaint of low prices.

Note is made of the geographical extension of the industry by the earnest efforts to establish a pottery for the manufacture of white ware in the south, close to the principal sources of supply of the raw material. Ohio led in production, with New Jersey second and West Virginia third in the list. The Ohio production was nearly forty-three per cent of the total and was more than that of the next two States combined. The export trade was nearly a million and a half and the import trade fell off nearly half a million.

It was, with all, a pretty good showing, even if profit margins did seem small, showing that the pottery business is firm on its feet, but perhaps the most significant fact is in that the great increase came in sanitary and electric ware. These branches have a great and immediate future before them, one that attention has been called to several times in these columns, and it is naturally pleasing to see earlier predictions about them being fulfilled.

HOW MUCH COAL TO BURN A THOUSAND?

BY RICHARD B. HOEHNE, BUCYRUS, OHIO.



DO YOU EVER compare the quantities of coal consumed by different concerns? Why, no, for your competitors don't tell how much coal they burn. Once in a while, though, it might be of mutual benefit to discuss matters pertaining to the "burning question,"

which unquestionably is the most important feature in the burning of brick.

During the last few decades the methods of burning clay ware has been revolutionized. Numerous new devices were marketed; hence, it is not an easy subject for the single brickmaker to investigate and prevail upon, while mutualism assists in securing knowledge of things that are too valuable to be forgotten. Doubtless you have given some thought to the cost of burning when being told others burn cheaper. Especially so when, regardless of the immense height your fuel bills were reaching, the coal dealer still whispered of a raise.

I had many an opportunity to investigate kiln conditions. Among different plants there is quite a variation in the amounts of fuel consumed per unit of products. With very few exceptions the manufacturers knew how much coal they were using per thousand and I have noticed the given figures, running all the way from 2,100 pounds down to 242 pounds. Some brickmakers also admitted it was too much, but why?

Before any disease can be acted upon it must be located and its nature determined. For instance, the physician called to a sick person must make a diagnosis first and thereupon he can prescribe a remedy. And so it is with kilns. Unless you know the real cause of the excessive fuel consumption you can not select the proper remedy. In the following paragraphs I will try to show you by figures the reason why the consumption of fuel varies so immensely.

As we all know, the amount of coal necessary is mainly governed by:

1. The degrees of heat required.
2. The density of the clay.
3. The calorific power of the coal.
4. The methods applied in the operation.
5. The type and conditions of the kiln.

The more favorable these conditions, the less the expense of burning. For example, a thousand brick, weighing 5,500 pounds (2,500 kg), burning at a temperature of 2,012 degrees F. (1,100 degrees C.) and being preheated to 212 degrees F. (100 degrees C.), can not absorb more than

$$2500 \times 0.22 \times (1,100 - 100) = 550,000 \text{ calories of heat.}$$

Taking the calorific power of coal at 12600 B. T. U. (7000 cal.), then the amount of heat previously mentioned would equal

$$\frac{550,000}{7,000} = (78.57 \text{ kg.}) \text{ or } 78.57 \times 2.2 = 173 \text{ lbs. of coal.}$$

Now, you naturally will ask, "How does it come that some brickmakers use less, most of them, however, considerably more per thousand?" Judging that the majority, unfortunately, consume closer to 2,100 pounds, I shall at first tend to those, and secondly I will prove the possibility that others can burn the same brick with 242 pounds of the same coal.

Thus, the amount of heat obtainable from 2,100 pounds of coal is

$$\frac{2,100 \times 7,000}{2.2} = 6,681,818 \text{ calories}$$

the brick will absorb, as said above, 550,000 calories

this leaves a balance of 6,131,818 calories

which I will give account for in the following.

In the burning of clay ware, various circumstances detrimentally influence the proper utilization of heat units. At first, the nature of heat itself is responsible for losses by radiation. Secondly, the heat contributing expansion and con-

traction, causes cracks, which decrease the resistance of the kiln walls against higher degrees of heat. Further, incomplete combustion, or the admittance of excessive quantities of air are identical with losses. Last, not least, the heat passing away with the smoke gases equals a heavy loss. Summing up the above, I will consider the following items besides the heat absorbed by the product itself:

1. The loss by radiation through the walls and arch.
2. The heat absorbed by the structure of the kiln.
3. The radiation at the kiln floor.
4. The watersmoking.
5. The heat used for warming the combustion air.

The loss of heat by radiation varies according to the temperature of the atmosphere. It also depends upon the structural conditions of the kiln. A kiln consuming such an enormous amount of fuel can not be in very fair condition, neither can it be of a modern type. I will, therefore, assume as a fair average an hourly radiation of 70 calories per square foot (750 calories per square meter). Basing my calculation upon the conditions of the average periodic kiln, I stipulate the area subject to radiation at 25 square feet (2.4 sq. m.) per each thousand of brick. The period of burning shall be 9 days (not including watersmoking), then the loss by radiation is

$$9 \times 24 \times 2.4 \times 750 = 388,800 \text{ calories}$$

The heat absorbed by the structure of the kiln will average 1,100 degrees F. (600 degrees C.). Taking 70 cubic feet—at 110 pounds—of brick walls per thousand brick, hence the loss will be

$$\frac{70 \times 110 \times 0.2 \times 600}{2.2} = 420,000 \text{ calories}$$

Another loss by radiation amounting to 1.4 calories hourly per square meter and per one degree C., will occur at the kiln floor. Assuming the kiln floor space for one thousand brick at 8 square feet (0.75 sq. m.), the loss will be

$$9 \times 24 \times 0.75 \times 1.4 \times 600 = 136,800 \text{ calories}$$

The heat expended for watersmoking must also be considered as a loss, for, theoretically, the drying should be completed in the dryer. Suppose the brick set in the kiln contain 8 per cent of water, we would have to evaporate per thousand brick

$$\frac{2,500 \times 8}{100} = 200 \text{ kg. of water}$$

The evaporation of one kilogram of water requires 640 calories. Thus:

$$200 \times 640 = 128,000 \text{ calories}$$

As we know from practical experience, the watersmoking starts with a little fire, which gradually increases to approximately 250 degrees F. Taking this into consideration, I will estimate the average heat attained in the kiln at 140 degrees F. (60 degrees C.). Neglecting the microscopic water, which will not disappear unless exposed to heat of higher temperatures, the completion of the watersmoking process will necessitate a removal of the moisture transformed into steam. For this purpose a certain amount of hot air must be promoted, which means an additional loss. At the temperature mentioned a cubic meter of air (35.3 cu. ft.) will safely elevate and remove 0.120 kg. of water. To determine what quantity of heat we need will say 0.3 calories are necessary to increase the heat of one cbm. of air one degree C. Thus

$$\frac{200 \times 60 \times 0.3}{0.120} = 30,000 \text{ calories}$$

Total losses, 1,102,880 calories.

The heat absorbed and radiated by the kiln during the watersmoking process is substantially minimized by heat retained from the previous burn, and shall, therefore, be neglected. This concludes the consideration of losses incident to and unavoidable in the burning of brick. Subtracting the latter

$$6,131,818 - 1,102,880 = 5,028,938 \text{ calories,}$$

which amount still as yet remains unaccounted for.

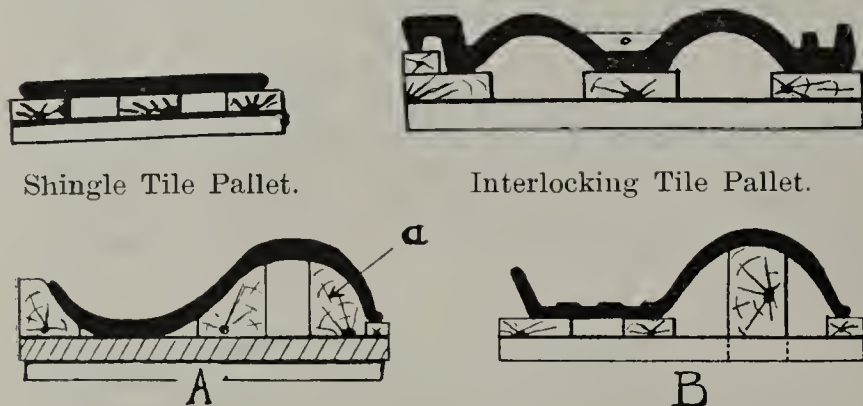
(To be continued.)



BY W. G. WORCESTER.

Drying of Roofing Tiles.

OWING TO the fact that tiles are of irregular outline, thin cross section and made from quite soft clay, it becomes necessary to support each tile upon a pallet until the drying has reached a point where the clay becomes rigid or hard. It is obvious that the pallet must be of such outline that it will support the tile properly, that is, in a manner that there will be no deformation of the tile and at the same time allow for the shrinkage of the tile while drying. In the past much money has been lost through the use of pallets which were unsuited to the tiles for which they were made. Again, frequently unsuitable materials have been used in the construction of the pallets, resulting in crooked tiles, due to the pallets warping or twisting out of shape. Numerous attempts have been made to use metal pallets, but outside of a single instance, where flat steel plates or sheets were used for shingle tile pallets, it has proven a



Spanish Tile Pallets. A—Old Style. B—New Style.

failure, due to their becoming easily twisted or broken. Light cast iron pallets have also been used, but it was found troublesome to obtain perfect ones, and, secondly, the breakage of these pallets was found to be very high. No material has proven so satisfactory as well seasoned white pine or poplar, preferably white pine, for the manufacture of pallets.

Below are shown in cross section a few of the more ordinary pallets.

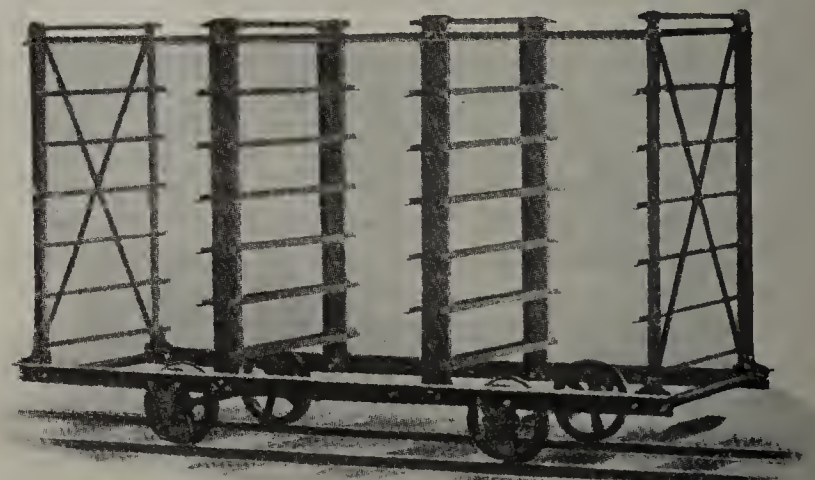
The shingle-like pallet is made of light material, about $\frac{3}{8}$ inch thick by $1\frac{1}{2}$ inches wide, surfaced both sides. As constructed it consists of three strips, which are about one inch longer than the tile. They are spaced one inch and one-half apart. Two cross strips are then securely nailed to the laterals at points about two inches from either end. Sheet steel and selected slates have been used for tile pallets, but the drying is slower, due to the lack of air circulation about the tile. The interlocking tile pallet is made in much the same manner as the shingle tile pallet, except that the members are somewhat heavier, their thickness is from $\frac{5}{8}$ inch to $\frac{3}{4}$ inch, in addition an extra piece must be nailed onto one outside strip; this extra piece is to support the lock as shown in the cut. Two forms of special tile pallets are shown. A represents the old pattern and B the improved. A, as constructed, was provided with a movable shrinkage block (a); this block was considered necessary to allow the roll of the

tile to shrink properly. While the block answered the purpose nicely, it proved very troublesome from a practical standpoint. Thus the form of pallet shown in B was brought out. On this pallet the tile is properly supported and is allowed perfect freedom for shrinkage. The pallet is much more practical than A, in regard to handling, as well as permitting of faster drying due to more freedom of air circulation.

Dryer Cars.

In the earlier plants and a few of the more obsolete ones of today, other than the car system for handling tiles while drying have been employed, but as none of them are at all comparable to the dryer car they will not be discussed at this time, with the hope that no one will be tempted to use them. The car that has proven most satisfactory for the handling of tiles through the dryer is of the rack type, similar to the accompanying cut.

This car is of the third section type, which is preferable to a two-section, owing to the fact that it holds 50 per cent more tiles and requires no more time in its transfer from machine to dryer and dryer to kiln than a two-section car. A three-section car will hold approximately 180 Spanish or interlocking tiles, making a load of about 1300 pounds. A car of the above type will cost in the neighborhood of \$20.00. In addition, before the car can be used for tiles, it is necessary to equip it with slats or "sticks"; these are 1x1-in. white pine, which are cut just long enough to span one section. Four sticks are needed for each tier, thus with a car 10 tiers high,



Three Section Rack Car.

or three sections long, there will be needed 120 sticks. The strips or sticks are placed about eight inches apart, in the various tiers, the pallets with the tile upon them are then placed on the strips at right angles or in other words cross-wise of the car. While the loose sticks are somewhat troublesome to contend with they prove in the long run more satisfactory than cars with permanent strips, owing to the convenience of loading and unloading, especially where slipping or glazing is done.

Dryers.

If a roofing tile clay has been properly prepared by pug-ging and aging very little trouble will be experienced in the drying of the tiles, but due no doubt to the car system of handling the tiles proving best, the tunnel dryer has supplanted all other types of dryers in the United States for drying roofing tiles. By tunnel dryer is meant either a single or double track tunnel, where the cars enter at one end, pass through the tunnel, meeting with increased temperature and passing out at the opposite end in a thoroughly dry condition. The usual length of tunnel is 100 feet, though a difficult clay to dry might require a longer tunnel and an easy drying clay a shorter one. The distribution of heat in the tunnel is also a matter that must be adjusted to fit each clay, as well as the time required in the dryer, which for ordinary clays

made into tiles is about 24 hours, though the writer has dried tiles in 10 hours as safely and perfectly as though 30 more hours had been taken. It matters not from what source the heat is supplied, but from economical reasons it should be taken from the cooling kilns. Exhaust steam is a common source of heat, though with exhaust steam it becomes necessary to generate live steam for the non-working hours. This, of course, entails an extra expense, though this is preferable to the direct heat dryers, that is, dryers where the heat is derived from burning fuel either in a special out-

side furnace or under the floors of the dryer. It is, of course, unnecessary to state that fans should be used to create the circulation of air through the dryers. It is rarely that natural draft is found sufficient or satisfactory. In the designing of a dryer it will be found advisable to take the problem to a dryer engineer or specialist on the drying of clays. The mistake is too frequently made of consulting with heating and ventilating companies, whose line of work is quite distinct from that of the engineer of clay drying.

(To be continued.)

GAS FROM GAS PRODUCER AND ITS COMBUSTION.

By J. J. Koch.

Fuel.

AS A WHOLE too much stress cannot be laid upon the fuel part of the producer gas proposition, and it certainly is a mistaken idea to believe that any kind of fuel can be used to the best advantage in a gas producer. It is quite often the case that with certain grades and types of fuel, when burned as such direct, it is impossible to produce the required high temperature owing to the presence of a large percentage of ash and moisture, hence it becomes obligatory to take up gasification of such fuel to reach the higher temperatures. It thus often times becomes necessary to use such fuel, as increased cost of a better grade of fuel coupled with freight charges, would bar the use of such better grades of fuel and mean the shutting down of the plant. In a legitimate commercial proposition it is advisable to begin calculation values with the best quality of coal that can be obtained locally. Taking into consideration its calorific value in B. T. U., the percentage of ash and sulphur, the necessary speed of gasification, the limit of time incident to continuous running, referring more especially to time periods of charging, poking, leveling, clinkering, and cleaning out, etc., which all will give a clear cost sheet. By making comparative cost estimates of lower grade fuels, entailing the erection of more gas producers, handling more tonnage of fuel and ashes, more and harder work in clinkering, more waste of fuel in the ashes, probabilities of disturbed gas production, thus causing irregularities in the burning of the ware, and by intelligent comparison of the two fuel conditions it can sometimes be demonstrated that the cheaper fuels are the more expensive in the end.

For illustration we will take two kinds of coal, one of which will only gasify at the rate of 6 pounds per square foot per hour, while the other has a standard gasification rate of sixteen pounds per hour. Now, if both these coals have the same heat value, it is easy to see what effect there is as regards the required number of gas producers and the attendant labor. Another phase that might be presented is this: Is it economical to use a fuel that runs high in volatile matter which is easily condensible, and where the gas is used at an exceptionally far distant point, away from the producers? Rational conclusion would be: Not to use such fuel, but rather a fuel running higher in carbon, as carbon monoxide does not condense. Quite the reverse of this is the following solution statement: It is better to use fuel high in volatile matter, where the gas producer and combustion chambers are short coupled, as then very little condensation takes place and the full or high heat value of the hydrocarbons is not lost. It should also be borne in mind that the size and physical condition of the fuel play an important part, for instance, as texture or density of structure, ash content, fusibility of clinker, sulphur, relative proportion of volatile matter to fixed carbon, total absence of volatile matter, moisture and so forth.

It should be borne in mind that fine coal packs too tight

and close in the producer bed to allow gasification to take place energetically and promptly and too coarse coal leaves too many open and free passages so that the formation of combustible gases does not take place readily enough, besides taking a longer time for the larger chunks of coal to burn through. The porosity of a fuel adds materially to the more rapid formation of producer gas, so that charcoal and coke are better adapted for rapid gas production than hard coal would be.

The writer is partial to coking bituminous coals for producer gas manufacture, in that after the volatile hydrocarbons have been distilled off, the residue is left in a porous condition, which is of material benefit in operating gas producers. Coking coals should be avoided as much as possible, as the formation of large pieces of coke has a tendency to choke up the gas producer and thereby retard gas formation. Yet, the writer had to at times use such coal, owing to local conditions, and overcome the bad effects of coking very much by substituting a number of smaller fuel feed hoppers for the large hopper formerly in use. In this way a number of smaller pieces of coke were formed, which did not offer as much resistance to the ascending gases in the producer as the large pieces of coke formerly did. Bone coal running high in silica in the ash has also been used by the writer successfully and better results obtained than if the fuel had been used direct. The writer's experience shows that the character of the ash is of more vital importance than the quantity, as for instance: at one time the supply of the above mentioned bone coal was running rather low and additional coal was bought that ran lighter in ash, but containing a great deal of iron and lime. In burning this coal mixture, the resultant mass of soft, pasty clinker, grew so rapidly that the gas producers were thrown out of commission in a very short time, in fact, we had to let them die, so as to be able to remove the clinkers. Yet either kind of coal could be used satisfactorily in a gas producer by itself. However, part of our troubles lay in the fact that we had only two emergency clean-out doors in a nine-foot circular gas producer. However, we profited by this experience and by placing additional clean out doors on each gas producer, we cut down our clinker clean-outs to the minimum trouble. One thing should always be remembered, that the character and quantity of the clinker in the gas producer has a powerful influence on the life of the fire brick lining of the gas producer, for corrosive clinker will very rapidly destroy this fire brick lining.

The size of the fuel to be employed is largely influenced by the type of the producer, for it can readily be seen that a steam pressure producer can carry a heavier burden or a thicker bed of fuel than a suction producer and a steam pressure producer could also gasify with a closer packed fuel bed than a suction producer owing to the resistance of the tight fuel bed. The more uniform the sizes of each kind

of fuel the more uniform will the coal lay and the gas production will therefore be more even. The sizes of bituminous coals run from mine run, passed over a four-inch circular mesh, down to $1\frac{1}{4}$ to 1 inch, mine screen, but in either event all dust, or dust and finer coals, should be cut out to prevent too tight packing, so that gas passages may not be obstructed.

The writer has had the best results with one and one-half inch bituminous coal, of course smaller sizes could be used. This is especially so of the anthracite coals, but close attention must be paid to grades as the smaller sizes are apt to contain much dirt, ash, or sulphur, all of which are objectionable, especially the last, and a coal containing over one and one-half per cent. should never be used unless absolutely compelled to. Another bad feature of very finely divided fuels is that the products of combustion crawl along the walls and therefore are not converted into combustible gases, as there is not enough incandescent fuel present at such a point to cause said transformation in that the other portions of the fuel bed being packed too closely or tight for easy passage of the ascending gases.

Depth of the fuel bed is of vital importance in gas formation and is in a great measure governed by the size of the fuel. Various authorities differ on this point. A German authority states:

Depth of Fuel Bed.

Bituminous Coal, mine run	5 ft. 0 in.
Bituminous Coal, nut run	4 ft. 0 in. to 5 ft. 0 in.
Bituminous Coal, pea run	3 ft. 0 in. to 4 ft. 0 in.
Lignite Coal, small run	4 ft. 0 in.
Lignite Coal, coarse run	5 ft. 0 in.
Peat, in pieces, hard run	8 ft. 0 in.
Peat, in pieces, loose run	8 ft. 0 in.

American Authorities Claim Depth of Fuel Bed.

Coke, size 1	30 ft.
Coke, size $1\frac{1}{2}$	45 ft.
Coke, size $2\frac{1}{4}$	72 ft.
Bituminous, $3\frac{1}{4}$	30 ft.
Bituminous, 4	60 ft. to 80 ft.

But the above statements are not absolutely reliable for all conditions. The main thing to be looked after is this: That the fuel bed is never so high or closely packed so that the flow of gas is retarded too much for proper gasification and conversion, viz.:

That the fuel bed is never so low or open that the flow of gas is too rapid so that the conversion of carbon dioxide into carbon monoxide cannot take place. This is a very serious proposition as the carbon dioxide is a total loss, entailing as it does excessive draft, causing formation of clinker, in turn causing poor gas.

For brick burning purposes the writer prefers producer gas made from bituminous coal, as it gives a long, luminous flame and easily permits reducing conditions, in case they are desired. Other materials besides coal or coal products may be used for making producer gas and it is the customary practice in Germany to call a gas producer into service when it is impossible to produce the desired high temperatures with the crude fuels, as for instance, in the case of the lignites when the presence of moisture in the crude fuel may make it impossible to attain a high temperature.

(To be continued.)

BROWN INSTRUMENT COMPANY EXPANDS.

The Brown Instrument Company and its associate company, the Keystone Electrical Instrument Company, have found it necessary to arrange for triple the amount of space after the first of the year that they now occupy. These two companies have found a very large increase this year in the demand for their pyrometers, thermometers and electrical instruments, and an increase in their factory is necessary to meet with their constantly growing business.

BURNING UP BAD ROADS TO MAKE GOOD ONES.

BY C. H. CLAUDY.

GOOD ROADS present many different problems in different localities, according to the building material at hand and the character of the soil. Perhaps no more difficult conditions for the making of good roads exist than in the lowlands of the Mississippi Valley, where centuries of swamps and tons of decayed vegetable matter have incorporated in the "gumbo" or "buckshot" clays of that region a plasticity and mud-making ability which produce the worst "roads" in the world.

During certain seasons of the year, these so-called "roads" are absolutely impassable, vehicles sinking to the hubs and horses getting so mired that they must either be shot or dragged out with ropes, often with broken legs to pay for their drivers' temerity.

To make a good road out of this "gumbo" is a problem, the importation of sand for a sand-clay mixture is too expensive, and there is not enough rock in these localities to make a hitching stone, let alone a macadam road. But a solution of the problem has been found in the "burned clay" road, in which the "gumbo" is so changed in character by firing as to present a fairly hard and mudless surface, even after a heavy rain.

The "gumbo" clay is black from the large percentage of organic matter it contains, and from the same reason is peculiarly sticky and plastic. But after having been baked, it forms a clinker, which, while not rock-like in its hardness, shows no tendency to form mud when mixed with water. This surprising fact is made use of by the farmers living in the "gumbo" regions, to make the "burned clay" road. Luckily the districts of "gumbo" are heavily wooded, and fuel is cheap and does not need to be hauled. The process of making a "burned clay" road is as simple as it is novel. The width of the road is determined, and it is ditched on either side. Next the surface is plowed up as deeply as possible, and even four mules make a hard job of dragging one plow through the sticky clay. The plowed up clay is then thrown into furrows across the road, making ridges about four feet apart. Cord wood is laid closely across the tops of these ridges, making a wooden floor above the clay, the furrows and ridges forming flues. Fire wood is piled irregularly on this wooden floor, with masses of clay filling in the open spaces. A second course of cord wood is laid on top of this mixture of wood and lumps of clay, and all openings filled with kindling and light wood. The whole is then covered with a clay blanket—usually taken from the ditches on either side to a depth of a foot, and tamped and rounded off so that the heat may remain in the mass as long as possible. Where coal slack is available, it is often substituted for wood. The point is to get heat regardless of what fuel is used.

When completed, the flues are fired so that they will get the draft down wind. The workmen pay careful attention to the burning, and when any part of the fire seems to slack up, reinforce that flue with light kindling, so that an even burning is maintained throughout the mass.

When the wood is all burned—the organic matter in the clay aiding the combustion and in giving off heat—and the mass sufficiently cool, it is found that all the clay on the first floor, all the clay on top, and even the ridges of clay between the furrows, as well as underneath the lowest fire, has been thoroughly clinkered. To make the loose mass into a road, nothing is needed but grading with plow or scraper to make a high crown in the center and a final compacting by rolling.

The result is a hard surface road which refuses to get muddy, which wears well, costs next to nothing to repair, and which provides a safe bridge through "gumbo" country.

Showing the Method
of Preparing
the Road for
Burning.



Burned Clay
Properly Spread
Ready for
Leveling by Rolling.

Making A
Burned Clay Road.
The Burning of the
Layers of Wood and Clay.



A Burned Clay
Road, Two Years Old,
Photographed
Just After a Hard
Rain.

—Courtesy of *The Scientific American*.

On either side of the roads all winter long, no carriage could roll—on top of the six to eight inches dressing of burned gumbo clinker, heavy wagons travel without difficulty.

The cost of such a road varies between \$1,000 and \$1,500 a mile, a very small price to pay for a good road, and particularly in a district where, until the coming of the "burned clay," transportation except by railway was, in the winter time, an absolute impossibility.—Scientific American.

THE SEPARATION OF STONES FROM CLAYS.*

BY C. H. SOLFISBERG, AURORA, ILL.

Mr. Chairman and Gentlemen:

As requested by your Secretary, Mr. Weidman, I will endeavor to give you a short paper on "The Separation of Stones from Clays." Of the various stones present, limestone is of more importance because of pressure exerted while slacking, causing a defective ware after burning.

Since various kinds of clay goods, such as tile, block, hollow, pressed and common brick must differ in lime content, both in percentage and granular size, I will limit myself to the manufacture of common brick only. Lime is not so important in manufacturing common brick, because a pop in face can be overlooked.

The clays of Wisconsin and Northern Illinois have been overly supplied with limestone varying in size from the large boulder to fine dust, and the clayworker, from experience, knows this to be detrimental. In some cases the face of ware has popped out, in more extreme cases the entire product has crumbled down, this varying as amount of lime present. Limestone, when burned, becomes quick-lime, which is readily slacked in both air and water. When slacking, a pressure is exerted, sometimes overcome by strength of body, other times completely destroying ware. There is a difference between air slacking and water slacking, the first being a short direct combination, the latter is a longer timed double reaction and lower pressure is exerted. I have given the above theory to show you that a brick can often be saved from popping by soaking in water. Experience in this matter came in an accidental way. Limey brick taken from kiln and piled under cover, crumbled to a heap of lime and clay particles. Similar brick partly crumbled, thrown on waste pile, did not crumble further, after a heavy rain. Taking two brick, soaking one and not the other, plainly showed that water saved brick while the other crumbled completely.

Realizing that lime is troublesome, we must find some method of removing same. The entire content can be removed by suspension of clay in water, passing over sieves and settling out in vats, but the excessive cost makes it impractical for common brick manufacture. There being a few advantages in a small lime content, such as aid in drying, and help through sudden changes of temperature, we need not remove all the lime but must have it sufficiently reduced in size. The method, I will speak of, is in successful operation at the present time and makes it possible for us to make a strong brick from a clay running a strong 10% limestone. Ten per cent. limestone is excessive and appears to be gravel instead of clay. I don't think this method is perfected as yet and each clayworker would have to alter it for his special clay. It might be interesting to hear our experience with a limey clay and our ideas of lime separation, bringing in our method at the same time.

Years ago, when competition was less and quality meant more, we made a common red brick, hauling our clay a little over a mile by team. That clay was free from lime and worked easily. Later years we were compelled by compe-

tition to get out clay cheaper and quality meant less than quantity, so we looked for a new bank. The plant was built on a 60 foot bed of white, burning, limey clay. The top had been stripped off in earlier years and lower strata left because of the stones. This bank being at hand, we decided to make it work. With little knowledge of lime troubles we put the plant in shape to work clay.

The first spring we prepared clay in field by triangular plow and roller, had team scrapers to haul same to disintegrator. A screen was not thought of. Our troubles started when plow started. Clay being hard and stony, it took four horses to plow up 4" of bed and then to the sorrow of men and horses. Disintegrator took care of clay nicely, throwing out largest stones and reducing clay sufficiently. Brick burned an even pink-white and looked well. We thought we had the finest brick ever and samples of new ware were displayed. Piled out about ten thousand under cover so rain wouldn't spoil them. The following morning the pile looked differently. It had completely crumbled down and a whole brick couldn't be found. The entire kiln, samples and all, went the same way; there being 10% lime present. There had to be less lime and finer lime we knew but as to method we were lost unless we worked it out ourselves. Something to grind clay and not stones and then separated on a screen looked easy. A roll-crusher with one roll hinged and held by spring, would not grind stones, and it would grind very little clay at the same time, so we thought again.

Our method in bank could be altered. Plow and roller were discarded and disintegrator went with them. Pick and shovel method with aid of dynamite got rid of larger stones at a fairly low cost. There are cheaper methods of winning but not for this clay.

A piece of clay when struck by a hammer will break up without touching stones within it. Hammer mill, purely impact, would do the work, reduce the clay and not the stones. Mamer, of Campus, Illinois, permitted us the use of his patterns for a small hammer-mill. A machine was built and installed. As to screen trouble, I will not detail but we tried all kinds until a piano wire did the work. Method worked nicely. A good solid brick was made that would stand eighteen hours drying and one hour cooling by water. No checks or pops appeared, so system was enlarged to desired capacity. A larger machine or mill was built. All grinding and reducing is done by a simple impact machine. As hammer mills are common, I will not go into detail as to construction other than to say we use an open grate bottom and 6" grinding plate.

This method has its disadvantages of course. A wet clay separates less rapidly and has to be run through system until stones only return. If clay is too wet, the mill will plug up. Wet clay is dumped from cars to dry-shed floor and run through later. The average bank moisture is nicely worked. A clay drier would make system more perfect as stones would return clear of clay.

As to the cost of operation, a 50 H. P. motor drives mill, cable drum and conveyor belt, and takes clay as fast as one man can feed it. The hammer, if of cast-steel, would last about one day; tool steel, best obtainable, will wear off an inch in ten days of damp clay run. Manganese cast steel hammers have just been installed and are guaranteed to last over twice as long as any tool steel made. In dry clay, the wear on mill is lessened greatly. Case of mill will last two seasons at one inch thick of cast-iron; 1¼" steel bar grating will last about a season. This is for a very stoney clay and wear will vary in proportion to stone content.

Summing up this method, pick and shovel with aid of an explosive, removes larger stones, a strictly impact hammer-mill, a beater, not a grinder, to prepare clay for a screen, piano wire preferred. This method reduces clay to ⅛" and less. Estimate cost of clay prepared for brick machine 30 cents per yard. If less than ⅛" material is desired a crusher can be used since stone content has been reduced to about 1% in a 10% lime clay.

I will be very glad to answer any questions to the best of my ability and can assure you that we will be very glad to show you through our plant at Aurora, Illinois, at any time. I thank you.

*Paper read before the Twelfth Annual Convention of the Wisconsin Clay Manufacturers' Association, Milwaukee, March 5, 1912.

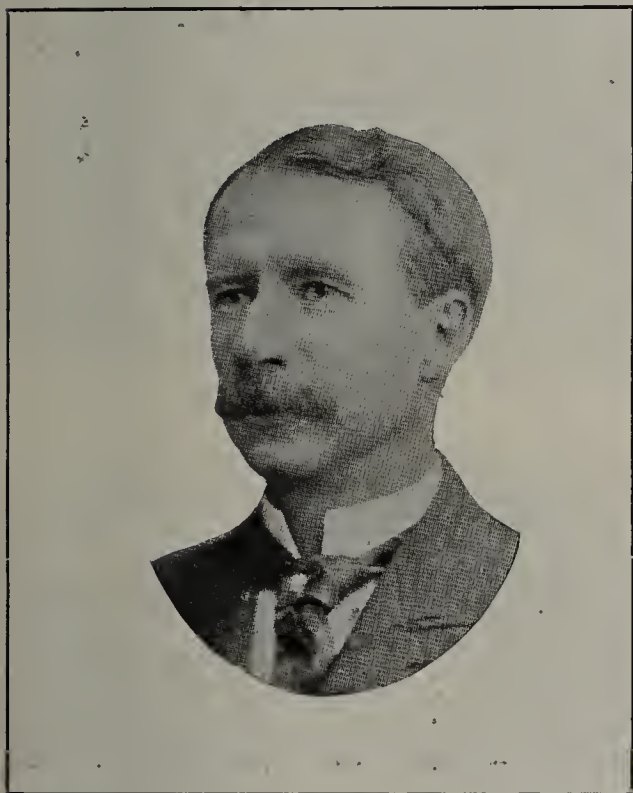
CLAY INDUSTRIES AT KUSHEQUA.

Home of the Beautiful Kushequa Promenade Tile, Paving Block, and The Oxblood Red Front Brick.

THAT OUR wooden construction is to be ultimately replaced by clay products is no where more strongly indicated than in McKean county, Pennsylvania, where the energy of one man at least has hastened the natural cycle of events to such an extent that areas once covered with magnificent hemlock forests are now waste lands except where they are yielding superior shales and fire clays. Under his direction the same men who, within twenty years, cleared the land and sawed the timber for sale to a not very intelligent public for the firetrap construction of the earlier days, are now employed in the manufacture of a more lasting material, and a more intelligent public is putting it into such fire-proof structures as the Sherman House and Stock Yards Inn at Chicago. The second growth timber which

into the hill, and drilling by hand became quite a problem of labor and expense. It seemed that neither air nor electricity were practicable or available. To overcome the difficulty a portable drilling machine, driven by a small gasoline engine, was devised and constructed at a cost of less than \$100. Mr. Blair estimates a saving for this machine over hand methods of \$3 per room, or \$6 per day. An emery wheel for sharpening drills is mounted on the frame of the machine, some idea of which can be had from the accompanying photograph.

The other mechanical equipment of the plant consists of a 150, a 75 and a 3½ h. p. gas engine, a Climax jaw crusher, two Raymond and one Stevenson dry pans, a "999" machine and Raymond rotary cutter, and two Victor represses. There is also a Union machine with a Dunn wire-cut lug block cut-



Elisha J. Kane.



Birdseye View of Plant of Kushequa Brick Company.

is coming on slowly will doubtless be used for the picture frames or toothpicks of the next generation.

The man referred to is Mr. Elisha K. Kane, of Kushequa, Pa., who owns some 40,000 acres in McKean county, and having built a railroad to handle logs and lumber, has proceeded to build brick plants that his road might have freight to handle after the lumber was gone.

Kushequa therefore boasts of three active plants, two of which are controlled and operated by Mr. Kane under the direct supervision of Mr. M. W. Blair, former technical expert for the N. P. B. M. A. One of these plants, the Kushequa Brick Plant, manufactures a variety of high grade face brick and paving block, while the other, the Kushequa Ceramic Plant, leased by Mr. Kane, is devoted entirely to the production of promenade tile in various shades of red, and both 6x6 inches and 6x9 inches in size.

The novel feature of the Kushequa brick is the necessity for mining shale, the vein worked having a depth of twelve to fourteen feet, with some 200 feet of over burden. The mine mouth is on the hillside above the plant, which facilitates dumping directly to the dry pans. The material, however, is becoming harder as the entries are driven back

ter, made by E. M. Freese & Co., so that it is possible to meet any demand for face and paving brick. The dryers are direct fired with natural gas and part of the kilns are gas fired. The kiln capacity is about 800,000, and both round and rectangular types are in use.

The beautiful, distinctive oxblood color obtained is fast becoming popular, and Kushequa "Oxbloods," "Devonshires," "Kq" bevel edge pavers and "Velours" are making a place for themselves in the architecture of such cities as New York, Chicago, Philadelphia, Washington, Boston, Rochester, Cincinnati, Buffalo and Toronto, where there have been established agencies to look after increasing business.

To the same markets also are going the tile of the Ceramic plant. Like many new ventures in the clay business, the Ceramic is known to have seen its dark days, but the operations of the past year under Mr. Blair's direction have been most satisfactory, and the Ceramic plant now bids fair to bring fame and prosperity to the Kushequa valley, as a reward for the care for detail which the business seems to require.

The plant is well built, and the mechanical equipment consists of a 150 h. p. gas engine, a nine-foot American dry pan,

pug mill and No. 43 tile machine with Fate cutters for tile manufacture, and a Niagara machine and Bonnot rotary cutter for brick.

Gas fuel is used exclusively, and the burning is carried on in eight thirty-foot down draft kilns.

The present production of the plant is 300,000 tile per month, and is being increased to meet a growing demand.

The remarkable rich red color of the tile, whether due to the raw material, the natural gas or skill of Mr. John Donnelly, the head burner, or a combination of the three, is largely responsible for their popularity for floors for porches, vestibules, basements, grill rooms, etc., and their weather

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



BUILDING OPERATIONS are in full swing here at the present time. In the business district the rattle of the woodpecker riveting machines is heard almost continuously, the work is progressing rapidly on the union depot and the entire terminal project, and there is a vast amount of small buildings being erected, cottages, residences, apartment houses, hotels, etc. In fact, it is claimed that every building mechanic in the city is busy,



Shale Bank Kushequa Ceramic Company.



Sorting the Kushequa Tile as They Come from the Kiln.



Taking the Green Tile from Conveyor Belt.



A Glimpse of the Kilns of the Ceramic Company.

and fire-proof qualities make them the ideal material for flat roofs of city buildings.

Mr. Kane is a man of remarkable talent and enterprise. By indomitable energy he is turning a mountain jungle into a beehive of industry and giving to the builders of the land a beautiful and indestructible material that will be an enduring monument that will tell future generations of his industry and intelligence. What greater ambition need any mortal cherish? His life work is an inspiration both from a sentimental and commercial viewpoint, for despite the usual vicissitudes of establishing a great clay industry, he is making good brick, fine tile and some money, none of which is "tainted." Some men whose names are more conspicuous in the commercial record of his time can not say as much.

unless he prefers to loaf, for there is plenty for him to do. Among the new buildings about to be started is the big mail-order house in North Kansas City for the Kansas City branch of Sears, Roebuck & Co. It is the residence districts which show the most building, however, and where the brick people are making a profit on their brick.

This city is spreading out over so much territory that delivery is getting to be a big proposition with the brick people. One company which operates many teams has kept track of the delivery cost throughout the past summer and says that it averages up \$1.50 per thousand on all the brick sold.

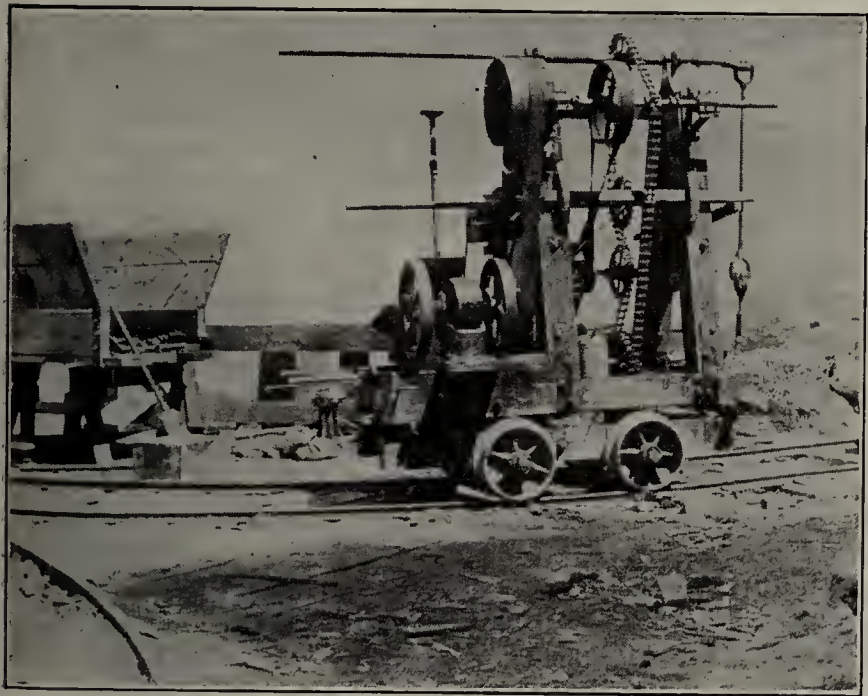
Only a few of the Kansas yards are making brick yet, and some of these expect their gas to be shut off early in No-

vember, and it is a matter of doubt whether they will ever be able to use gas as a fuel again. Only such plants as are lucky enough to own their own wells and have good producers can be sure that they will have gas for any length of time now, and it is predicted that before the end of November the price of brick will be advanced to \$5.00 per thousand at the yard for common brick. This would mean \$7.50 per thousand on board cars here, and \$9.00 delivered on the job, as an average, and the indications are that there will be very few brick made during the winter, no matter what the price may be.

Just at the present time the car shortage is playing havoc



John Donnelly, Head Burner Kushequa Ceramic Company.



Marion W. Blair's Improvised Clay Drill.

with deliveries. Practically every brick plant in this section is handicapped very heavily. All railroads seem to be short of cars, but the Missouri Pacific is furnishing more cars than any of the others. The following letter is a fair sample of the many coming to Kansas City dealers from the various plants, and shows the trouble. This plant is located on three lines of railroad.

"Eadie Building Supply Company, Kansas City, Mo.:

"Gentlemen—We desire to advise you that we are unable to secure cars on any road, and have had but few cars for the past week. This condition will delay shipment of your orders. We have not had a single car for past two days. Yours very truly,

THE FREDONIA BRICK Co.,
By Geo. B. Spencer."

Word reached this city last week of the death of E. Baur, secretary and treasurer of the Tyre Vitified Brick and Tile Company, of Tyre, Kans., who shot himself on October 20, while in his office in that city. Worry over the gas situation and financial losses occasioned by being forced to sell brick without a profit are given as the cause of the deed. Mr. Baur was not a practical brick man, but had gone into the business with the expectation of taking care of the office end of the work and making some money for himself and friends who had invested with him. He was known here, and was a thorough gentleman.

The Kansas City Hydraulic Pressed Brick Company is now operating its Diamond yard, turning out a building brick instead of pavers, as the demand for pavers is not good at the present time. A fine looking tapestry brick is one of their products, and they are expecting some big business on it.

The Eadie Building Supply Company is reporting more business the past month than in any month for over two years; in fact, about all the business that the present force could handle.

The main building of the Fort Scott Brick Company, of Fort Scott, Kans., was recently destroyed by fire. The loss is estimated at \$100,000, and was only partially covered by insurance.

A stroke of apoplexy caused the death of L. H. Reppell,



A Group of Visitors at the Yard Office of the Pearl Brick Company, a Neighboring Plant.

sixty-five years old, on the floor of the Master Builders' Exchange, the afternoon of October 19. He was talking to a group of friends and suddenly sank to the floor. He was dead before they could pick him up. Mr. Reppell was born in France, and has been a resident of Kansas City for some thirty years. For seventeen years he was with the Hydraulic Pressed Brick Company, and later went with the Lyle Brick Company, with which company he was connected at the time of his death. He is survived by a wife and seven children.

The Texas Terra Cotta Company has been incorporated in Athens, Tex., with a capital stock of \$100,000, by J. E. Miller, P. A. Habel and J. E. Miller. K. A. W.

A BRICK FROM THE GREAT CHINESE WALL.

An interesting display in the office of Ambrose Swasey, of the Warner-Swasey Company, Cleveland, Ohio, is of burned clay, which was at one time a unit in that wonderful engineering achievement, the great wall of China. The brick was made at least 1,300 years ago, and is entirely unharmed by the centuries of exposure to the elements. The brick was brought from China by Mr. Swasey, but not without considerable difficulty. It weighs thirty pounds and is eight times the size of the common brick of today, being 15x8x4 inches in size. It was not very easy to get possession of the brick in the first place and considerable of a task to get it home. Mr. Swasey treasures the brick for its odd associations and the fact that it is imperishable.

Written for THE CLAY-WORKER.

DRYING CLAY WARES.

BY ELLIS LOVEJOY.

Paper No. 2.

The Work to be Done.

WE HAVE SHOWN how drying proceeds. It will be in order next to determine the work to be done and the heat required.

Clays vary in the amount of water they will take up in order to make them plastic. The following table, made up from various sources, gives the percentage of water required for the clays in question:

Missouri Geological Survey.

Brick clay	16—19 per cent.
Fire and potters' clay.....	15—33 per cent.
Flint clay	15—24 per cent.
Kaolins	18—35 per cent.
Shales	14—25 per cent.

Georgia Geological Survey.

Brick clays	15—30 per cent.
Kaolins	30—45 per cent.
Fuller's earth up to.....	90 per cent.

North Carolina Geological Survey.

All clays	16—40 per cent.
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Illinois Geological Survey.

Paving brick clays.....	13—17 per cent.
Other clays	15—21 per cent.

Oklahoma Geological Survey.

Shale	10—32 Average 22.5 per cent.
Light burning clays, “	25.1 per cent.
Fire clays	15.1 per cent.
Surface clays, 15—36 “	24.9 per cent.

The amount of water in clay ware depends upon the process as well as the clay. The dry or dust-pressed wares have very little water. In the semi-dry processes, the clay is damp enough to ball up in the hand, and this is the usual condition of the clay for dry-pressed bricks.

Stiff mud processes require more water—from 10 to 25 per cent of the dry clay. The soft mud has a still higher per cent, and casting processes require that the clay be made up into a thin slip, but as this is absorbed by the plaster moulds, the ware itself has scarcely more water than would be required for soft mud.

In the several processes, but especially in the stiff mud, the softness of the ware has a wide range. Some clays can only be made into stiff mud wares by working them so soft that they easily dent by the fingers in handling them, and paddles or hand clamps are necessary for the handling. Other stiff mud wares are so hard that in bricks, for instance, they may be hacked ten to fifteen courses high. In several plants, for a number of years, stiff mud bricks have been set in the kiln six to ten courses high and dried therein. Experiments are being made, having in view setting the bricks eighteen to twenty courses high in the kiln, making this the maximum height of the setting and drying in the kiln followed by burning, thus eliminating the dryer just as in the dry-pressed bricks. Clays which will stand this setting must be suitable, and naturally will require little water.

In our discussion of the work of drying, we will assume that a standard sized brick weighing five and one-half pounds burned, will contain one pound of free water. This may seem low, but it must be remembered that there are three water conditions that enter into loss in weight in burning—chemical water, hygroscopic water, and moisture

or free water. In drying we are only concerned with the moisture.

Many people get the idea that because clay wares can be dried readily at normal temperatures in the open air, that very little heat is required for the drying. We wish to state emphatically that regardless of temperature, a certain number of heat units are required to vaporize water, and this heat must be supplied from some source.

(Note—We wish to encumber this discussion with technicalities as little as possible, and make this note to avoid the wrath of some technicist who concerns himself chiefly with technicalities. Water vaporizes at all practical temperatures. It will take less heat to vaporize water at 60 degrees Fahrenheit than 212 degrees or 325 degrees. First, the water is only heated to 60 degrees instead of 212 degrees or 325 degrees. This is the sensible heat. Second, it requires more heat to maintain the pressure (tension), the greater the tension. We are accustomed to say that air absorbs the vapor, and will continue to use that term, but it is not a fact. Water will evaporate at any temperature until the requisite vapor pressure for that temperature is reached, and this takes place in a vacuum as well as in air or in any gas mixture. As a matter of fact, air is an obstacle rather than an aid to vaporization.

We readily appreciate this in boiler practice, where the temperature of the water must be advanced with every advance in gauge pressure. The same is true of temperatures below 212 degrees, only here the boiler is not in evidence, but the pressure is there just the same. We say the air is saturated, meaning the vapor pressure is satisfied.)

For the benefit of those who wish to figure these questions closely, we insert the following table, giving the heat units of vaporization.

32 degrees—	1092 B. T. U.
60 degrees—	1100 B. T. U.
100 degrees—	1112 B. T. U.
212 degrees—	1147 B. T. U.
307 degrees—	1176 B. T. U. 60 pounds pressure.
324 degrees—	1181 B. T. U. 80 pounds pressure.
338 degrees—	1185 B. T. U. 100 pounds pressure.
350 degrees—	1189 B. T. U. 120 pounds pressure.

We will make use of this table in discussing steam dryers.

To vaporize a pound of water at 212 degrees Fahrenheit, at sea level, 967 B. T. U. are required. This is the heat that disappears—becomes latent. It represents the heat required to keep the pot boiling without any advance in temperature of the water in the pot. One hundred and eighty B. T. U. per pound of water are required to bring the water up to the boiling point from 32 degrees Fahrenheit, or 140 B. T. U. to advance the temperature from 72 degrees to boiling. Add this 140 to 967 and we have 1,107 B. T. U. to vaporize a pound of water at 212 degrees Fahrenheit from 72 degrees Fahrenheit. Let us say 1,100 B. T. U.

We must generate this heat or rob the atmosphere to the extent of the latent heat for every pound of water we evaporate from our wares.

A pound of coal may have from 8,000 to 15,000, average 12,000, B. T. U., and one pound of coal is required to evaporate ten pounds of water. Ten bricks then require one pound of coal; a thousand bricks require 100 pounds of coal.

But this is only part of the work. We put in 6,000 pounds of clay (1,000 bricks), at 60 degrees Fahrenheit and take them out at 130 degrees Fahrenheit perhaps. This takes 84,000 B. T. U. $[6,000 \times 2 \text{ (sp. ht. of clay)} \times 70]$ or seven pounds of coal. We put in 800 pounds of iron cars per thousand bricks, which requires 6,260 B. T. U. $(800 \times .11 \times 70)$, or one-half pound of coal.

We may use (see later discussion) 720,000 cubic feet of air in drying 1,000 bricks, or 57,600 pounds, which requires 967,670 B. T. U. $(57,600 \times .24 \times 70)$ or 80 pounds of coal.

Now we have in round numbers 188 pounds of coal. If

the radiation loss is ten per cent, the total fuel requirement is 206 pounds, or practically one-tenth ton of coal to dry 1,000 bricks.

These figures will be surprising to many, but there are many dryers using a greater quantity. In fact, a half more is common practice, and double is not infrequent. Our figures are on the assumption that we get all the heat from the fuel into the dryer.

If we are drying with steam, we must introduce the boiler losses.

If we use direct heat, we must allow for the loss in the products of combustion, for imperfect combustion, either through too much or too little air, loss in ash, etc. However we may do the work, there is an absorption of heat, and the fuel required to generate this heat will in some factories exceed the fuel used in burning the ware.

The fuel consumption in burning is frequently discussed in conventions, but we seldom hear any mention of the fuel used in drying.

The owners of open yards will often view with envy the modern drying plant of their competitors, its less labor, perhaps less drying loss, but if they could appreciate the fact that the gain is at an expense of ten to fifteen dollars per day in fuel, they would be more content with their old-fashioned process.

(To be continued.)

THE HOLLOW WARE WAY.

The way of hollow ware clay products looks bigger and broader, as if these products are spreading out with the intent to make a place for themselves of considerable prominence in the future history of the clayworking industry. The clay show was something of an eye-opener on this point, showing, as it did, hollow blocks and tile being put to uses for which they were not thought of a few years back.

Incidentally, too, we must give credit to the cement people for some of this, for, in a way, cement as a competing material has awakened and stirred the stumps of clayworkers and resulted in their making more rapid progress than would likely have been made without this competition to meet. Take the matter of silo building as an example, and today lumber, cement and clay manufacturers are all getting more out of it than they were before. And here is one of the places where hollow clay ware shines and has a host of good talking points that should make it a dominant factor.

Another awakening in kind is that of sewer blocks for the making of large sewers. Concrete took its fling at this, and as a result the clayworkers have aroused themselves so that not only are the brick men going after their share of this trade and getting more of it than they would likely have gotten if not stirred up, but there has also been developed special hollow blocks or tile for sewer construction that look like noise makers for the future.

Having got started and stirred up generally, the hollow ware idea seems to have no notion of stopping anywhere, and is working its way into house walls and entire buildings with an aggressiveness which if kept up long will mean not only a place for it of some magnitude in the building world in competition with hollow blocks of cement, but that it will slice some into the brick trade, too.

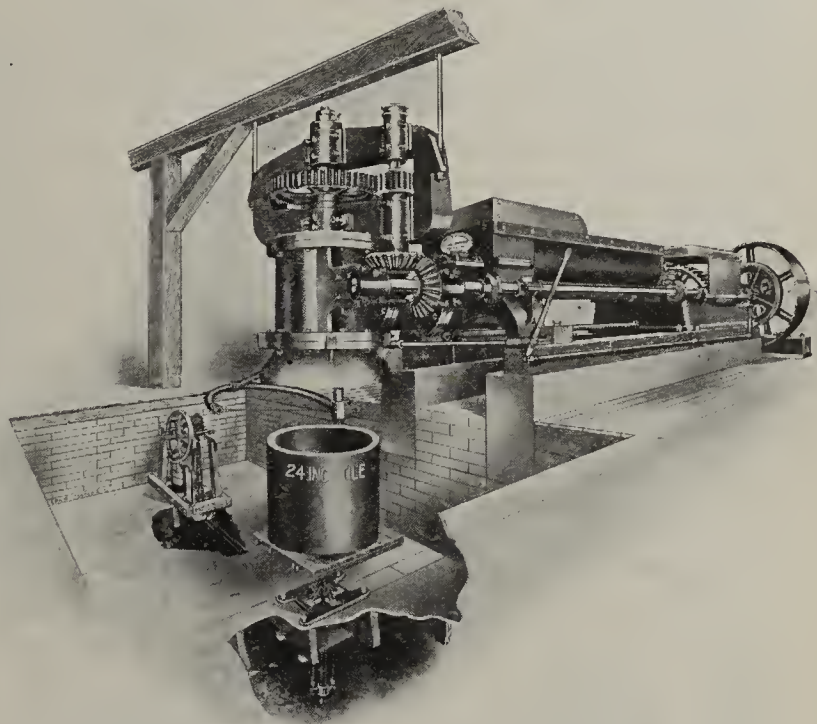
And it should help create a wider use for clay products as well as claiming a share of the natural trade. There are some lines, like that of building dry kiln walls, where the insulating qualities of the hollow space is especially valuable, and there should be an extensive replacing of wooden partitions in brick houses with it for the safety against fire and the permanence of construction. In fact, there is plenty of room for lots of progress in the hollow ware end of the business, and it looks like both the time and the people are ripe to "go to it."

LARGE FATE MACHINE FOR IOWA PLANT.

THE MANUFACTURERS of drain tile have found the demand for drain tile of the larger sizes so great that the present equipment, although good, is inadequate to supply the demand, especially as the call is for the extreme sizes as 27 and 30 inches diameter, which have never before been made on an auger machine.

The J. D. Fate Company has just built for the Vincent Clay Products Company of Fort Dodge, Iowa, for their new plant, which is without doubt the largest and most complete drain tile factory in the world, one of their well-known vertical attachments of the most approved type, it being much larger and heavier than any ever built. The cylinder is 22½ inches long and 22 inches inside diameter, fitted with extra large augers, with pitch just enough to take the clay just a little faster than the horizontal augers force it, which prevents the clogging and packing of the clay at the point where the two cylinders join.

The Vertical is operated from the main countershaft through a pair of miter gears of 4½-inch face, 22 teeth, 2¼-inch pitch, transmitting the power by means of a secondary counter shaft 3 inches diameter, on which there is a shrouded pinion with 12 teeth, 5½-inch face, 2-inch pitch. This pinion works with a main gear of 52 teeth, 5-inch face,



J. D. Fate Company's Large Drain Tile Machine.

2-inch pitch, placed on an auger shaft 5¾-inch diameter and 5¼-inch square, where it carries the augers. This shaft has two bearings, one of which, the upper one, being a plain bearing 10 inches long, and the other a marine bearing 11¼ inches long having five bearing rings with a total thrust bearing surface of 13 inches. This bearing is lubricated by separate grease cups for each of the bearing rings. The upper bearing is provided with two grease cups for lubrication.

This shaft can be furnished either solid or hollow, and when made solid the corebridge is in the form of a ring and pin is held in counterbore in extension on back of die.

When hollow the cores are held on the end of a core pin shaft which extends through the center of the auger shaft and is held rigid at the top. This shaft is 72½ inches long and 3 inches diameter, except at lower end, where it is turned to 2⅝ inches to fit bore. It is threaded above core to carry adjustable packing ring and packing to prevent clay from working into bearing. It is threaded at top to take up wear in brass bushing at bottom of auger shaft.

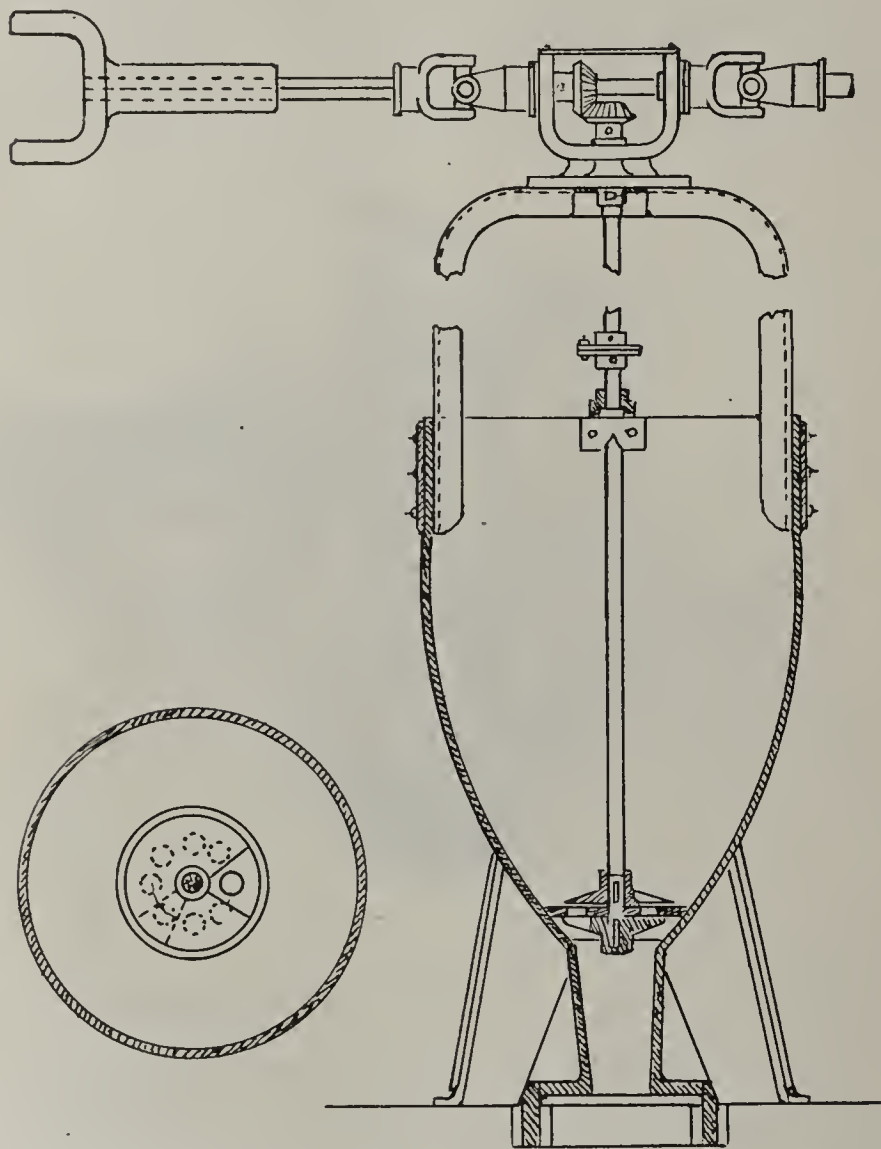
The cutting table is of the sewer pipe press type, and the pallet plate is supported in center by 1¾-inch steel shaft operating between rollers fastened to floor plates. Operation of table is controlled by both hand wheel and foot brake.



Automatic Feed for Kilns.—According to Mr. M. F. Watterbled, the feeding of fuel into kilns should be very regular and uniform, and any change in such methods will bring forward wrong results. He has studied this problem to a great extent and has come to the conclusion that automatic feeding of kilns will be one of the main requirements before very long. In the cut herewith shown, we have three hoppers which are driven by power and which discharge the same amount of fuel in the feed holes of the kilns at regu-

different classes work together, no good results have been obtained. The Germans have been found to be about the best workers. The Pole is the next best man, but the Italians are regarded as unreliable workmen. It has been found that a brick yard can work about 30 per cent. cheaper with Polish labor than with Italian labor.—Tonind. Z. No. 96, 1912.

Periodical Kilns Connected as Continuous Kiln.—In order to get the benefit of the continuous principle in periodical down draft kilns the building of a battery of four such kilns, and having them connected so that the waste gases will burn the kilns ahead, is shown in the cut herewith reproduced. The kilns are fired like any down draft kiln, but the flues are arranged so that the other kilns will get the benefit



Automatic Feed for Continuous Kiln.

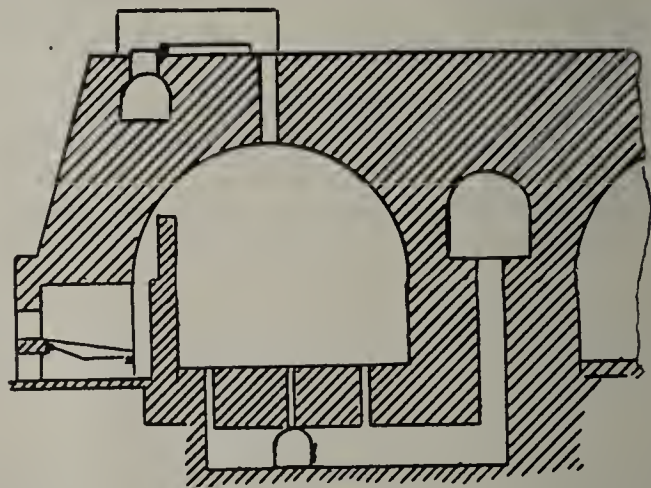


Fig 1

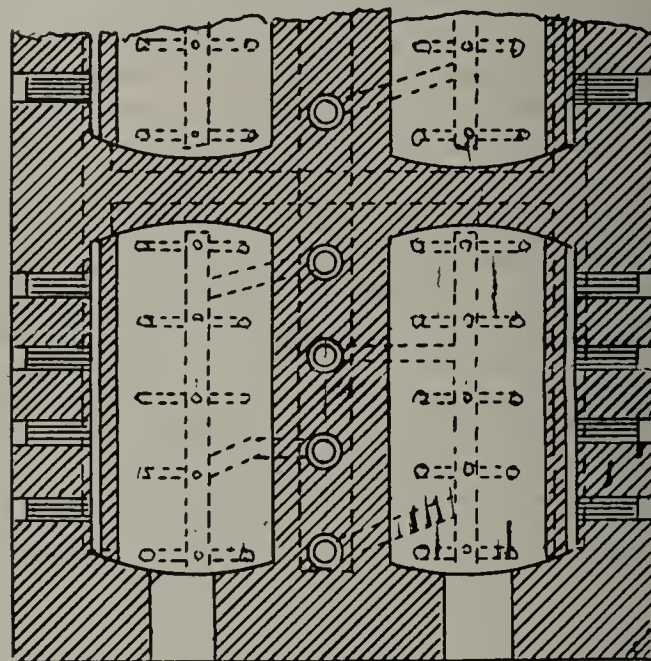


Fig 2

lar intervals. A great saving of fuel has been made by the installation of such devices, and also more uniform results have been obtained.—La Revue des Matériaux No. 88, 1912.

of the waste heat gases. One large chimney or fan will answer for all kilns so connected.—Tonind. Z. No. 81, 1912.

Wash for Making Saggars Tight.—When saggars are made of fire clay, in order to stand up in high heat, coarse grog is mostly used. This will not make the saggars tight enough, and they should be washed inside with some slip so that the gases will not go through the same. Two parts of kaolin and one part of flint, without the use of any flux, will usually give the desired results.—Keramische Rundschau No. 31, 1912.

Foreign Labor in Brickyards.—In handling foreign labor in brick yards, it has been found that it is advantageous to use men of all the same nationality. In the brick yards in Germany, we find Poles, Italians, Greeks, and of course to the greater extent Germans. It has been found that if these

Annual Meeting of the Association of German Ceramic Industries.—The annual meeting of this association was held in Berlin June 18 last. The first part was devoted to the commercial and routine matter of the association, and the technical part was opened with a paper by Dr. Heinecke regarding the use of brick clays for the finer ceramic industries. He showed samples where he had used a great deal of common brick clay, and made some very nice majolika ware of the same, with the addition of some kaolin, flint and other fluxes. Dr. Keppler read a paper in connection with the properties of clays, and in which he treated the plasticity of clays at length. The association decided to establish a technical branch of the association, and decided

also that parties interested in the technical part of the industry could become members of that part without being manufacturers. The lead question came in again for its part in the proceedings, and Mr. Guillaume stated that so far a substitute for lead on a commercial basis had not been found.—Sprechsaal No. 34, 1912.

Burning Progress in Continuous Kiln.—The burning progress in a continuous tunnel kiln should be about 150 feet per week. If the kiln does not advance that length, then the burning is too slow, and the draft should be increased. In a chamber kiln of course the burning can only be gauged by the amount of chambers burnt. A chamber holding 9,000 brick and the kiln 16 chambers will burn from 110,000 to 145,000 brick per week. The firing in these chambers is done regularly every 20 minutes, and after the kiln or chamber is burnt off, the fire is soaked between three and four hours.—Deut. Topf & Z. Z. No. 70, 1912.

Building Terra Cotta.—The use of building or architectural terra cotta is fast increasing in Germany, and many plants are making now a specialty of this branch of the ceramic industry. The Grand-Duchess Majolika Factory of Karlsruhe has now been successful after many years of trials to produce a body which will stand the weather and which will not produce crazing of the glaze even if burnt at low temperature. The Technical University of Karlsruhe has made its experiments, and the results have been derived by the technical treatment of the bodies and glazes.—Sprechsaal No. 31, 1912.

Resistance of Fire Clay Bodies Against Temperature Changes.—In the manufacturing of fire clay products in addition to the ability to stand the high fire and the chemical combination, there should also be taken into account the ability to resist the temperature changes. In order to find out how fire clay bodies would work in this connection the following experiments were made:

Body mixture.	Fineness of grog.	Brick made were heated 10 minutes between 850-900 degrees centigrade and then cooled.	The same brick, burnt, when heated again 20 minutes 900-950 degrees centigrade and cool in air current.
5 parts plastic clay 5 parts grog	1-32 to ¼ inch	no cracks	small cracks
	1-32 to 5-32 inch 1-32 to 3-64 inch 0 to 1-32 inch	no cracks many big cracks pieces broken off	small cracks small cracks
3 parts plastic clay 7 parts grog	1-32 to ¼ inch	no cracks	no cracks
	1-32 to 5-32 inch 1-32 to 3-64 inch 0 to 1-32 inch	no cracks no cracks small cracks	small cracks many small cracks many small cracks

The conclusions reached by these experiments is that with the increase of the grog the ability to resist sudden temperature change is increasing. The temperature of the experiment, however, is not high enough to decide definitely to what amount the fineness of the grog can be carried out.—Tonind. Z. No. 87, 1912.

A TRADE THAT NEVER STRIKES.

Notwithstanding the fact that some of the deplorable strikes of the country are connected with the laying of brick, it is in the clayworking industry that we find a strikeless trade. The honor belongs to the potters. According to a report made by W. E. Wells, to "The Nation's Business," for the United States Potters' Association, there has never been a strike of pottery workers during the period of nineteen years that this organization has been in existence. He at-

tributes this to the liberal and broad-minded policy of the association in dealing with labor problems. It sounds mighty good, both for the association and for the workmen, and a plan or policy that works out as well as this ought to be a good one for others to study and copy after.

AMERICAN ROAD BUILDERS TO MEET IN CINCINNATI.

Highway improvement, one of the most vital questions before the United States, will engage the attention of the foremost public officials and expert road builders in the country during the four days of the ninth annual convention of the American Road Builders' Association, at Music Hall, Cincinnati, Ohio, December 3 to 6. Those in charge of the arrangements have been busy with the plans for the meeting, and the exhibition of road building materials and machinery to be held in conjunction with the convention for several months, and although there yet remains nearly a month before the first session will yet be opened, the number of official delegates already appointed and the amount of space taken by exhibitors make it beyond question that the convention will be not only the principal event of the year in road building circles, as it has been each year for nearly a decade, but will also surpass all previous meetings of the Association.

Governor Judson Harmon of Ohio has evinced his interest and his sympathy with the efforts of the American Road Builders' Association to the extent of addressing letters to the governors of all of the other states, strongly endorsing the purposes for which the meeting has been called and requesting the appointment of official delegates. Although this letter was sent out only a short time ago, and although some of the chief executives to whom the latter was addressed were absent from their states, delegates have been appointed by Governor O'Neal of Alabama; Governor Deneen of Illinois; Governor Oddie of Nevada; Governor McDonald of New Mexico; Governor Burke of North Dakota; Governor Colquitt of Texas, and Governor Mann of Virginia. Governor Brown of Georgia has signified his intention of complying with the request, and Governor Foss of Massachusetts, Governor Cruce of Oklahoma and Governor Aldrich of Nebraska have taken steps to name delegates.

The American Road Builders' Association has held conventions of constantly increasing size and importance during the past ninety years, and is composed, chiefly, of state, county, town and city officials; engineers engaged either as public officers or in private practice in the construction and maintenance of roads and streets; road and street contractors; consulting engineers and chemists, and others to whom the building and upkeep of country roads and city streets is of direct and vital interest. It is the only national organization of the United States which limits its annual convention to the consideration of the administrative and technical phases of road and street construction, and it numbers in its membership most of the men whose names are well known, among road builders and highway officials.

Although the formal sessions of the convention are limited to the consideration of the particular questions in which its members are interested, there is always much of popular interest at its meetings. This is especially true of the exhibitions of road building material and equipment, which are held in conjunction with the convention. This plan was inaugurated by the Association at its sixth annual convention at Columbus, Ohio, in 1909, and proved so successful at that time that it was repeated at Indianapolis in 1910 and at Rochester in 1911, greater interest being manifested by both exhibitors and visitors each successive year. The exhibition this year will include not only all the features which have contributed to the value of former exhibitions, but will also include an exhibition by states and municipalities showing road building materials, methods of administration and con-

struction and other matters of interest to the layman, as well as to the engineer or contractor. This departure from the usual plan has been contemplated by the Association since its 1911 convention, and the manner in which the states and cities have taken hold of the matter gives promise of a most interesting display. The commercial exhibits, as in former years, will include displays by the leading manufacturers of road machinery, manufacturers of and dealers in various materials, including oils, asphalts, tars, cements, etc., paving companies, and others.

The meetings and the exhibits will all be held in Music Hall, which is conveniently situated and provides ample accommodations. The city officials and citizens of Cincinnati, as well as the state officials of Ohio, are co-operating with the American Road Builders' Association and putting forth every effort to make the 1912 convention the most successful ever held.

Nelson P. Lowie, chief engineer of the Board of Estimate and Apportionment of New York City, is the president of the American Road Builders' Association; Harold Parker, ex-Chairman of the Massachusetts State Highway Commission, First Vice-President; F. W. Crosby, Consulting Engineer of the Maryland State Highway Commission, Treasurer, and E. L. Powers, editor of "Good Roads," Secretary.

REACHING THE ARCHITECT.

EVERY manufacturer of face brick has a natural and useful desire to get his product before the architects, and keep it there. The problem would be simple if the architects would regularly visit the Builders' Exchanges in their cities, for it is easy enough to keep a display of sample brick and pictures showing finished work at such places. Or if they could be depended upon to keep such things before them in their own offices, the brick man could supply the list of architects in his territory. But the average architect has no notion of turning his office into a brick display, even if the material should be furnished him free. We are fortunate, though, today in having processes for reproducing colors by printing with a fair degree of faithfulness, and at fair enough prices to make this practical. Color printing is about the best medium with which to reach the architect and stay before him. It is a question of how to use this for the best advantage and the least waste. Good photo reproductions of excellent buildings, showing how the brick looks after it is put up, are one of the best forms of presentation, especially if the architect will hang them and keep them before him. To insure this an excellent plan is to have such prints nicely mounted and framed. It costs more, but fewer of them put up this way will generally prove more effective, and certainly more lasting than a flood of prints in such form that they cannot be kept in view unless the architect happens to think enough of them to frame them himself—which is not likely to happen often.

For the single brick and panel reproductions the most likely means to get the most effect for the money seems to be that of using small booklets, booklets small enough to file in the pigeonholes of an ordinary desk. Or by the way of variety one might try something on the index file card order, make a series of reproductions on cards, and then provide a neat case to hold the set. If full size reproductions of brick, and large showings of panels are wanted, things that call for the printing of wall hangers, there is a big chance to feed the waste basket unless these hanger propositions are made tempting enough to insure hanging when they reach the architect's office. If they are made a part of a calendar, and the calendar, as well as the illustrative part is made sensible, so that it will appeal strongly enough to get favors when it comes to hanging and preserving, then you have a splendid means for reaching the architect and staying

before him. The one thing to keep in mind constantly in preparing matter to reach the architect with is, that he is the recipient of a perfect flood of stuff from all manner of sources, stuff the great bulk of which goes into the waste basket, and that to get and hold attention, you must offer him something either mighty tempting in itself, or put up in such form that he will be tempted to keep it.

THE SELLING SIDE.

IT matters not what a man's product, whether it be brick, tile, sewer pipe, lumber, or what, it seems difficult for the average manufacturer to realize that the selling side of the business is just as essentially a part of the business as is any process of the manufacturing. There are plenty who will say, "Oh, yes; I recognize and appreciate the importance of selling." But do they? Does the brick man, for example, really appreciate that selling is as essential and important a part of his business as burning? It is to be doubted, for if he did the selling side would receive as much attention and be the source of as many new ideas at the annual meetings as the subject of burning.

The manufacturer is prone to unconsciously take the position that the selling end of the business is a little side issue that he can take care of through the office in connection with the bookkeeping, and in case he is not on the job, he has a list of prospective customers that the stenographer and the office boy can mail circulars to and take care of what orders come in. Not only that, but it is a common thing to berate the dealer, who is nothing but a seller, as a sort of non-productive parasite on the trade.

The writer has attended meetings in other lines where the manufacturers have come out openly in favor of cutting out what they call the middle man, who, according to them, gets a share of the returns but does nothing to earn them. That is simply evidence that the average manufacturer really does not regard selling as an important factor in his business, for if he did he would take an entirely different attitude toward those who do the selling. Some of you employ men and dig your own clay from your own ground, work it, burn it and do all the work, even including the selling, yourselves. Others buy clay at so much a ton delivered, either all or part, and some probably have their clay mining done by contract. Well, let us regard the selling in the same light as the clay supply, and we find that the only difference between doing it yourself and having it done by others under contract or commission, is that you may figure in the one case that you can employ help by the day and do it yourself more economically, while in the other you have a fixed positive cost and are free from worry over the details of the work.

That is the whole thing in a nutshell when you come to look at the selling side right—as an essential part of the business, just like the kiln or press work, or the mining of your clay supply. Do you look at it that way? If you do you should realize that modern, up-to-date methods are just as important in selling as in manufacturing. If you do not, the sooner you get a fresh viewpoint and see this selling end of the business in the right light, the sooner you will be in line to get what should be coming to you in the way of trade.

THE ADVERTISING GAME.

The case of white pine lumber illustrates one of the features of the advertising game that is too often overlooked, and that feature is persistence, keeping everlastingly at it. And the illustration has features about it that should make it appeal especially to the brick men.

Once upon a time white pine was the great wood of commerce, was widely advertised, known and used almost

everywhere. By and by there came a day of scarcity in white pine stumpage; some of the big operators forsook it and went to the yellow pine woods. Those that remained thought their product well enough known that it needed no particular boosting in competition with other material, and so they rocked along pretty easy for a while. But meantime the offerings of other woods were being exploited, so that by and by the white pine men awoke to the fact that they were missing lots of trade that they thought they ought to be having, and they found themselves with a surplus of supply, notwithstanding the long-time heralded scarcity of stumpage.

Then they got busy and got back into the advertising game, and for nearly a year now they have been telling the world about white pine, and presumably getting good results out of it.

This should be an effective lesson to the brick trade, and should be taken to heart, for one trouble with brick men is

Written for THE CLAY-WORKER.

TO MAKE CHICAGO BRICK=BUILT BURG



TO MAKE CHICAGO a brick-built city, in so far as it lies in their power, is the aim of the McLaughlin Building Material Company. John W. McLaughlin, Democratic leader in Cook county and Illinois, and a familiar figure in the national councils of his party, is the president of the company, and Benjamin M. Mitchell, who is always active and prominent in public life, is the energetic and effective general manager.

Although a comparatively young concern, having been in operation only a few years, the McLaughlin Company has come to the front with great strides; has enlarged its



The McLaughlin Building Material Company's Fine Display at the Clay Show, Chicago, Ill., 1912.

the same as that which lost trade for the white pine men, and that is taking for granted that the good qualities of the product are well known and fully appreciated, therefore, do not need continuous advertising. That is one of the big mistakes everyone makes now and then, and the better and wider known the article the more likely—and the more disastrous—the mistake. This advertising game is a continuous one, and the fellow that drops out of it is sure to lose in the race for business. There are always new offerings coming along and claiming public attention, and the man or the product that does not stay in the public eye through the medium of advertising is soon lost sight of and forgotten.

So when you are feeling good over the success of some one campaign of advertising, do not make the mistake of thinking that is all you need to do. It is only the beginning—and there really isn't any ending until you are ready to retire from the field of activities.

offices in the Roanoke building repeatedly; increased its yards from one to eleven, and supplies brick and building material for many of the largest jobs in the city.

While this company continues its early policy of handling a full line of all kinds of building material, holding itself ready to fill any kind of an order on short notice, it has gradually enlarged the face brick branch of the business under the able direction of Mr. Mitchell and Frank J. M. Silha, who is directly in charge of that department, until it holds a position second to none in this division of the material business. Close study of the building business of Chicago and the Middle West has convinced the president and general manager that clay products, including, most prominently, face brick, are best calculated to give lasting satisfaction to the builder and owner and the best effects from the artistic point of view to the appearance of a mu-

nicipality. Being Chicago men, heart and soul, and having the welfare of their city in high regard, it is natural therefore, that they should desire to put the brick they represent into every possible job.

The company is planning to place an exhibit at the next Clay Show, at the Coliseum in March, which they believe will outstrip their competitors in design and effect. The unique design of their exhibit at the Clay Show last winter called forth the praise of the many visitors who saw it. Every line of brick handled by the McLaughlin Company for the various manufacturers of the country whom it represents, was on display in artistically arranged panels. Among the brick exhibited was the rich, red Watsontown paver, a brick of standard size with beveled edge, and furnished in octagon. It was laid in a quarter-inch black mortar joint, raked to the inner bevel line, thus giving an attractive corrugated effect in horizontal and vertical sweeps. There were a number of panels of the Persian brick, which is of a cherry color in light, medium and dark shades. The mat surface of these brick give the appearance of the old sand-mould brick, but the Persians have the advantage of being thoroughly vitrified and impervious to moisture. Panels also were devoted to the Keystone, Nos. 7, 9 and 19, laid with flushed joints, and to the Alliance, shade 705-706, laid with a three-eighths inch raked joint. The Warren B. Ferris lines were prominently displayed, the Ferris flash, the Ferris glazed, the Ferris mat and the Ferris velvets, attracting especial attention.

The McLaughlin display was in the shape of a pergola, or better, perhaps, a cloistered way, with the bricks displayed on the inner and balustrade walls. The space was long enough to give a pleasing vista of panels and clay product displays to a person standing at one end of the exhibit.

Among the large contracts closed by this company during the last few months have been those for the City Hall Square Building, one of the largest erected in the downtown district this year. All materials were supplied for this job, including 109,000 Maple Park red brick. The Edward C. Delano School, at West Adams street and Springfield avenue, a three-story structure, called for 200,000 Shade 25 Ferris flash brick. The Sharples building took 75,000 Loop red brick, Shade F, and a number of individual residence buildings in Christiana avenue, between Eighty-seventh and Sixty-ninth streets, called for Ferris velvets, Watsontown pavers and Kittaning greys.

One hundred and ten thousand Streator pavers are now being delivered to the new West Side Hospital, at West Harrison and South Lincoln streets. Among the jobs outside of Chicago is that of the State Bank at Silver Lake, Wis., for which Fredericksburg mats in full range of shades and sizes are being supplied.

The great bulk of the building this year has been in apartment houses, and of these the McLaughlin Company has had its full share. A contract has just been closed for 115,000 full range velvet brick and 21,000 Michigan City No. 1 white sand lime brick for a large apartment building at North Fifty-second street and Pensacola avenue.

Other exceptionally large orders booked by the McLaughlin Company this year are for the new buildings of the Gazzola Drug and Chemical Company, in South Green street, between West Adams and West Monroe streets; all material for the new Commonwealth Edison plant, at Fisk and West Twenty-second street; and for the new Northwest power station of the same company, near Riverview Park, to which 300,000 red pavers were supplied; and 110,000 Shade 29 Ferris flash to the new plant of the Sawyer Biscuit Company, at West Harrison and Sholto streets.

It is the aim of the company to bring the builders and the manufacturers into closer harmony by serving as a medium of exchange of information and suggestion, which it

is believed will be of mutual benefit. Mr. Silha is about to start on a trip through the West and Northwest, in the course of which he will gather up the views of leading architects and builders. Returning to Chicago, he will then start on a series of visits for the company to all the manufacturers whom it represents, learning more about the lines and the various ways in which the brick can be adapted to finer and better service, and in turn giving to the manufacturers the suggestions he has received from the users of clay products throughout the western states. All in all, the trip will be one of boosting brick. SCRIP.

Written for THE CLAY-WORKER.

CLAY IN ILLINOIS.

THE workings of a modern brick plant, as exemplified by the equipment and system in vogue at the factory of the Western Brick Works, at Danville, were recently explained to the eighth grade pupils at the Washington school at Danville, who made a complete tour of the plant.

The First National Bank at Taylorville will be compelled to bear a loss of \$2,226, which it advanced on orders held by the William Dee Clay Manufacturing Company and other concerns for tile furnished Drainage District No. 2, of Christian county. The Dee Company and other concerns furnished tile for the levee district. The first assessment was not sufficient to get the expense of drainage and the second levied was enjoined. In the meantime the bank had cashed the orders held by creditors of the district. It sued the tile company to recover, but the Circuit and Appellate courts held the company was not liable.

The Inland Clay Products Company, of Chicago, has been incorporated with a capital stock of \$5,000, to manufacture and deal in clay products. The incorporators are Henry Burkholder, John A. Voorhees and J. W. Ware.

George Hull Manion, manager of the Western Fire Brick Company, at Granite City, and Miss Frances Purcell, of St. Louis, were married at St. Louis recently.

The Sanitary Brick Company, of Chicago, has been incorporated with a capital stock of \$50,000, to manufacture and deal in brick and clay and their products. The incorporators are Henry Lutzenkirchen, James McAndrews and Albert Sabath.

The Board of Local Improvements at Dixon has asked for estimates on a large amount of brick paving to be done next spring.

The 450,000 brick to be used in the Fourth street paving job at Peoria will come from the Purington yards at Galesburg.

Contracts for the tile in the Gar Creek drainage district, near Kankakee, went to the National Drain and Tile Company, of Terre Haute, Ind. The order is valued at about \$45,000.

The plant of the Continental Brick Company at Aledo, has been the Mecca recently for many men prominent in the clay field. Among them were: Mr. Thomas Moulding, president Thomas Moulding Brick Company, Chicago, Ill.; Mr. L. D. Binyon, president, Mr. H. L. Matz, vice-president, Mr. H. O. Binyon, sales manager, S. S. Kimbell Brick Company, Chicago; Mr. F. W. Butterworth, general manager, Mr. J. H. Reeves, chief clerk, Western Brick Company, Danville, Ill.; Mr. F. E. Dever, sales manager, Rickertson & Schwartz Brick Company, Milwaukee, Wis.

C. J. Armstrong, of Bloomington, has purchased \$85,000 worth of stock in the Springfield Paving Brick Company, from Springfield men. Only two Springfield men, Edward D. Keys and Logan Hay, remain, owning \$15,000 worth of stock. Mr. Armstrong will have charge of the plant, assisted by his son-in-law, Peter Henderson, of Bloomington. The working force will be in-

creased, and it is said a number of improvements will be made at the plant. Election of a new board of directors will take place soon. This is the plant that Dr. A. L. Converse has been associated with for so many years.

The High Ridge Hydraulic Pressed Brick Company, of Chicago, has been dissolved.

After a third trial, a jury at Kankakee decided there was no cause for action in the case of Smith against the Kankakee Tile and Brick Company. Suit was brought against the company for \$10,000 damages for the death of a boy drowned in the company's clay pit. At the first trial in the Circuit Court the defendant was given \$500 damages. The Appellate Court sent the case back for a new trial.

When a big storm cloud hovered over the Illinois State Fair Grounds, representatives of the National Fireproofing Company, of Huntington, Ind., showed their confidence in their silo by making ready to use it for a cyclone cellar. The storm, which might have afforded a horrible example lesson with the wood and other silos, did not break. A good business was done by the National Company at the Fair. Representatives of the firm present were L. A. Snow, M. A. Frary, Horton Gillis, Milford Baker, U. A. Leiter and Irvey Luke.

John Weaver and Will Price were at the Fair for the first time for the Imperishable Silo Company, of Brazil, and found a strong interest in stable silos due to the teachings of the Illinois State Farmers' Institute and other agricultural associations.

The White Hall Sewer Pipe and Tile Company, of White Hall, Ill., had its usual space in the dairy buildings, where they could talk to the man most interested in silos. The dairymen also had a display in the outfield. This last exhibit was near the tent of the Illinois Silo Company, of Bloomington, which is handling the White Hall products.

Drain tile of all sizes, as well as the use of tile for silo construction, were shown by the Springfield Drain Tile Company, of Springfield, which, although a newcomer in the field, reports a large business in both of these branches. Charles G. McIntosh, secretary and treasurer, was in charge.

S. P. RING.

IMMENSE BRICK PLANT FOR EDMONTON.

FORTY MILLION BRICK will be the output for a season of nine months of the Acme Brick Company, of Edmonton, Alta., in 1913, when it completes the installation of new machinery in buildings to be erected six miles northeast of Edmonton this fall and next winter. The present output of 75,000 brick a day will be increased to 200,000. The improvements will be made under the direction of W. B. Lawhead, engineer, who is now at Spokane, Wash., arranging for the establishment of a plant there.

The company has placed orders for more than \$20,000 worth of machinery, and will spend about \$60,000 between now and next spring. There will be six permanent kilns, using the Boss system of burning; a Justice radiated heat dryer, a stiff-mud wire-cut Freese machine and a pulverizer. The present equipment consists of six kilns, a cutting machine and the other necessary apparatus.

Preparations are also being made to use a steam shovel in the clay deposit, which is 35 feet in depth. The shovel will be of a capacity to lift between 600 and 700 cubic yards of material daily. Other improvements are cottages for men with families and a bunkhouse for workmen.

The completed plant will be able to furnish enough brick for Edmonton for a number of years to come, but, notwithstanding that fact, the management instructed Mr. Lawhead to place his layout with a view to further extensions without interfering with former work. When the plant is in full operation, it will require the services of 100 men continuously. The plant will be running at full capacity early next May.

The company will be able to place brick on the market

at a reasonable price, from the fact that with its large capacity it can manufacture brick at a much lower cost per thousand than where the production is on a small scale. It already has orders for 5,000,000 bricks for delivery next year, which it can easily take care of with the enlarged and thoroughly up-to-date plant.

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.

CHICAGO BUILDING operations have been showing up in good shape, much to the encouragement of building material dealers, during the past few months, and while the year seems destined to close without setting a new record, no great dissatisfaction is expressed. For the month of October Chicago leads even New York City by over \$3,000,000 in the estimated amount of construction involved in permits taken out, and is still further ahead of the other cities of the country, according to the figures compiled for Construction News. At that, Chicago's October estimated outlay for new building was a few thousand dollars less this year than in 1911, although the number of buildings involved was increased by nearly 100.

During the latter part of the season activities in apartment building construction have been pronounced. The work of rebuilding the downtown district also has progressed, and the factories and other industrial structures have gone up in large numbers.

The Chicago Bearing Metal Company is about to erect a new \$200,000 plant on a tract of land just acquired on West Forty-third street, comprising 8.44 acres on the north side of the street between Western avenue and the P. C. C. & St. L. railroad right of way. The proposed plant will be of fireproof construction and used for the manufacture of brass goods.

The building up of business centers to supply the growing residence district with the daily necessities of life is progressing rapidly in outlying territory. Blocks of shops with offices or offices and apartments above them, and running either two or three stories, are fast replacing the old style single story shop structures. Also, it is worthy of note that thoroughly fireproof construction is replacing the old shell or flimsy character of building, of which the front was the only respectable portion. The front is not neglected in the new structures; in fact, is more attractive than of old, whether the finish be terra cotta or front brick of the more artistic type.

Such a building is that being erected by Frederick Becklenberg at the southwest corner of East Forty-seventh street and Kimbark avenue, at a cost of \$170,000. It will contain eight stores, a small theater, with seating capacity for nearly 1,000, on the first floor, and fifteen apartments in the upper story. It will be of concrete and brick construction, with white terra cotta exterior.

It is predicted that there will be comparatively little office building done during the next few months, as many investors feel that, with the large number of structures of this character recently completed or in process of construction, future wants in this field have been largely anticipated for two or three years to come. This feature of the situation, however, will not worry brick dealers very much, as there is plenty to be done in other lines.

SCRIP.

FROST DRY PANS IN DEMAND.

William Simpson, the genial sales manager of the Frost Manufacturing Company, Galesburg, Ill., reports that they have had an unusually busy season. The shops are now running full handed, and still the company finds it somewhat difficult to keep up with its orders.

Written for THE CLAY-WORKER.

THE BRICK SITUATION IN ST. LOUIS.



BRICK BUSINESS is rather quiet at the present time, but the manufacturers believe business will pick up later, and are going ahead in the manufacture of brick in anticipation of the revival of trade, and until their

kilns are filled.

The quietness, to a certain extent, is caused by the let-up in the erection of small houses, very few of that class of building going up owing to so many apartment houses having gone up recently and the smaller houses not being in demand. Considerable big work is being done or is being figured on, and the demand for brick promises to be brisk later on, especially if the winter is not too severe and will permit of building operations going on.

Building operations in St. Louis for October indicated a decline of ten per cent. compared with October, 1911, as shown by the report of the building commissioner. During the month 785 permits were issued for new buildings, alterations and repairs, amounting to \$1,454,125. In October, 1911, permits were issued for work amounting to \$1,614,149.

Last month permits were issued for two mercantile buildings, the cost of which is estimated at \$169,000, and one hotel, to cost \$220,000.

The building operations for the first ten months of the years are still ahead of the business for the corresponding time last year.

The Hydraulic Press Brick Company is one of the largest brick manufacturing concerns in the world, with branches in many leading cities. The executive offices and its largest works are in St. Louis, and the purchase of an additional tract of clay land recently will tend to further emphasize the importance of St. Louis as a brick manufacturing center.

A fire in the plant of the American Pressed Brick Company at 6500 St. Charles Rock Road, recently, threatened several blocks of manufacturing buildings and residences. The loss was estimated at about \$15,000. The cause is supposed to have been an explosion of oil in the boiler room.

The Anthony Ittner Brick Company reports the brick trade as being rather quiet at the present time on small jobs, but the outlook for future business is excellent. They have had a nice, steady trade during the past summer and fall, and the lull is attributed to the falling off in the demand for smaller dwellings, apartment houses having taken their place.

The fire clay interests are fairly good, and the larger plants, such as the St. Louis Vitrified and Fire Brick Company, the Evens & Howard Fire Brick Company, the Laclede-Christy Clay Products Company, the Missouri Fire Brick Company, and the Mitchell Clay Manufacturing Company. The demand for fire clay products, such as brick, furnace linings, gas retorts, sewer and conduit pipe, etc., is of very large and steady volume. There seems to be no lack of orders. The only complaint is because of the shortage of shipping equipment and some slight shortage in the supply of labor. While cars are not scarce, it is difficult if not impossible to get them with anything like the promptness desired. As regards labor, the fire clay plants, as well as those of building brick, are working the ordinary large forces employed by them, but in nearly all cases the plants could use more laborers.

The various brick machinery establishments say they see an improvement in the inquiry for brick machinery, sufficient to warrant the expectation that the demand for this line next season will be much larger than it has been during the past year or two. Meanwhile the various shops are well filled with miscellaneous work.

Frank C. Pauley, president of the St. Louis Vitrified and Fire Clay Brick Company, is well pleased with the activity that is now prevailing in the clay products line, and before

the election stated that if it went the way he wanted—he did not say which way—some improvements would be made in his plant.

Business at the Laclede-Christy Clay Products Company has been quite good recently.

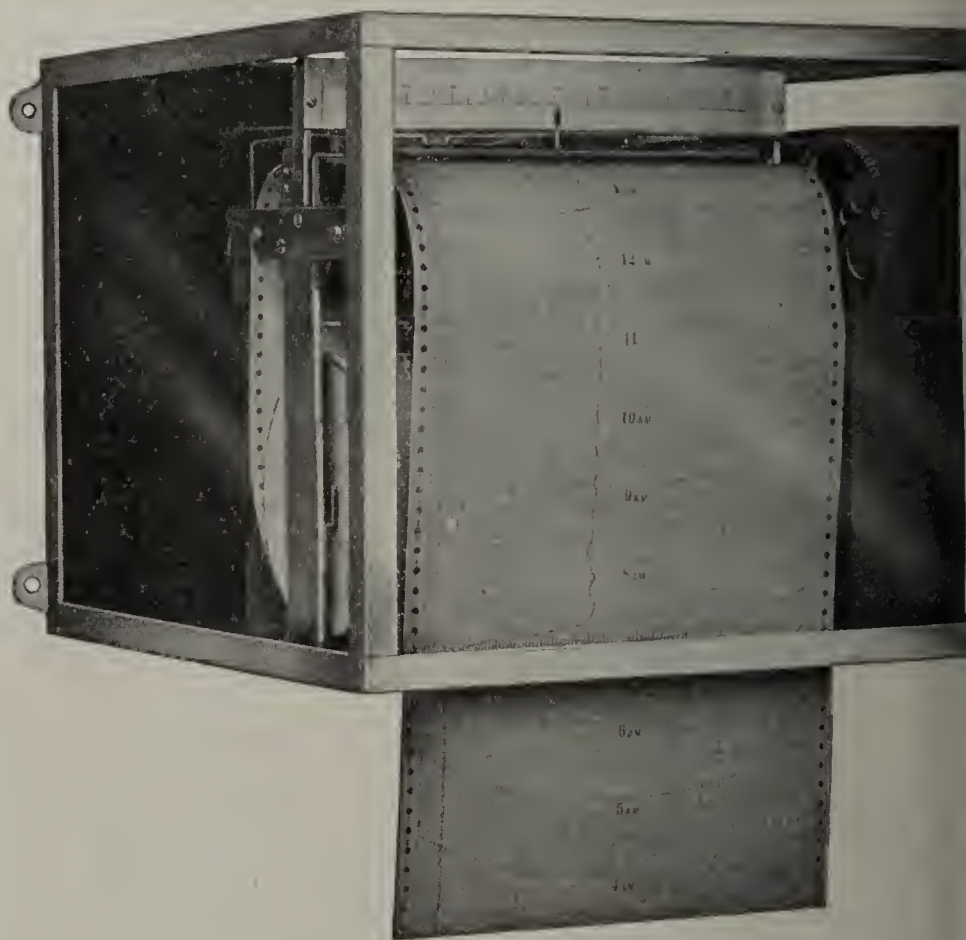
The new office building of the Mitchell Clay Manufacturing Company, adjoining that of the old one, has been completed and is now being occupied.

A. SAINT.

NEW CONTINUOUS CHART RECORDING PYROMETER.

THE BROWN INSTRUMENT COMPANY, of Philadelphia, and its associate company, the Keystone Electrical Instrument Company, have bought out a new continuous chart recording instrument, particularly designed for use as a pyrometer, but which can also be used for indicating volts, amperes, revolutions per minute, mechanical operations, etc., where a small current of electricity is required to operate a recording instrument.

This new instrument is of the frictionless type, the pen making a single dot of ink momentarily on the paper at



Brown Instrument Company's Chart Pyrometer.

short intervals, every ten seconds, or every minute as desired, and these dots practically form a continuous line. The instrument carries a six months roll of recording paper, traveling a little over an inch an hour, which does away with the necessity of changing the charts daily, and for many operations the continuous chart is preferable. The record can either be torn off as desired, every day or once a week, or it can be allowed to roll up continuously.

This new instrument is very handsome in appearance, having a plate glass case as shown in illustration, and in designing the instrument it has been kept in mind that a recording instrument must be as simple and practical as possible.

Further information regarding this new type of instrument, which has just been placed on the market, will be gladly given by the above companies.

CHANGE IN LOCATION OF BRANCH OFFICE.

The Minneapolis office of the Davenport Locomotive Works of Davenport, Iowa, has been moved to 1308 Pioneer-Press Building, St. Paul, Minn., where visiting clayworkers will find a cordial welcome.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO.



THE BRICK SITUATION has not changed greatly during the past thirty days. The demand throughout the summer has been ahead of the supply, and the great aim throughout the season has been to get enough brick to take care of the call, which has been heavy, not only from Toledo but from Michigan and northwestern Ohio. The building in Toledo this year has been phenomenal, and never has there been more brick construction than during the season just ending. Factory buildings, store buildings, business structures of all kinds and the better residences are all being constructed of brick. Few flat buildings have been constructed of anything but brick, and there are many new structures now under way and some to be started in the near future which will use large quantities of building brick. The Glenwood school is to be doubled in capacity, making a twelve-room building, and this will be begun in the very near future. The edifice will call for considerable building brick. The car shortage has been serious in Toledo and Detroit, and has naturally affected the brick manufacturers not a little. Every effort, however, has been made by manufacturers and shippers to unload cars promptly and keep them on the move. The consequence is that it has been announced within the last day or two that Toledo has suffered less from car shortage than almost any other city or shipping point. Some brick have been moved by water in a pinch, and motor trucks have been used by Toledo brick manufacturers almost exclusively this season, thus getting more brick on the market than could otherwise have been handled in a given time. Prices have held firm, and manufacturers are still turning out bricks as fast as possible, with the handicap that has been experienced here all season in the inability to secure enough workmen. Many foreigners who are usually employed by Toledo industries left to take part in the war against Turkey, which emphasized the shortage of workmen.

There has also been a good movement in paving brick throughout the season, and the call is still strong. Throughout northwestern Ohio, this season, small towns have been paving their streets, while many country roads have also been paved with brick. Taken altogether, brick men are making no complaint.

L. E. Boyer, owner of the tile plant at Port Clinton, Ohio, cut his right thumb while cleaning fish recently. The cut was deep and triangular, nearly an inch long, but Boyer acted as his own surgeon, putting eighteen stitches into the thumb with a needle and silk thread. Boyer used an ordinary sewing needle for the operation and the cut bled profusely.

East Toledo business men are up in arms because the paving of the car way and one foot adjoining on Main street was constructed of creosoted wood block instead of the brick, which was the business men's choice of paving material. The contention is made that the creosoted block will become slippery and endanger traffic.

A portion of the roof of Hall's brick yard at Tiffin, Ohio, was destroyed by fire recently. The fire started about 9 o'clock in the evening and was caused by the dry timber in the roof becoming overheated from the kilns. P. H. Seipp, who but a short time before had examined the roof, which appeared to be all right, had retired to his bed, and a resident living near the brick works sent in the alarm. The loss amounted to several hundred dollars and was partially covered by insurance. The outer layer of bricks in the kilns were damaged, but the remainder of bricks were uninjured.

The cornerstone of the \$75,000 Conservatory of Music building of the German-Wallace College at Berea, Ohio, was

laid recently. The structure is a handsome one of pressed brick.

Noah Williams, a worker in the Denison Sewer Pipe Company's shop at New Philadelphia, Ohio, fell twelve feet from a boiler recently and was instantly killed. His skull was fractured. He was 47 years of age.

Bids for the new \$65,000 federal building to be erected at Defiance, Ohio, will be opened in the office of the Treasury Department December 14. The bids will include plumbing, gas fitting, heating, electric wiring and conduits and every detail of the contract. The building will be of fire-proof construction with pressed brick.

A new school building to be erected at the National Orphans' Home of the Junior O. U. A. M., at Tiffin, Ohio, according to plans recently adopted by the State Trustees. The new building will be situated at the entrance of the grounds and will be of brick to correspond with the other buildings of the home. It will be 100x125 feet, and will cost completed \$35,000.

The growth of Toledo this season has been phenomenal and hundreds of buildings outside of residence structures have been erected. Nearly all of the store buildings, investment structures and finer residences have been of brick construction, and the tendency in Toledo building is all towards a general betterment and greater solidity and lasting qualities. Among the many brick structures now under construction or about to be built are the following: A group consisting of a cathedral, parochial school, episcopal residence, chancellor and rectory recently announced by Bishop Schrembs. The cathedral will be an imposing building facing Collingwood and will be Spanish in its style of architecture. The other buildings will be in harmony with the cathedral and large quantities of brick will be used in their construction. A new hotel building to be twelve or fifteen stories in height; a two-story business building to be erected for the Fifty Merchants Company on Erie street, between Adams and Madison streets. This will be a two-story structure with a forty-foot frontage. An \$8,000 brick store building for Dr. Jones on Huron street; a \$2,000 brick garage to be constructed by the Pinkerton Tobacco Company at the company's plant on Council street; a \$6,000 brick flat building on Bush street, by the I. H. Detwiler Company. This will be two stories high and contain four flats. A new theater building on Front street, to be built of brick and stone at a cost of \$10,000; a twelve-story building for the Dime Savings Bank at the northwest corner of Adams and Superior streets. Many other large and important brick buildings are being constructed, notably the twenty-story building of the Second National Bank, the factory addition of the Willys-Overland, which will cost hundreds of thousands of dollars, other factory structures, business blocks and church buildings. Brick is the material used in all these structures. T. O. D.

INTERNATIONAL BUILDING EXPOSITION.

There will take place an International Building Exhibition in Leipzig, Germany, in 1913, which will last from May till October. The area to be covered is 400,000 square meters, which is larger than the last world exhibition in Brussels.

Such an exhibition is timely, and it is not possible to obtain in a general world exhibition a complete insight of the present extent of the building industries which have gone within the last ten years through a high state of development, but still leave possibilities for further improvements and perfection.

Most of the European countries will be represented, and the Americans should not fail to be present, since the European market should not be unestimated or neglected, and doubtless this exhibition will warrant a proper advertisement for American building materials, machinery, etc.

Information, printed matter and application blanks can be obtained from T. W. Garve, 414 Schultz building, Columbus, Ohio.

Written for THE CLAY-WORKER.

CLEVELAND BRICK NEWS.



OPEN WEATHER now in progress in Cleveland promises an exceptionally busy fall for the brick manufacturers and agents in this territory. Contractors are hard at work finishing up their various jobs, and the insistent demand for brick seems as strong as ever. Some of the projects are being held up on account of the slow delivery of steel, but for the most part contractors are fortunate in being able to clean up their work if the open weather continues until well on towards the close of the year.

There seems but little doubt but that this year will equal, if not eclipse, that of 1911, which was far ahead of all previous records. On November 1st, the cost of new buildings erected thus far was \$13,776,306. The total value of buildings begun in the same period last year was \$13,086,123. The increase thus shown is \$690,183. The increase in the number of building permits issued is 751 over a similar period for last year. Several of the largest buildings now under way in Cleveland had their permits issued last year. If the permit for the new city hall is entered in this year's record there will be little difficulty in eclipsing last year's total, according to the present outlook.

Despite the lateness of the season several big new structures are being planned in this city, work on which will in all probability be started the first thing next year. The Hart-Osborn property, embracing about half a city block, and bounded by Superior avenue and Walnut avenue and East Ninth street, has been leased to C. A. Otis for ninety-nine years.

Another big deal closed during the past month was the sale of the Wyandot Hotel property on Huron road and the Ralph King property in its rear, but facing on Euclid avenue. The frontage is 100 feet on each street and runs through. A new building to be twelve stories in height and to match the Hall Bros. building in architecture and material is to be erected. The building already up cost in the neighborhood of \$2,000,000 and has three basements in addition to twelve stories in the air. The new section will be an exact duplicate of the old. The Wyandot Hotel, an eight-story brick building, will be torn down to make room for the new structure in addition to several old houses. The new building will be of brick and white terra cotta, and will be one of the finest mercantile structures in the city. An architect is to be engaged and plans are to be framed during the coming winter for the new building. The old structures will be razed before the spring comes, and as soon as the cold weather will permit the work will begin on the foundation.

St. Luke's hospital, a splendid brick building on Carnegie avenue, is to be enlarged by the erection of a large addition. This has been decided upon by the trustees of the institution, who are now busy raising the necessary funds with which to proceed with the structure. The building will be gone on with according to present plans early next spring.

The Manhattan Theater, an office and theater building on Superior avenue and East 105th street, which has been under course of construction during the past summer, has been completed and opened to the public. The exterior is of buff brick with terra cotta trimmings. It is particularly attractive structure.

A number of Cleveland contractors are preparing to bid on structures to be erected in San Francisco for the Panama-Pacific Exposition, which is to be held in 1915. Controller Friedlander, of the San Francisco Chamber of Commerce, told members of the Builders' Exchange here sev-

eral weeks ago of the plans for the proposed exposition. The company has called for bids on the service building and awarded the contract to a San Francisco builder. Other contracts are to be let early next year and some of the local contractors will bid on this work.

A handsome new apartment house has been opened at the intersection of Euclid and Cedar boulevards, Euclid Heights. The building is owned by the Euclid Boulevard Company and was designed by Architect Godfrey Feugman. The building was constructed of tapestry brick, is four stories high and contains eight suites of ten rooms each. The building was constructed at a cost of \$150,000.

A new \$20,000 brick church is to be erected by St. Peter's Evangelical congregation on Sherman avenue near East Seventy-ninth street. It was designed by Architects Fountaine & Moratz, 1900 Euclid avenue. The structure will be of face brick and have a slate roof. It will seat about 800 persons. The same architects are building a fine structure in Buffalo, another in Chicago, as well as churches in Lima and Canton, Ohio.

On the first of this month the handsome new West Side market house, which has been under construction for six years, was opened to the public. The new building has cost about \$500,000, exclusive of the site, and is regarded as the finest building of its kind in the world, none excepted. There are 110 stalls in the new market, of brick, glass and marble. The exterior is of face brick, with stone trimmings. The stands are of enamel brick, with marble counters and iron fixtures of Verdi green tint. The aisles are tiled. The only wood used in the building are the doors and meat chopping blocks. The building has a large brick tower at one corner, in which there is a clock.

An unusually good example of the beauty of modern face brick is to be in the new plant of the Perfection Spring Company, Central avenue and Sixty-fifth street. The big factory and office building extends a full block on Central and is half a block deep, two stories in height. Little ornamentation was attempted, it being believed that the brick were sufficiently attractive. Wadsworth shale brick was used in the walls, and brick experts say that the building will stand comparison with any other in the city using the same material.

Clevelanders are backing a new \$75,000 theater and office building to be erected in Massillon, Ohio, next spring. Frederick W. Houston and John Evans are the promoters. It is planned to erect a three-story building to seat 1,200. A store and office building will be in front. The new structure will be of brick and will be fireproof throughout. Massillon is the only city of its size in the state of Ohio which has hitherto been without a theater building.

The Rowland Block Coal and Clay Company, of Jackson, Ohio, has been incorporated with a capital of \$100,000 by W. C. Martin, Ira W. Elen, E. R. Roberts, David Armstrong and Ben C. Bently.

During the past month The Canton Press Brick Company, of Canton, Ohio, secured permission from the State to change its name to the Belden Brick Company.

Now comes word that the city intends changing its plan of locating a brick plant at its big 2,200 correction farm at Warrensville. Some of the experts who have examined the clay at the farm have reported against the scheme, although it was said several months ago that the clay was suitable for brick and manufacturing purposes. An ordinance was recently passed by the city authorizing the expenditure of \$11,000 for the brick plant. It is possible that this ordinance may be repealed and the funds used for other work. The city director of charities had planned to use the work house laborers in brick and tile making. It was proposed to use the brick manufactured on city streets and the tile on the city farms and in the city parks. Now it seems as if the plan is all up in the air.

BUCKEYE.

Written for THE CLAY-WORKER.

BRICK NEWS FROM THE TWIN CITIES AND THE NORTHWEST.



OW THAT THE NATIONAL election is over, builders and brick manufacturers and dealers generally have a chance to look things square in the face and determine what the prospects are for the coming season. The election outcome was generally anticipated, and so there seems to be no special alarm felt at the change of administration. General commercial conditions in the Northwest are promising, and that generally means a good outlook for building. In the drain tile business, there should be a good trade, for there has been exceptionally rainy weather in many parts of the Northwest, which has made the urgent need of tile drainage more emphasized than ever. The interest shown at the state fairs in the drain tile displays indicate that farmers as a whole are more inclined to take hold of the drainage problems than ever. They want to know all about it so that they may look into their individual problems.

In building lines, there should be a great revival of the use of clay goods. The mania for concrete in all forms has given every evidence of subsiding. Some of it has subsided because of the obvious lack of satisfaction which has attended its use. Failure, in whole or in part, have shown the limitations of the article, and comparisons with clay wares have been to the advantage of the latter. In silos, this is especially true. Concrete silos are being urged strongly in all the cement publications—and they are many and are distributed with lavish hand. But the construction of cement silos is not holding up. Wherever clay silos of hollow block, either radial cut or the angle cut blocks, have been built and put in service, their satisfaction makes more business on the same line. The cement silo is apt to crack, is bound to be penetrated by frost, and in other ways, is an unsatisfactory investment. But tile plants making silo blocks find it impossible to meet the demand and at the same time keep up with the other requirements of their business.

The agitation against the fire losses, which have marked Minnesota particularly, also tends to urge the use of clay construction. The Minnesota State Fire Prevention Association is an organization composed of insurance men. This body makes inspections of two or three cities a month, going through the business district and looking into the matters of unnecessary fire hazard. Following this inspection, there is a public meeting called in the evening, and the people of the town are told what has been found, and just what should be the situation. While much of their information is on doing away with conditions which lead to fires, there is included recommendations that in building the construction be of a fireproof character. This comes in as a matter of course and not that the insurance men want to advertise the desirability of building of brick construction. But it is such a natural outcome of arguing against allowing the terrific waste of resource through fire, that they cannot help it.

One of the best moves for the furtherance of a propaganda for the use of brick construction was that of the local brick yards of Minneapolis, on the occasion of a display of home-made wares. It was decided to show the goods made in the city. The Minneapolis Civic and Commerce Association took the matter up and interested local manufacturers until there was a showing for the week of over three hundred different goods. But of the entire display, the brick men had the best and most logical. They showed an educational display, indicating the desirability of brick wall construction,

because of its superior worth to exclude the weather, and because of its safety from fire. Sections, showing just a corner, with walls of six, eight and twelve inch thickness, were shown, and attached to each was a card stating how much it would cost to build a house 26x30 feet in size, with walls of that construction. And the astonishing part of it to the public was that the cost ranged only from \$520 to \$650 for walls of six to twelve inches—a statement that was an eye-opener to the general public. This educational feature of the use of brick because of its superior value and its fireproof character, made the display an educational character which raised it above the common run of goods shown. It did not rest upon the plane of being urged because it was a home product, but because of its superior worth, and that fact was emphasized. The brick men of Minneapolis are to be congratulated upon their showing. And if the interest taken in the exhibit is any criterion, they will reap a substantial return, for there was a vast amount of scrutiny and studying the walls as shown. The walls were of the hollow tile, and a section of plaster was shown, to indicate the manner of use, plastering direct upon the tile without the use of furring.

The E. G. Walton Agency, of Minneapolis, recently started the construction of a steel and tile cottage in Walton Park, North Minneapolis. The floors rest upon steel girders, and the exterior walls are of eight-inch thickness, with the plaster upon the walls direct without the use of furring. The inner walls are of Pyrobar, which carry no weight except their own. Door frames are set in 2x4 stud with 3-inch grooves set against the Pyrobar blocks, to which the casings are nailed. The cost of this construction has proved a little over the cost of frame construction, but the same company has started the erection of a somewhat similar building in St. Paul. It will have slightly different walls, and will probably have an asbestos roof. The changes made are expected to make the construction cost of such a building the same as for frame construction. If this shall prove to be the case, it will be a great thing for the hollow tile business. This firm is an energetic one in the construction of dwellings sold on easy terms, and once it gets to building hollow clay tile dwellings, plaster exterior, at the same price as frame houses, there is no room to doubt that the demand for hollow tile for such purposes will increase materially. And the idea will spread, for what can be done in the Twin Cities with hollow clay tile, can also be done in other cities. This pioneer step may be the forerunner of a great building demand.

The Minnesota Employers' Association has recently published a draft of a bill to be presented to the forthcoming Minnesota Legislature for its consideration. There will be a bill from the State Bar Association and perhaps one from the State Labor Department, as well. The subject has been under consideration in Minnesota for four years, but at no time has there been any sort of even approaching unanimity as to the terms. The labor element still holds its attitude toward any bill which does not meet its complete approval. The prospect is that the legislature will have a merry time in considering the proposition this winter.

The Minneapolis Builders' Exchange held a Hallowe'en party October 31, which was attended by 150, with Hallowe'en games and dancing, refreshments, etc. A most enjoyable evening was spent.

Brick In Building News.

F. I. Whitney, of St. Paul, has in view the erection of an elaborate apartment building which may go ten stories. No plans have been drawn, but the structure which Mr. Whitney has in mind is apt to resemble the fashionable apartment houses of London, in Tudor style of construction, with court, driveway entrance, parking and all that.

The South St. Paul Stock Yards Company has taken bids

for the erection of an elaborate bank and office building at South St. Paul. It will be 60x93 feet, of brick and terra cotta, fireproof construction throughout. Cost about \$75,000.

The F. E. Murphy Automobile Company is erecting a garage building at Thirteenth street and Hennepin avenue, Minneapolis, which is to cost complete about \$150,000. It will be 137x144, with enameled brick and enameled terra cotta exterior walls, three stories and basement, with foundation to carry six stories. The Haglin-Stahr Company, Minneapolis, have the general contract. Kees & Colburn, of Minneapolis, are the architects.

An elaborate residence is being erected on the North shore of Lake Calhoun, Minneapolis, for E. C. Warner. The building is 114x65 feet, of matt faced vitrified brick, ranging from dark brown to light cream, laid in Dutch bond, tiled porch floors and numerous other items. Bell, Tyrie & Chapman, of Minneapolis, are the architects.

G. W. Sublette, of Minneapolis, proposes to erect a building of twenty-four apartments of three rooms and bath each, at Third avenue and South Twenty-fourth street. It will be of tapestry brick exterior walls, and Bedford stone trimming. Cost complete about \$50,000.

Charles T. Witt, of Minneapolis, will erect a handsome brick and tile residence, 46x30, with brick and tile mantels, etc., to cost \$12,000. C. A. Boehme, architect. T. WIN.

POINTERS ON PACKING HAY AND STRAW.

Through the courtesy of the Inter-State Hay Company, who claim to be one of the largest shippers of packing hay and packing straw in the United States, we give our readers the following information which may be of value in purchasing packing material.

The Inter-State Hay Company advises that the packing hay situation remains about the same as it has been for the last six weeks, and the indications are that the price on this material will not change very much in the near future, unless the car situation becomes critical, in which event the price will be liable to advance sharply.

In regard to oats and wheat straw, there is no wheat straw to speak of, and at least two-thirds of the oats straw crop has been destroyed by the extreme wet weather; therefore, instead of this material declining in price, as was anticipated at harvest time, a steady advance may be expected and it may be as high as last year. Another reason for straw being high, is the fact that the paper mills throughout the country are paying about \$1.50 more per ton than they ever did before, and as they take any kind of straw, it means that a premium must be paid for sound, dry straw. This firm has shipping points in Indiana, Ohio, Michigan, Illinois and Wisconsin, and the situation seems to be the same in each State.

From the report handed to us by the Inter-State Hay Company, it would seem that there will not be any better opportunity than right now to purchase what packing material will be required. Anyone wishing any further information or are desirous of securing prices on either hay or straw delivered at factory, should drop the Inter-State Hay Company, of Goshen, Ind., a card. They will be pleased to quote prices at all times.

LARGE MAINE BRICKYARD SOLD.

An important transfer of real estate was made the latter part of October, in Brewer, Maine, when the O'Brien brick yard, conducted for years by Hugh and Patrick O'Brien, and owned by Nellie W. O'Brien, of Lowell, Mass., was sold to the Brooks Brick Company, who will use it in conjunction with their other brick yard in Brewer. The yard comprises 37 acres of land and a modern brick making plant, as well as a large boarding house.



Contracts and Specifications.

IN ALL drainage enterprises of considerable size it is well to have contracts and specifications drawn and signed by all parties concerned.

Specifications that are carefully and explicitly drawn will guard against misunderstandings and will serve as a guide in the execution and completion of the work.

Specifications are used to good advantage in building work and in municipal construction of various kinds, and are considered indispensable.

When drawn before the work is begun, they may be studied and will be of value in designing the work and will tend to prevent the necessity of changes and additions and extras after the work has been begun.

Contracts should be so clearly drawn that the duties of each party concerned may be clearly defined. Reference to the contract and specifications will be useful in keeping each party in line and will do much to secure efficient execution of the work, and will act as a check upon dishonesty and a tendency to slight the work and do it imperfectly if the contractor should be so disposed. It should also include times and conditions of payment for work done, so that the contractor may not be unnecessarily embarrassed.

DRAIN TILE USED FOR SUB-IRRIGATION.

J. H. D. Bosse, a Kansas fruit-grower, spent \$3,000 last fall to irrigate his forty-acre orchard through the winter, believing this to be the secret of sure apple crops every year. Six miles of drain tile were laid through the orchard to be used for irrigation. A pumping apparatus will furnish the water for the Bosse orchards.

ALL SWAMP LANDS NOT FERTILE.

Not all swamp land is fertile, although most of it is, and caution should always be exercised in its purchase. There are some portions of the sea coast which have a quicksand bottom, and such lands are and probably always will be valueless, and it may be stated as a general rule that the fertility and desirability of a swamp soil may best be determined by the character of its subsoil. Many ponds and swamps have a subsoil of very light clay, often so impervious that they do not readily respond to drainage. This close subsoil must be broken up and disintegrated before it is fit for growing crops. Some would gradually become mellow by the action of the air that enters after draining and after a term of years would be in good condition. Disintegration could be hastened by breaking up the subsoil with dynamite.

LAYING OUT TILE DRAINS.

It is the work of an experienced man to determine the best location for drains, but we suggest a few general ideas. Remember that it is the purpose to furnish a channel for surplus water to run off before it has had time to injure growing crops or to soften roads.

Tile drains nor open ditches do not "draw" water, as some people seem to suppose. They simply provide a low place

for the water to fall into and run away down hill. With this understanding, drains must be located below the land to be drained. They must be placed in the lowest places. On seepy or springy hillsides it is often necessary to place a drain in the middle of the slough and one on each side well up above the seepy place to catch the water underground before it seeps down the slope and reaches the surface.

DRAINING RIVER BOTTOM LANDS IN MISSISSIPPI.

THE BELZONI DRAINAGE district, embracing that part of Washington County, Mississippi, east of the Big Sunflower river, is representative of a number of similar tracts in the Yazoo delta, which are subject to periodic overflow from the larger streams, or which are too wet for cultivation on account of the lack of drainage. This district was considered a profitable field for investigation by the Office of Drainage Investigations of the United States Department of Agriculture. The results are given in Bulletin 244, from which following extracts are taken:

"The district lies in Washington County wholly within the Yazoo delta, about 130 miles south of Memphis, Tenn., 60 miles north of Vicksburg, Miss., and 30 miles east of the Mississippi river. The Big Sunflower and Yazoo rivers form the west and east boundaries of the district, respectively, while the Washington county line forms the boundary on the north and south. The Choctaw boundary and the Yazoo county line clip the northeast and southeast corners of the district diagonally. The width, north and south, is twelve miles, and the length, east and west, varies between eleven and nineteen miles. The average length is about thirteen miles and the area is approximately 103,000 acres. Belzoni, the principal town of the district, is midway between the north and south boundaries on the Yazoo river. It is on the Yazoo delta branch of the Yazoo & Mississippi Valley railroad and at the south end of the Itta Bena branch of the Southern railway.

"Most of the area is very flat and approximately 74 per cent. of the district is covered with heavy timber and underbrush. About 21 per cent. of the area is under cultivation, 2 per cent. is deadened timber land, and the remaining 3 per cent. is occupied by deep sloughs, bayous, and lakes which can not be reclaimed. Some of these are apparently old river channels, while others are but shallow depressions connected by swales so shallow that they can scarcely be followed, except by noting the character of vegetation rather than by any apparent depth of channel. They are very winding, branching out and reuniting to form a veritable network of obstructed water-courses. The banks of the two rivers and of the larger lakes and deeper bayous have an elevation several feet higher than the general level of the area, having been built up by the deposit of sediment after overflows.

"During stages of high water in the Sunflower and Yazoo rivers the bayous act as intakes rather than outlets and permit the high water from the river to reach and flood the interior of the district. Sometimes when the water has been very high in both rivers at the same time, it has been observed that muddy water backing in from the Yazoo through Little Atchafalaya bayou meets clear water backing in from the Sunflower through Ditchlow bayou, the meeting point being at the head of Gooden lake. During such periods the lowlands in the southeast corner of the district, a tract of about 6,000 acres in the northwest part of township 15 north, range 5 west, and an extensive area in the vicinity of Wasp lake, become flooded to a depth of from three to five feet, while most of the remainder of the district is covered with water several inches deep.

"Both the Yazoo and Sunflower are subject to backwater from the Mississippi river, and the duration of blocked outlets at the mouths of Wasp lake and Ditchlow bayou depends almost entirely upon the high stage of water in the Mississippi at Vicksburg. The Sunflower river and its watershed lie wholly within the flat delta country. It has a deep well defined channel, caused by overflows of the Mississippi in former years, and it has a comparatively uniform flow throughout the year. But the Yazoo has its headwaters

in the hilly country of northern Mississippi and is subject to erratic fluctuations. Some spring freshets coming down the crooked channel of this stream rise above the banks and cause flooding of the lowlands away from the river.

"There is now a movement on foot in the Tallahatchie drainage district of northern Mississippi to divert the Coldwater river, one of the principal tributaries of the Yazoo river, into Horn lake, thence into the Mississippi, thus cutting off a great volume of water coming down from 1,000 square miles of hilly watershed and preventing it from ever reaching the Yazoo. When this plan is carried out, the flooding of Washington county, due to freshets coming down the Yazoo river, will cease, and there will then be only backwater from the Mississippi to contend with. It is also probable that the Mississippi river levee, which now ends at a point fourteen miles above Vicksburg, will be extended southward to the mouth of the Yazoo, and when this takes place the effect of backwater will be entirely eliminated."

Parties interested are referred to the bulletin, which gives, in addition to the above, description of soils and crops, the survey, rainfall and run-off, plan for drainage, map, profiles, etc.

HIGH SCHOOL CONSTRUCTED OF WATER STRUCK BRICK.

The new Waterville high school, erected at a cost of \$100,000, is now being completed, and, although it was first thought that it would be ready for the pupils with the opening of school, on September 16, it has been found that the



High School, Waterville, Me.

work necessary on the interior will take until January 1, 1913. This is one of the best schools in Maine, and a distinct credit to the city of Waterville. It is built of water struck brick, made by the Horace Purinton Company, of Waterville.

It was probably longer in the building than any other modern edifice of its size in this state. Started about two years ago, it was found last year that the structure had been erected on quicksand, and costly repairs were found necessary to make the foundation secure.

BBICKMAKER'S SON.

SALT GLAZE ART POTTERY EXHIBIT.

The School of Industrial Art, Broad and Pine streets, Philadelphia, has opened an exhibition of art pottery, the work of the students of that institution. The various objects are in "salt glaze," that brownish gray ware familiar to generations of American housewives, and which have never been decorated except in the crudest smears since the Colonial days. The jars and pots were turned on a wheel, and while yet unbaked were adorned with scratch-out designs, or, in some instances, the design was left in relief while the rest of the surface was lowered. Color was then applied, smalt for the rich, dark blue, iron for the chestnut brown, and tin or white clay for the whites, and the whole fired. The glaze, which is placed on by intense heat, is the toughest that can be produced on clay. The exhibition is attracting concis-

seurs from all parts of the State and many art lovers from other cities. There is also exhibited some forty different specimens of Italian majolica, reproductions made from old Spanish and Italian pieces in the museums of Italy, by Cantagalli, of Florence. These have been made especially for the school and are the gift of John T. Morris. Many of these jars were originally made for the signoras of royalty and bear their coats of arms. Two large jars, costing approximately \$100 each, were presented to the school by Mrs. James Mifflin.

Written for THE CLAY-WORKER.

AMONG PHILADELPHIA BRICK YARDS.



THE BRICKMAKING PLANT of Richard C. Remmey Sons Company, which was destroyed by fire on October 25, and damage done to the extent of \$50,000, will be rebuilt immediately. The Remmey brick business is the oldest in the United States. Every building which the company owned, with the exception of the offices, in which many valuable papers were stored, was destroyed. The Remmey plant covered about eight acres of land and has been enjoying the greatest prosperity in the history of the business. R. H. Remmey, a member of the firm, said, "We will start rebuilding at once, our prospects are good and all the men employed in our establishment will not be without work very long. We have had several fires but this is the worst. In the past twenty years our loss from fires has been about \$2,000,000."

The Remmey Sons' firm has been under the management of the same family for almost two centuries. It was started in England but was moved to this country in 1672. Until 1840 the plant was located in New York, but in that year the firm moved to Kensington (Philadelphia), where it still operates a plant at Cumberland street and Armingo avenue. The plant destroyed by fire is a comparatively new one, having been built not more than seven years ago.

Work is progressing rapidly on the site of the new Milton Brick Manufacturing Company's plant, Milton, Pa. The mammoth structure is being pushed to completion with the hope that the company may be able to supply the trade which is clamoring for brick to complete building operations which are contracted to be finished before February 1. A culvert under the Pennsylvania Railroad through which shale will be conveyed to the plant is now in progress of construction.

The Penn Tile and Mantle Company, of Reading, has been awarded several large contracts for municipal work at Lebanon, several for the Commonwealth and is enjoying unprecedented prosperity.

Cyrus Borgner, president of the Borgner Firebrick Company, Franklin M. Harris, of F. M. Harris Company, and Thomas F. Armstrong, of the Conkling-Armstrong Terra Cotta Company, were members of the committee which represented thirteen leading business organizations of Philadelphia and appointed to entertain the three hundred members of the International Chamber of Commerce on the visit to this city. These distinguished foreigners spent a few days inspecting the many industrial establishments of the Quaker City. Mayor Blankenburg greeted the men, speaking his words of welcome in three languages, German, French and English, and impressed the visitors so forcibly that several replied that they would instruct the jobbers and manufacturers of this city how to bid more favorably for the trade of the world—and get it.

Herman Voight has the contract for the erection of a \$55,000 bank building at Twenty-ninth and Dauphin streets, Philadelphia. The material used will be terra cotta.

Joseph K. Marshall and Edward F. Gorman are making

preparations for the erection of fifty six houses on Catherine and Webster, Fifty seventh and Fifty eighth streets. The houses will be built of bricks and contracts for the furnishing of material will be let in the near future.

The scarcity of labor has become so serious in Allentown, Pa., that building operations are almost at a standstill. It is not the labor alone that is scarce, but material also; this in turn being scarce on account of lack of labor. The city has undertaken the construction of buildings amounting to millions of dollars, the record year in the history. During the last three months in connection with the scarcity of labor the material has become hard to get. This is especially true of bricks. Bricks have become so much in demand that builders welcome the sight of a wagon load. One brick firm alone has orders for 5,000,000 for the rest of the year, which is a larger number than it can manufacture. This condition applies to every city and town in Pennsylvania, the pioneer brickmaking state. The only building material of which there is sufficient quantity and which is not nearly so much in demand as brick, is cement, and that is twice the price of a year ago.

The taxpayers of Philadelphia have voted for a \$7,000,000 loan bill, two thirds of which will be used for improvement of streets and sewers, and the materials used will be products of clay. This is the largest and most comprehensive bill for the purpose ever attempted by the City of Philadelphia and is one of the results of the aggressive Mayor and his progressive administration. Bids for the work will be advertised for in the near future and it is anticipated that more contractors from out of the city will respond as usual.

Dr. William P. Wilson, Director of the Commercial Museum, Philadelphia, the only institution of its kind in the world, has given out a statement to the brickmakers in the State of Pennsylvania in which he says that a wonderful trade awaits the manufacturer of this State on the opening of the Panama canal. The statements of the director are based on figures not only from the South American countries, but from all the important Central and Western American states. The brickmakers of this district have nearly all contemplated the immediate erection of more plants in the course of the year, labor conditions permitting.

The Barrett Manufacturing Company, roofing and paving materials, has awarded contracts for the erection of warehouses in several parts of Philadelphia. The business has reached such proportions that new property will be acquired as rapidly as possible.

J. Parry Lukens, Mint Arcade, Philadelphia, is assured of a greater amount of business for vitrified pipe and hollow brick than at any other winter season since the establishment of his business. Very healthy orders continue to come from the South and the home business has reached great proportions.

The Chambers Brothers Brick Making Machinery Plant, Fifty-second and Media streets, is enjoying a season of unprecedented prosperity. The plant is not suffering from the shortage of labor, as is the case all over the State.

Edward Stokes, 1208 Harrison building, has orders booked that will keep him busy for the remainder of the winter season. The orders do not come in "bunches" from the South as was the case a few months ago, but are evenly divided throughout the immediate districts. A. QUAKER.

The Woodland Clay Company, at Woodland, Ill., has just booked a large order for their Wyco drain tile to be delivered at Saskatchewan, Canada, which is the direct result of their large exhibit at the Clay Products Exposition at the Coliseum last March. Although the company's plant has only been in operation about a year, they are shipping tile to Iowa, Missouri, Minnesota, Wisconsin and northern Michigan. In order to meet the demands for its products the company contemplates enlarging the plant so as to increase its capacity.



OFFICIAL ANNOUNCEMENT.

The Twenty-Seventh Annual Convention of the National Brick Manufacturers' Association, to Be Held at Chicago, Ill., March 2 to 8, 1913.

IN DEFERENCE TO the resolution adopted at the final session of our last convention, "That it was the sense of the meeting that the next convention be held in Chicago," and the further urgent appeal by the officers of the Building Brick Association of America, and other allied organizations, for a meeting there in conjunction with the second National Clay Show, it has been decided to hold the next convention in Chicago, March 2 to 8, 1913.

This is the first time the Association has ever met in the same city twice in succession. The occasion for breaking the rule of meeting in different sections of the country each year, which has prevailed since our first convention twenty-six years ago, is the desire on the part of many of our members to encourage and support in every way consistent the great publicity work undertaken by the promoters of the Clay Products Exposition. The importance attached to this movement is indicated in part by a resolution recently adopted by the directors of the Building Brick Association, which is as follows:

Resolution Adopted by the B. B. A.

"Whereas, It is the sense of this meeting that the general interests of the clayworking industries require that the meeting of all clayworking manufacturers be held in Chicago simultaneously with the proposed Clay Show. Now, therefore, it is

"Resolved, That it is the sense of this Board of Directors that the B. B. A. shall not in any way interfere with the present officials and policy of the N. B. M. A. at its next meeting, provided the next meeting and the annual convention of the N. B. M. A. be held at Chicago during the proposed Clay Show this spring, and furthermore, that the President of this Association is hereby requested to communicate with the Secretary of the N. B. M. A. and use his best efforts to have the next convention held in Chicago."

This sentiment favoring a policy of non-interference with the procedure of the N. B. M. A., has subsequently been concurred in by the officers of the American Face Brick Association, the Ohio Face Brick Manufacturers' Association, the Chicago Face Brick Association, the Chicago Clay Club, and most of the leading clayworkers of that city, including William P. Varney, Hydraulic Press Brick Company; H. L. Matz, and L. D. Binyon, S. S. Kimbell Brick Company; Thomas C. Moulding, Moulding Brick Company; F. G. White, Jenkins & Reynolds Company; H. G. Bonestead, Meachim & Wright Company; Charles Bonner, Bonner & Marshall Company; E. W. Carmack, Wisconsin Lime and Cement Company; O. C. Bach, Bach Brick Company; William Schlake, Illinois Brick Company; and R. C. Penfield, President Clay Products Exposition Company.

Such an urgent appeal cannot be resisted, and while some of our members have protested against "playing a return engagement" at Chicago, stating that the convention is their

annual holiday, and they want to continue the practice of visiting different cities from year to year, we are convinced that for this once this rule may well be broken, and that the interests of the clay craft generally will be advanced by another joint meeting in Chicago. Accordingly, we urge all the affiliating bodies to arrange for meeting there at the time named.

Annex Hotel Headquarters.

As before, the convention sessions will be held in the Annex Hotel, which will be official headquarters. The unexcelled facilities afforded during the last convention is a guarantee that every convenience possible will be provided, including convention halls for various associations, reception and entertainment rooms, etc. Those desiring rooms for exhibition purposes are requested to communicate with the Congress Hotel Company direct, stating character of accommodations desired, and the time for which they are wanted. In this connection, it should be borne in mind that the Clay Show opens February 26, and continues until March 8. The officials of the Clay Show announce that the second exhibition will far excel the first, both in extent and high character of displays, and while that may seem impossible to those who last spring marveled at the beautiful exhibits of clay products, the like of which had never been seen before, it is predicted that, profiting by last year's experience, a still greater and more charming exhibition will be staged in the Coliseum next March.

All allied organizations, whether of manufacturers or dealers in clay products of any sort or character, are cordially invited to hold meetings during the exposition period, and ample accommodations will be afforded each and all. The executive officers of other organizations are requested to communicate with Secretary Randall relative to time of meetings, etc., in order to avoid any conflict in dates or the interference of one organization with another.

Our members are invited to suggest topics for discussion and subjects for formal papers for the program, touching on various important phases of the business in which they are interested. Those desiring information as to requisite of membership in the N. B. M. A. or other particulars as to the convention or exhibition, are requested to address the Secretary at Indianapolis.

THE EXECUTIVE COMMITTEE,

CHARLES A. BLOOMFIELD, President.

THEO. A. RANDALL, Secretary.

OHIO TILE MEN TO MEET IN COLUMBUS DECEMBER 10-11.

The convention of the Ohio Tile and Clay Products Association will be held at the Ohio State University, Columbus, Ohio, December 10 and 11. For program and additional information write the secretary, Mr. George Drennan, Plymouth, Ohio.

OMAHA BRICK MEN TO CELEBRATE.

Sunderland Brothers' Company, one of the largest brick dealers and building supply houses in the West, has issued invitations for a "Reception and Office Warming," November 16, at their new offices at Seventeenth and Harney streets, Omaha, Neb., when they will celebrate the company's thirtieth birthday anniversary, as well as the completion of their beautiful new general offices, which embrace the entire third floor of the new Bank Building. The affair is to be strictly informal, but with genial Ralph Sunderland in charge of the arrangements, it is safe to predict that there will be "something doing" worth while, and that it will be an enjoyable occasion for the fortunate participants.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Mexicans Make Poor Brickyard Workmen.

Editor THE CLAY-WORKER:

Enclosed find check for \$3.00, for which please send me one of the Post fountain pens and renew my subscription for another year. We are very busy, in fact, are behind in our orders. Labor is a very scarce article down here, nearly all of the work being done by Mexicans. They are slow workers, as a rule, and besides that, are not to be depended upon, come to work one day and not show up the next. When I first came down here I could get laborers for 75 cents a day, and now I pay \$1.25, and they do less work. If I could get some real good, steady brickyard workmen, we could accomplish so much more. We have no winter here and very little rain, so we can work the year around. Drain tile business will open up soon, as we are now working on the ditches to give the farmers an outlet for their tile. With best wishes, I am yours fraternally,

C. E. BAUDISCH.

Texas.

A Thriving Brick Plant in Dixie Land.

Editor THE CLAY-WORKER:

You will probably be interested to know that I am now superintendent of the Borden Brick & Tile Company's plant at Goldsboro, N. C., having come down here from Maryland about a year ago, and helping with the erection of the plant, which is located on a rich cotton plantation adjoining one of the most thriving little cities of the South. The company owns six hundred acres of fine red burning shale, six feet deep, free from gravel or stone. It is fine shale to work with, as it does not crack in drying and shrinks but 6 per cent. in burning to vitrification. We use a Thew Automatic shovel to dig the shale. The plant is equipped throughout with J. C. Steele & Sons machinery, with the exception of a Fate feeder. We only have 50,000 kiln capacity, but we expect in a short time to erect another kiln of 25,000 capacity. Sell all the brick we can make for \$7.50 at the plant. F. K. Borden is president of the company, and F. R. Daniels is secretary and treasurer.

Hope to meet with you at the next N. B. M. A. convention wherever it is held. Was too busy to get away last year, but do not want to miss another convention for a long time.

CHARLES A. LANO.

Binding Material for Siliceous Earth.

Editor CLAY-WORKER:

We are seeking a good binding material for siliceous earth. It must be light of weight, of low cost and fire and waterproof after once hardened.

Can you give us any information in this connection.

WM. H. SCHEEL.

Columbus, Ohio, Sept. 20, 1912.

Dear Randall:

Mr. Scheel has not given much data to work upon. The siliceous earth could be bonded with white cement, which would be waterproof, and in some measure fireproof, and cheap, but it would not be light in weight.

Another method of bonding would be to use a highly

plastic clay as a slip, such as ball clay. A mixture of the earth with this slip and molded into blocks could be burned and the block would be fireproof and would resist disintegration by water, but would not be impervious. The block would be relatively light, and, as for cheapness, that is simply a question of degree. What would be cheap for one product would be prohibitive for another.

The using of dextrine on any material of that character would not give fire-resisting qualities and is out of the question.

The sand-lime method could be used for bonding material. The addition of five or more per cent. of slaked lime in suspension and pressed into blocks, then steamed under high pressure, would give a permanent bond. It would be fireproof and waterproof but not impervious, and the weight would be no more than that of the siliceous earth.

It may be possible that silicate of soda could be mixed with the material, with perhaps the addition of a little dextrine for temporary bond, then by drying the silicate of soda would harden and bond the material.

In order to give any information in regard to this we should know more definitely what he wishes to do and what he considers fire and waterproof and cheap.

Very truly yours,

THE RICHARDSON-LOVEJOY ENGINEERING CO.,

By Ellis Lovejoy.

Building and Brick News from Detroit.

Editor THE CLAY-WORKER:

Building permits issued by the Department of Buildings for the month of October amounted to \$2,544,005, exceeding the same month of last year over \$1,000,000, consisting of 540 new buildings and 240 additions.

The amount is exceedingly large considering the fact that permits were issued for only a few large buildings, and the remainder being made up of apartment buildings, stores, residences, additions, etc.

General conditions in the city of Detroit are somewhat better at this time, owing to the fact that some of the larger buildings are now nearing completion and mechanics are more available, while building material firms are pressed to the limit, deliveries are being made more promptly.

The common brick situation, which has been a source of much handicap this season to the contractors, is likewise much relieved, but all manufacturers are running to their full capacity.

The common brick manufacturers in this city are at this time confronted with a serious problem, as it is understood that oil used for burning brick can not be supplied in quantities desired, and the brick men are discussing ways and means to overcome this situation.

WOLVERINE.

Dr. Converse Retires From the Brick Business.

Dear CLAY-WORKER:

You will doubtless be surprised to hear from me, especially the kind of letter that I am going to write. It is not an obituary, as at this writing I am unusually well and enjoying life and all of my surroundings to a wonderful degree. I thought I would take time by the forelock and let THE CLAY-WORKER and all of my friends who read that journal (and I know there are a host of them) know that I have ceased to be one of their number in the mud mixing industry.

I never was a natural born clay worker, although I use to occasionally put on a bold front and try to make believe that I knew something about it. I was born and raised on the farm, taught school, graduated in medicine and surgery and practiced about fifteen years. My work as manufacturer of brick was wholly accidental. On account of having purchased some stock in a paving brick plant, the lot fell to me to run it as a punishment for having inveigled a few others into the project. I have run The Springfield Paving Brick Plant for

the last nineteen years, and got to be such an expert at firing, and being fired, that I began to fear that I might be put at the furnaces in the next world. To make a long story short, I have sold out my interest and the plant has gone, I trust, into better hands.

I am dropping you this line to tell you and all of my friends how much I have enjoyed the acquaintance that has ripened from year to year, on account of seeing their names frequently in THE CLAY-WORKER and their faces from time to time during the years, but especially at the annual meetings where we had so many royal good times.

I would not dare to mention the names of any of these good fellows lest I should leave out the name of some one especially dear to me; but this I can say with all truthfulness, that I can count as many warm personal friends amongst the clayworkers as in any other walk in life. I want to improve this opportunity to not only thank the publisher of CLAY-WORKER for the many kindnesses shown me, but every one of my acquaintances for their kindly sympathy, courteous treatment and valuable advice, for all of which I am under lasting obligations.

I am going back to the farm to spend the remaining days

to make a cut of it and put it in The Clay-Worker at any time, you may have the privilege of doing so.

You will probably be interested in conditions and business in this part of the country. The outlook for business was not very bright in this part of the State during the early summer, for the reason that we had a dry season last year, and it was dry again during the hot months this year, hence the farmers did not do the tiling they would have done had the ground not been so dry, for they seem to think they can get along without tiling when it is dry, which is, of course, a great mistake. However, we are having a good trade this fall, which we were wise enough to get ready for by making every tile we could during the summer and stacking them up on the yard. Last spring was the only time in the history of the yard that we had ever had any tile on the yard when spring came. It has always been a hard job to supply the demand for tile as fast as they were wanted, and until this spring we had always been behind with our orders. The Hedrick Tile Works being the oldest in the State, with a reputation for making only first-class tile, gives us the advantage over others, and we ship tile all over the State, even where there are other factories, which speaks well for the quality of our tile. Our prices are good, being \$16.00 for



The Hedrick Brick and Tile Works, Hedrick, Iowa.

which may be in store for me, that I may bask in the warm sunshine that makes the agricultural products spring forth to feed the world.

I have done something towards making the world a little more habitable with paved streets and comfortable brick houses, and now I am going to try and feed some of those same individuals and see if I cannot win a smile out of the other corner of their mouths.

I shall not bid adieu to my old associates in the clay industries, for I shall expect to see them oft and talk over other days, but simply an adieu to the industry in which we have mutually taken so deep an interest heretofore.

May success crown your every effort and real happiness be your reward.

Sincerely yours,
Springfield, Ill., Nov. 12.

A. I. CONVERSE.

Oldest Tile Factory in Iowa Busy and Prosperous.

Editor Clay-Worker:

Enclosed please find \$2.50, for which send me The Clay-Worker pocket kit and The Clay-Worker for one year, as per your offer received recently.

I am to-day sending you under separate cover a view of the oldest tile factory in the State of Iowa, and if you wish

4-inch tile, and has remained at this figure for a number of years.

With best wishes, very truly,

Manager Hedrick Brick and Tile Works.

Hedrick, Iowa.

BRICK MEN MADE LAWMAKERS.

The cry that business men should take a more active and personal interest in the lawmaking of the nation and the states, has been heeded by two members of Chicago's fraternity of brick material dealers—Hon. John J. McLaughlin and Hon. Benjamin M. Mitchell, president and general manager, respectively, of the McLaughlin Building Material Company, who have just been returned to the House of Representatives of the Illinois General Assembly by larger majorities than ever before. Mr. McLaughlin, who represents the nineteenth senatorial district, is being urged to become a candidate for Speaker of the House. Mr. Mitchell, who represents the twenty-first district, is being talked of as chairman of the important Committee on Manufactures, over which Mr. McLaughlin presided in 1909. It is in such places of responsibility and importance that the need of level-headed business men is most felt, it is said.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.



ALL THE HACKENSACK yards have been running through the season, though not all have run full during the entire summer. The labor question has not troubled as much here as it has in New York state, though the Hackensack makers have suffered to some extent. The price has been well maintained and the season has been considered fairly prosperous.

Unprecedented warm weather for the season has enabled most of the New Jersey makers, particularly those in the Hackensack section, to continue operations at least six weeks longer than usual. Some yards have turned out two burnings since the time when the season usually closes. The last burnings are in the sheds as these lines are written, and still it has not been cold enough to freeze.

High prices for laborers have been paid. That much has been inevitable, though again the disturbance has not been as serious as in some other places. So take it all together, Hackensack makers are reasonably well satisfied with their season and will put their plants into winter quarters with the comfortable sensation of fair prosperity.

L. B. & M. B. Gardner have operated their plant to about full capacity up toward the close of the season. They turn out in the vicinity of 20,000,000 each year and shipments are made down the river in schooners. By the way, they are about the last to maintain schooners, practically every one else on the river has adopted barges and tugs come up-stream for them. This is quicker and shipments are heavier. Toward the last of the season the pits where they were working started to slide and the clay softened until the workmen called it muck and operations had to be stopped. It was too soft to handle. The one thing which the Hackensack people have to contend with in getting their clay is that the surface of their beds are about on a level with, or below the level, of the water in the river at high tide. The result is there is a continuous seepage of water which has to be pumped out. Pumps are going in most of the pits all the time. Occasionally the difficulty becomes even more serious, the clay softens and slips slowly into the pit, as it has done in this instance, and become little better than soft mud. Then, of course, operations have to be stopped, and beds have to be uncovered elsewhere. The pumps and their operation add to the cost of obtaining the raw material and sometimes it is difficult to secure a sufficient price to compensate for the outlay.

The fuel proposition has been a problem which has puzzled makers. The price of coal has advanced steadily all the season and is now higher than it has been in years. Some plants have put in grates suitable for using wood, and the last burnings have all been with wood. Huge piles are heaped around the sheds now, which are being augmented daily as the great loads are hauled in from neighboring farms, or come up the river in boats and barges. It is clear that unless relief is found before next season the kilns will all be run with wood, a return to the old days when coal was never thought about. One workman said he would just as soon have wood as coal so far as the burning value is concerned, but the coal is easier to manage. Wood requires more attention to prevent burning down and losing the fire, otherwise there is no difference.

Shipments have been active from the Hackensack region of late. Barges and schooners, and the old-time row barges, whose huge oars require two men to handle them, have been called into requisition to move the brick up the river to the railroad siding, where they can be loaded into cars. This

section has been hampered in its development these later years because it has no railroad siding. Slow and laborious work is required to get the brick from the lower yards up a mile or so of river to the siding near Ridgefield Park. Schooners were the only means of transportation in the early days, but, of course, recently, there have developed methods upon land and water which have been more profitable, because quicker, than the methods of the fathers fifty or sixty years ago—and it was even earlier that the original Merhoff came here and opened the first brick yards. Since then everything has changed, but still they mine clay in the same way, and still they transport brick to market down the river in the same schooners.

Along the Raritan river the brick industry is developing very rapidly under the stimulus of New York prices, which have been paid almost uniformly all the season. Heretofore it has been difficult for New Jersey makers to secure New York prices, but through a sudden turn of fate or fortune; it is all the same which, there has been a change and the market has moved up accordingly. Meanwhile, astute makers, appreciating the value of the immense market so near them, have developed their plants, installing labor-saving apparatus and placing their entire business upon a more modern basis. The effect is to be noted as beneficial to the industry there and elsewhere in the state. Conditions have improved and the business done has increased, while plants, formerly small, have expanded and are still growing in size and number of brick turned out.

Building permits in New Jersey during the week closed the middle of November, fell off seriously, as compared with the previous week, and as compared with the corresponding week last year; but for the month of October there was a gain, as compared with September, and a gain as compared with October, 1911. The year so far shows an increase, though it is not up to what was expected. Various influences have contributed to keep down the total, though probably the principal one is the high cost of building materials, which makes it hard enough to build. Very many are refraining, hoping there will be a reduction in price before very long. The advent of lower prices would undoubtedly lead to considerable expansion in building projects and operations. Not much encouragement in the outlook this fall, however.

Cement and hollow tile seem to constitute the favorite combination in the erection of moderate and high-priced dwellings. The coating of cement is very thin on the outside, just enough to cover the tile, or hollow block. Really, the buildings are hollow block and a great many of them have been erected in the New Jersey suburbs during the past year. They are fireproof from the outside, reducing the fire hazard and the insurance rates and they afford a secure form of material for construction, practically indestructible, excepting from causes over which man has no control. The brick maker would be better satisfied if there was some adherence to the manufacturers' slogan, "Build with brick," but even if this is not true, the adoption of hollow block construction is, perhaps, a substitute which would compensate in some degree for the neglect of brick or other forms of burned clay for the exterior.

Some counties have plenty of money, apparently. For example, here is Bergen county, whose freeholders at their last session, voted the reconstruction of a mile of road in a certain section at the tidy sum of over \$70,000. The state of New York is credited with possessing reasonably good roads, yet \$4,000 and \$5,000 per mile in the worst sections is considered ample. Years ago when Massachusetts began its comprehensive system of highway construction, there was consternation when \$10,000 was paid for a mile in the western part of the State, which included a troublesome clay bank that had a habit of sliding into the river forty or fifty feet below, every spring and after heavy rains. It was necessary to build a high retaining wall to bedrock to stop the

sliding. Bergen county is to pay seven times that for a comparatively level road one way, though there are two moderately heavy grades in this mile which are to be somewhat reduced. Previous to the election, just over, there was a good deal of discussion regarding high prices for roads and the county engineer was made the goat for the freeholders. It isn't easy to determine just how one man was able to dominate the votes of a majority of thirty-two, but he was credited with doing it, and the election of the county commission, consisting of seven members, really hinged upon the retention or discharge of this same county engineer. The only way that this has any connection with this story is that the county engineer is charged with awarding this contract to some of his friends, hence the extraordinary price for a mile of road.

Written for THE CLAY-WORKER.

NEW YORK AND VICINITY.



CUSUALLY WARM, clear and dry weather all through October gave makers, perhaps, three additional weeks in which to make brick. The result was that the Hudson river makers took their crews off the boats, and every other available man, and put them at work in the yards getting ready another burning.

One extra, as compared to most years. Some years everything has been frozen by the first days of November, but this year that paralyzing influence was delayed and operations were still in full swing when the election occurred.

So far as quantity is concerned the Hudson River manufacturers have not produced as much as they might have done, neither will they have left for future distribution as many as ordinarily when the season closes. Using the men of the crews to help on the yards to secure the last opportunity to prepare a burning, has retarded shipments somewhat, though not enough to make any difference in either supply or price.

The figures remain around \$7.00 for Hudson River common, but a change is expected by the middle of November, when, it is believed, an advance will occur. In nearly all instances buying is comparatively light at present; the general situation in building and preparations for building calling for no particular development of buying. A sharp watch is maintained over the market, however, and any indications of an upward tendency would tend to increase buying.

One factor in reducing the output and keeping the supply down in the New York district, was the shortage of labor. It has been impossible to secure sufficient labor unless an exorbitant price was paid, consequently some yards have not nearly approached capacity. In some instances the price asked by labor was so high that nothing could be done, and the manufacturer has suffered all the season. And now, at the close, when he wants to get one more burning, he is obliged to stop the operation of his shipping facilities in order to supply the men to stack and do other work about the yards.

Shipments from Connecticut ceased last month, but it requires only an advance of a few more cents a thousand and Connecticut brick would come over the dividing line as rapidly as manufacturers could get them there.

New Jersey shipments arrive freely, but they are offered at the same price as the New York output, hence there is no objection to them. It must be remembered, however, that New York makers do not, as a rule, look altogether favorably upon these same New Jersey shipments. Those from the Raritan section are a menace which is assuming more formidable proportions each year.

Apparently, the results of the election have exerted no influence upon the situation. Building and contracting is pro-

ceeding as usual, and there are those who incline to the opinion that business will be even better now that the momentous question is settled for the next four years.

BURTON.

NEWS FROM THE PITTSBURG DISTRICT.



MUNICIPAL IMPROVEMENTS calling for an expenditure of \$3,400,000 were authorized by the voters of Pittsburgh in a bond issue election November 5. The bonds will be offered for sale early next year and the work will be started in the spring. An immense quantity of brick and terra cotta will be used in this new construction. The details follows:

Extensions to water system.....	\$1,620,000
Improvement at city poor farm.....	840,000
Abolition of railroad grade crossings.....	420,000
Public comfort stations and fountains.....	90,000
Improvements at municipal hospital.....	90,000
New market house.....	340,000
Total.....	\$3,400,000

Twelve questions were voted on at the bond issue election, among these being a proposition to issue bonds in the amount of \$900,000 for the erection of a sea wall of concrete on the downtown river front. This question was rejected by the voters, but, fortunately for the brick men and contractors, all the buildings calling for brick in the construction have been accepted by decisive majorities.

The Cambria Clay Products Company, of Black Fork, Ohio, is ready to begin business. The concern plans to make a feature of mining clay and the manufacturing of clay and tile. The company has been chartered with a capital stock of \$75,000. The men interested in the venture are E. J. Daehler, S. Reitz, G. M. Appel, D. D. Davis and S. Labold.

The Horwell Brick Company, of East Liverpool, Ohio, which took over the brick manufacturing company of Hill & Wallace in that city, has started the manufacture of a white face brick for building purposes—the first of its kind made in that section of the State. A vein of clay, said to equal the Kittanning product, has been discovered and will be used in the new line.

The construction firm of Wise & Zollers, of Donora, Pa., has begun the brick and terra cotta work on the new \$40,000 State Normal School at California, Pa.

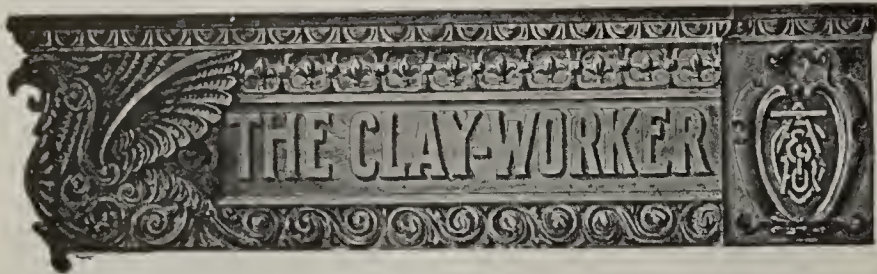
Plans have been prepared for a Philadelphia architectural firm for a new brick building for the Johnstown Young Men's Christian Association. The structure will be fireproof and will cost about \$200,000. The building will be 72x124 feet and will contain dormitories, reading rooms, a chapel, gymnasium, swimming pool, restaurant, etc. Red brick will be specified.

Fifteen new kilns are being created at the plant of the National Motor and Supply Company at Gibonsburg, Pa. The growing business of the company required the increase of capacity.

The contract for the brick for a new \$60,000 public school building in Canonsburg, Pa., has been awarded to the Block Brick Company, of Washington, Pa.

Robert McLane, aged 75 years, a well known brick and pottery operator, died October 28, at his home in Rochester, Pa. He was a native of Pittsburgh, and first engaged in the brick contracting business in the Beaver valley. He was the promoter of the Keystone Pottery Company, at Rochester, and president of the Keswick China Company. He was president of the Beaver-Brighton Bridge Company, a director in the Big Beaver Bridge Company, and took an active part in several other large corporations.

A. SMOKER.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-NINTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

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Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis

STATEMENT OF THE OWNERSHIP, MANAGEMENT, ETC.
of THE CLAY-WORKER, published monthly at Indianapolis, Ind., required by the act of August 24, 1912.
Name of Editor and Business Manager, Theodore A. Randall, Indianapolis, Ind.
Assistant Editor, James E. Randall, Indianapolis.
Publishers, T. A. Randall & Co., Indianapolis.
Owners and stockholders are Theodore A. Randall, James E. Randall and Denton F. Billingsley, all of Indianapolis.
Known bondholders and mortgagees, etc., none.
(Signed) James E. Randall, Secretary.
Sworn to and subscribed before me this 30th day of September, 1912.
(Signed) Louise Porter, Notary Public.
[Seal] My Commission expires February 12, 1913.

Vol. LVIII. November, 1912. No. 5

CURRENT COMMENT.

Betting is always more or less foolish, and when it is a freak election bet it is more so.

Let everybody lend a hand or a shoulder now and help push the prosperity wagon along.

Hollow tile for well construction is making quite a noise in the building world, even though it is something of a noise deadener itself.

Our native turkey crop may be a bit short, but the pumpkin crop makes up for it, and there is lots to feast on for this year, even if it does come high.

Both roofing and flooring tiles are finding favor these days, and a much larger trade in each is only a matter of boosting. The Clay Show is a fine opportunity.

When there is an attractive brick building goes up in your community get a picture of it and print it in your local advertising, for it will likely help inspire some one else to build with brick.

A brick paved roadway is like a brick house, in that it may take time to lead people up to the idea so they will

take hold, but once they get it they are mighty proud of the fact.

It looks like the Terrible Turk has been robbed of his terrors, and there are probably many who will breathe a sigh of thankfulness over the fact.

That the last Clay Show was a winner there is no question, and with that experience to start from, the second attempt should be a sort of two-time winner.

No matter how well any man in the business has done this year, there is a perfectly natural desire to do better next, and right now the chances for it look good, too.

When you find it pays to use steam shovels instead of horses and scrapers for excavating the ground for buildings, surely the brick man can find where such a shovel will pay him, too.

There is a reason, several of them in fact, for holding the next convention in Chicago during the Clay Show, March 2 to 8, 1913, as the reader may see by reading the Official Announcement on page 531.

There are now tales of scientists applying electricity to children to make them brighter mentally and hardier physically. The next thing we know some one will be offering an electric hustler for tardy and slow moving men, so that work will become a sort of ragtime pleasure instead of a weary drag.

THANKSGIVING.

Let Us Be Not Too Long-Faced or Dogmatically Ceremonious, but Comprehend in Heartfelt Joy, and Give to Him Our Thanks.

When, after the harvest of 1621, Governor William Bradford, one of the Pilgrim fathers who had been through hard and trying struggles since landing the previous year, proclaimed that a day should be set apart and devoted to giving thanks to the Creator, he was building even better than he knew. He was not likely thinking so much of those who were to come after, and what observances might obtain in the future, as he was of the immediate fact that the colony had been blessed with a crop that assured safety from starvation during the winter, and through that the establishing of permanent homes in the new and free land. But it was this act of his that has become one of the greatest and best habits of the greatest nation the world has ever known. And it has linked together with strong ties America, the home and the religious thought and observance of the world.

Thanksgiving day carries with it thoughts of home, and especially of the old farm home—carries these thoughts so strongly that all those who have home ties back on the farm try and get back there to observe the day. The farm home is the backbone of the nation, and it is the crop from it that gives the strength, and furnishes the leisure and the inspiration for the great mechanical development, which in turn helps increase the crops and gives the crop grower more time to live thoughtfully. Nor does it stop there; it circles the globe and the influence of better living and a higher religion is being felt the world over.

One of the great mission influences of the world is the carrying to other and less favored nations of our agricultural and other domestic and labor-saving machinery and methods. Take agriculture in particular, and wherever you find a country that has bought heavily of our farm implements and domestic machinery, there you will find progress,

a higher order of living and a purer and better religion than formerly existed. It gives the people more time to think and inclination to copy after those who bring such things and ideals of living to them. It is a sort of unlisted religious influence that is perhaps too often unreckoned by the ritualistic missionaries.

There is no other nation on the world that has been blessed with as many of the things that contribute to man's well being and happiness as this, where famine has never been known and the rule of plenty has always prevailed. So while we need not be long-faced or dogmatically ceremonious about it, let us pause and give solemn thought to the great kindness of the Creator that we may measure aright and fully appreciate all the blessings we have received, and then be joyfully thankful.

TO THE ART TILE MEN.

At the first big Clay Show, held last March, there was a fair sprinkling of exhibits, some including models, some featuring the brick and tile fireplace, some for the bathroom and bathing pool, etc. But it was all individual; there was not; as with many other lines of clay products, evidence of organized or co-operative effort. There is to be another Clay Show, covering the period from February 26 to March 8, 1913, a show that is to be even bigger and better than the other one, and this show furnishes a chance for tile men to get into the boosting game in an organized, as well as individual way. It is the place to shine, and to shine big if you want to boost your product and increase your business. There is hardly another clay product susceptible to more artistic and attractive display than tile. That is a part of its business—to be attractive and furnish an attractive feature of the home as well as the public building. It is just at such places as the big clay show booked for Chicago that all can join in an organized effort to advantage. Every individual can make his own display in his home town and community, but a show like this calls for organized as well as individual effort to make the greatest show and obtain the best results. Why not come along and get into the game.

THE N. B. M. A. CONVENTION AND THE CLAY SHOW.

The official announcement of the Twenty-seventh annual National Convention, which appears on page 531 of this issue will be read with keen interest by our readers generally. Those who have been identified with the N. B. M. A. will, with but few exceptions, rejoice to know that another convention is to be held in conjunction with the Clay Show at Chicago, March 2 to 8, next. The few exceptions are those who have formed a habit of making convention week a winter holiday occasion, and for that reason prefer to visit a different city each winter. We are creatures of habit to a greater extent than is generally appreciated, and this particular habit is deep-seated with the older members, for the convention has never before met in the same city twice in succession. Those who seriously object to the change may be reconciled by the thought that they can have their usual winter vacation in connection with their convention trip by extending their journey to points East, West or South, as their fancy leads them. This they can do readily, for Chicago is an open gateway to and from all sections of the country. The Clay Show is an irresistible attraction to every clayworker. Those who witnessed the first one will not willingly miss an opportunity of seeing another, and those who were so unfortunate as to miss the first one will certainly not let it happen again, so it is predicted the attendance will be much larger this year than last. The Exposition management promises a larger and more beautiful display, which will be made possible by the additional time provided for the installation of the exhibi-

bits. The Coliseum will be opened to exhibitors February 19, thus affording a full week for installation of exhibits, the Show opening to the public February 26, and continuing, including Sunday, until March 8. The management will profit by last year's experience in many other respects. For instance, more time will be provided for removing displays, and in various ways the work and worry of installation will be minimized. Those who desire to participate in the uplift which is assured by this movement for greater publicity for clay products, should at once make application for space; see Exposition ad on page 594 and then proceed to mature their plans for the biggest BOOST the clay business has ever had. One phase of the announcement will appeal to every one whose heart is in this work, namely, the spirit of harmony which is promised. With all factional feeling or strife effaced, the convention should prove a veritable love feast. Every clayworker in the land should plan to participate and spend the entire week of March 2 to 8 in the convention city.

ADVANCED AGRICULTURE AND DRAIN TILE.

The manufacturer of drain tile wanting to see his industry grow and prosper should find a lively interest in the subject of advanced agriculture, or more scientific farming, for the more the farmer experiments and analyzes the more he realizes the value of drain tile on the farm. It is only the sluggish and ignorant that are hard to awaken to an interest in this matter. The farmer of breadth and means is beginning to see for himself what it means, and requires but little persuading. About all he needs is for some one to come along and offer to furnish the tile at a reasonable figure, for he generally knows where and when he needs tile and how much good he may expect from it. One of his type, a farmer cultivating large tracts of sandy lowlands and of clay uplands, in speaking on this subject during the summer, said that his uplands had produced so poorly as compared to the lowlands, which were helped periodically by an overflow, that he had not paid a great deal of attention to the upland for anything but pasture and a bit of grass until of late. He concluded to try a bit of it with tile, so bought a couple of carloads to experiment with. The result of his experiments is that he now proposes to put drain tile in all of his clayey uplands, for he thinks that by this means, with proper fertilizing and crop rotation, he can eventually make them produce like the sandy bottoms. There are many others of the same kind, and wherever you find a farmer who is a reader and thinker, you find one ready to take up tile drainage wherever it is tested. So the more advanced agriculture we have, the more drain tile we should sell.

THE FRUITS OF THE SEASON.

As the busy season in building and brickmaking and delivery winds to a close, it becomes very plainly evident that there has been a good harvest for the clayworkers as well as for the farmer. There may be localities here and there where the trade has not been all it should, but these have been easily offset by other localities where it has been practically impossible to supply all the demand for brick, and taking the country as a whole it has been an unusually good year, especially in the building brick business. All lines of clay products seemed to have fared very well, but the volume of demand for building brick has been exceptionally good, so good that generally the trade will go into winter quarters with bare yards—or have to work on orders all winter. Prices have generally been somewhat better, too, and, looking forward, there is evidence of still better things for the building brick business. Lumber has been going up all winter, the advance here having been much more in proportion than the advance in brick, which ought to make it easier to get a still larger share of the home building for brick next spring.

In the paving brick business it has been a year of

heavy seeding as well as one of pretty good harvest. Never has there been opened before such a vista of future possibilities in brick paving, for the paving idea has now spread to roads as well as streets, and the public enthusiasm for good roads has made it comparatively easy to sow the seeds of future business by demonstrations and arguments at public gatherings to further the good roads idea, arguments are easy to make and support because they have the best road facing material in the world behind them. So the fruits of the future in the paving brick business should be even more abundant than in the past.

And, as the season progressed, there was evidence of improvement in all lines of clay products; business of all kinds got better, despite the fact that it was a presidential campaign year, and industry reflects the improvement. So the clayworkers can join in heartily with the farmers in a song of thanksgiving over the harvest of this year, for it has been an unusually good one to the clayworking industry, and looks even better ahead.

ILLINOIS CLAYWORKERS TO MEET AT CHAMPAIGN.

The thirty-fifth annual convention of the Illinois Clayworkers' Association will be held at Champaign, Ill., January 9, 10 and 11, 1913. A. E. Huckins, secretary, Champaign, Ill., will be pleased to furnish those desiring further information with program, etc., as soon as same has been completed.

A CORRECTION.

Through an oversight on the part of our Boston correspondent, the beautiful terra cotta work on the new Copley-Plaza Hotel, at Boston, was credited to the Architectural Terra Cotta Company, of New York, when it should have been credited to the Atlantic Terra Cotta Company, of New York. We are glad to make this correction.

GOOD MORTAR ESSENTIAL TO GOOD BRICK WORK.

Completed jobs as they stand, are the only lasting guarantee and recommendation of the brickmaker's work. The fancy brick so much in vogue today has brought with it the attendant problem of mortar colors for the joints. The difference in price between the poorest and the best mortar colors is comparatively slight, and yet a poor mortar color can all but ruin the builder's reputation. Fading, running, dulling and changing in tone, these are only a few of the tricks which poor mortar colors are capable of performing, and the worst of it is that the damage always comes after the building is up and is irreparable.

These comparisons have especially been called to mind since the Ricketson Red Brick Brand colors have been put on the local market. The Ricketson colors are absolutely guaranteed against any of the failings noted above, and actually go farther in the mixing than any others, because of their perfect purity, great strength of color and especially fine grinding.

NOVEMBER.

Garbed like a sombre nun she stands;
Within her arms and in her hands
The withered husks of glories fled
When burned October's sunsets red.
Though sad of mien, November yields
A wealth of joy, for though her fields
Are seared and barren, in her wake
Thanksgiving comes, and we partake
Of joys no other month bestows.

And while with cheer the home fire glows
We can forgive her sombre dress:—
It cannot make her bounty less
To know earth's brightness is o'erpast.
Dark days will not forever last.

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"GETTING THE MOST FOR A DOLLAR"
has been given as a definition of good en-
gineering such as is done by

**The Richardson-Lovejoy
Engineering Company.**

[See page 574.]

FOR SALE, WANTED, ETC.

AN OPPORTUNITY.

We have a rare opportunity for a man thoroughly experienced in the manufacture of Face Brick, as Manager of our new and modern brick plant in the Middle West, to take full charge of the operation of the plant and the disposal of the product. The Company is engaged in the manufacture of other building materials on a large scale, and a free hand and a liberal salary will be given the right man, but he must be able to guarantee his ability by a reasonable investment. Reply to
1109 WALDHEIM BUILDING,
9 1 cm Kansas City, Mo.

For Sale, Wanted, Etc., Ads Continued
pages 563, 564 and 565.

A QUALITY OF MACHINERY ABOVE ALL OTHERS.

Stop Thief!

Do you know that your fuel supply is disappearing without your knowledge?

If you found any of your employes taking away a cartload of coal once a week you'd have him in jail just about as quick as your telephone could get an officer to your plant.

A ton of coal a week wouldn't break you up. Why not let the employe have it? Why not go further and let each employe have a ton every once in a while? It would help them a lot.

We have a system whereby you can give each employe a ton of coal every now and then and still have a lot saved over what you are using.

The coal you waste is about half what you use.

The employe who would take your coal would get some good out of it. His shivering wife and children would be made comfortable, but the coal you are wasting returns absolutely no equivalent in any way. Moreover, it is a reflection against the management of your plant.

Let's get together and talk this matter over.

You don't want to waste the fuel if you can save it.

You don't need to follow our advice if, after listening to us, you decide we can't make good.

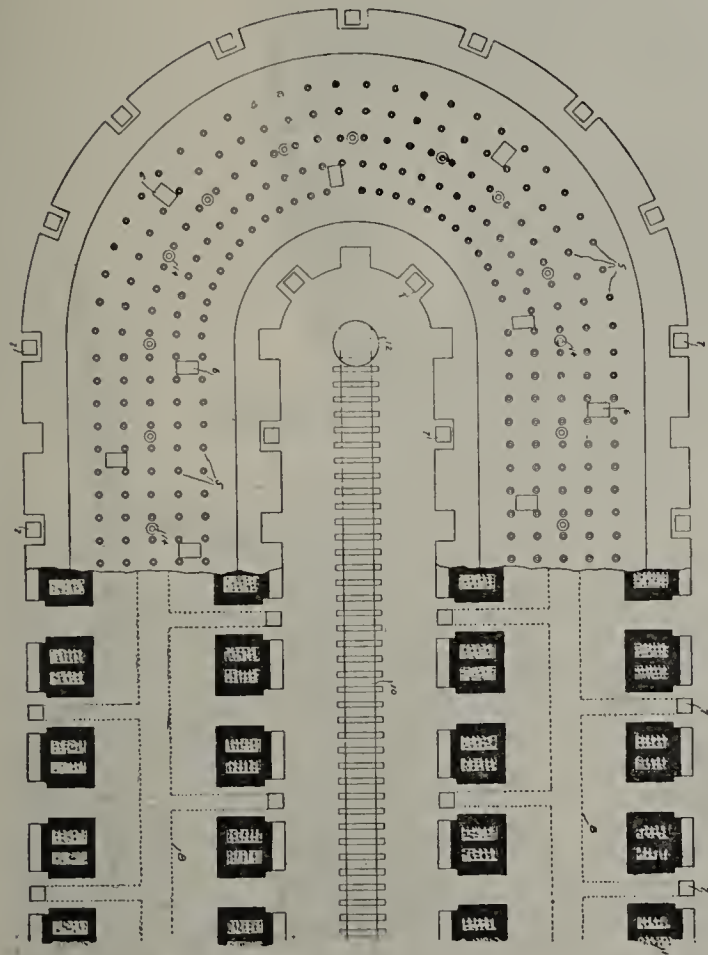
We know we can save you a lot of money and labor. Are you interested?

The Haigh Kiln has made good for others and will make good for you. Others say it has saved half their fuel, to say nothing of its labor-saving features and the increased quality of product and elimination of culls.

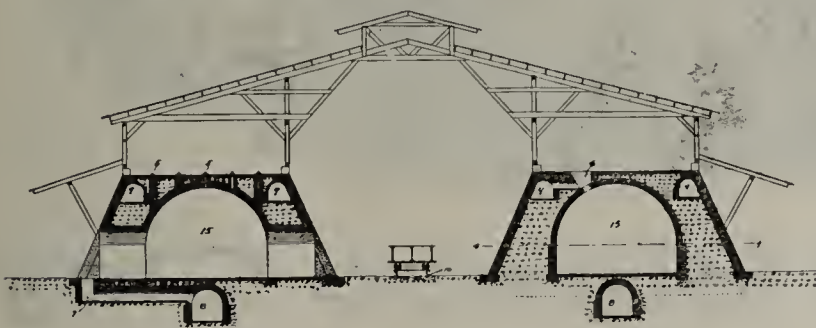
Let us hear from you about your kiln equipment. Remember we build every machine and appliance required to make Clay Products of all classes.

The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.



Top Plan View With Part in Section on Line A-A



Transverse Section Through Side Door

Transverse Section Through Waste Heat Connection

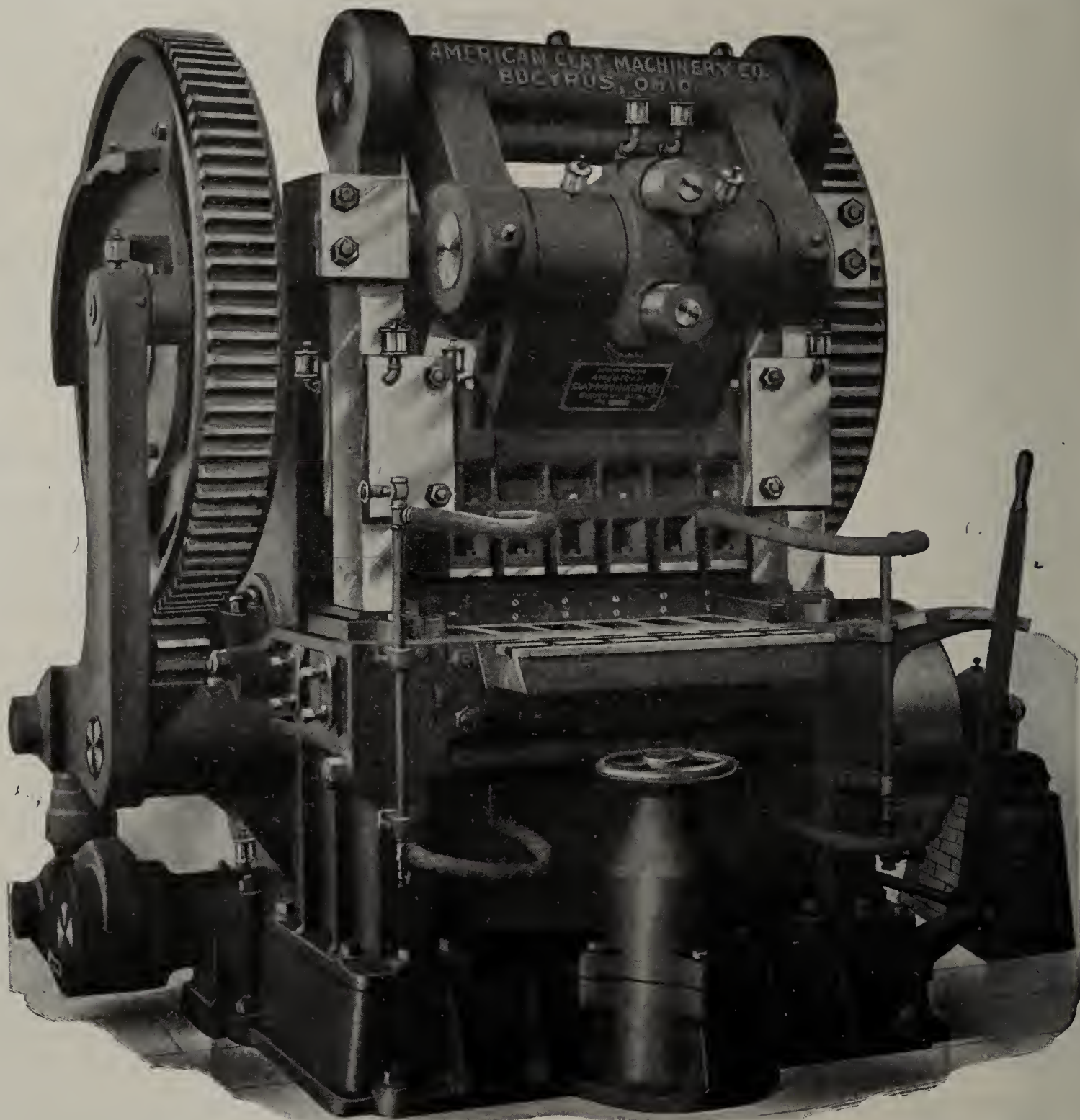
5-Top Firing Hole
6-Waste Heat Connections
7-Smoke Duct Connections
8-Main Smoke Duct
9-Waste Heat Duct

10-Transfer Track
11-Turn Table
12-Empty Filling
13-Measuring Hole
14-Burning Chamber

Much the largest manufacturers of Clayworking Machinery in the world. And much the best.

Mention THE CLAY-WORKER.

A QUALITY OF MACHINERY ABOVE ALL OTHERS.



Cities Built of Burned Clay

Every modern city will be built largely of Burned Clay. Pressed Brick, Terra Cotta and Face Brick will predominate. All will have their advocates, but the use of any one to the exclusion of others would detract from the varied beauty.

In the manufacture of Pressed Brick we are prepared to equip complete plants with the best machinery built. One of the units of our equipment is our No. 599 Six-Mould Press here shown. It is correct in design, strong in construction, modern in method, movement and features. It is faultless and flawless. It will make a high-grade product with a minimum of cost and labor. We will be pleased to furnish a complete description of this machine. We build every machine and appliance for the manufacture of all classes of clay products by all processes.

The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.



Much the largest manufacturers of Clayworking Machinery in the world. And much the best.

Mention THE CLAY-WORKER.

A QUALITY OF MACHINERY ABOVE ALL OTHERS.

Weather Conditions Cause Loss to Brick Manufacturers

The uncertainty of weather conditions has made it impossible for the brick manufacturer to be sure of his output, his labor and his deliveries.

The "American" Steam Pipe Rack Dryer makes possible a System for handling and drying Soft Mud Brick which meets all weather conditions.

A most important, economical and meritorious feature of our Steam Pipe Rack Dryer is in the conservation of labor. It has been a harder problem to handle labor this season than ever before. Wheelers and truckers have been hard to get and hard to keep. Our dryer system eliminates all the truckers from the machine, as we use a cable delivery system, and we also dispense with all wheelers to the kiln, as we use a car system.

It is not possible to keep a force of good steady men unless they have work every day. Weather conditions of the present season were such that the men could not work every day.

They became dissatisfied and went away to find a job where they could have steady employment.

This dryer eliminates all weather chance. It gives the plant a fixed dependable output. It keeps your organization together and contented and prevents the whole plant from being a dead investment on off days. It puts the work up to the men in an easy manner and makes them satisfied with the job.

The impression may exist in some minds that it costs too much to dry brick artificially and that there is nothing so cheap as the sun and the wind. This is an erroneous impression. While the sun and the wind may be free, it costs you a great deal to use them, and you will really save time and money by not using them.

The up-keep cost of a Pipe Rack Dryer, as we build it, is less than \$100.00 a year. We believe no other system can show as low an average for up-keep.

We save the repairs to Batten and Saddles.

We save rolling and leveling open yards.

We save the repairs to racks and pallets made of wood.

We save the repairs to sheds on the covered yard.

We save the loss of time through bad weather.

We save the loss of overhead expenses.

We save the loss of brick spoiled by rain.

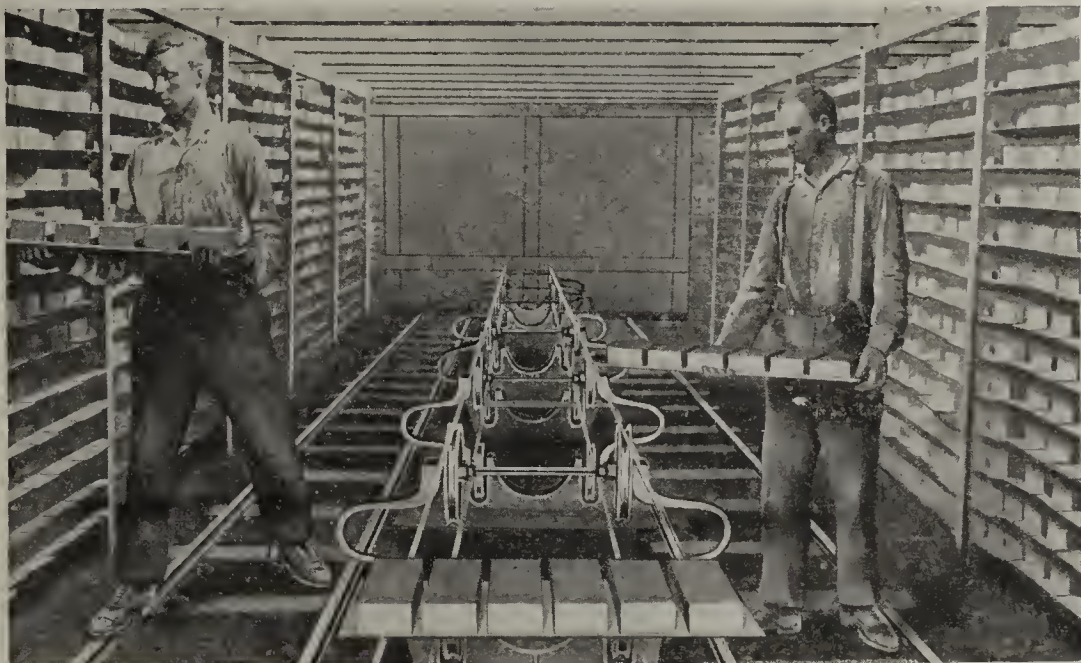
We save loss of time of men on yearly salary.

We save loss of brick in handling.

We save loss due to hacking wet brick under kiln shed.

We save loss of daily capacity by using a system that clearly shows the day's work.

We save loss of time in water smoking wet brick in kiln.



Placing Brick on the Racks

Think over your own yard and your own conditions and you will find more reasons than these why you should have a dryer.

Some Advantages We Offer You

We give a fixed daily capacity the year around, if desired.

We give a better quality of product because the brick burn better in kilns when uniformly dry.

We give an output of brick with square corners, smooth faces and well defined edges, because we handle them easily and carefully.

We give satisfaction in the performance of our contract.

We give you a system that will be a pleasure to operate and which you, as well as ourselves, will be proud of.

Let us talk this matter over with you.



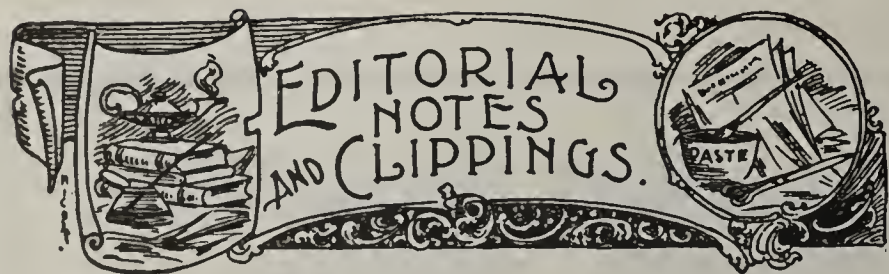
The American Clay Machinery Co.

Bucyrus, Ohio, U. S. A.

We build every machine and appliance required for making Clay Products by all processes.

Much the largest manufacturers of Clayworking Machinery in the world. And much the best.

Mention THE CLAY-WORKER.



The Yankton Press Brick Company will erect a new plant one mile west of Yankton, S. D.

The Canton Pressed Brick Company, of Canton, Ohio, has changed its name to the Belden Brick Company.

J. E. Hostetler, of Uhrichsville, Ohio, contemplates the erection of a brick plant at Sugar Creek, Ohio, of 50,000 daily capacity.

The Bay City Brick and Tile Company will enlarge its plant at Bay City, Tex. The output of the company is building brick and drain tile.

The Brown Brick and Tile Company, of Garrison, Texas, has filed an amendment to their charter changing its name to the Garrison Brick and Tile Company.

The new plant of the Salisbury Brick Manufacturing Company, at Delmar, Del., is almost completed, and the company hopes to be in operation by the first of the year.

The Binghamton Paving Block Company, of Binghamton, N. Y., has let the contract for the building of its new plant, and later on same will be rushed to completion as rapidly as possible.

The officers of the Indiana Brick Company at Anderson, Ind., whose plant was destroyed by fire eight months ago, have announced that the plant will be rebuilt and the work on same will be started at once.

Charles E. Franzheim, president of the Wheeling Pottery Company, Wheeling, W. Va., and prominent in many banking and business interests throughout the State, died at Wheeling recently after a long illness.

A new kiln will be erected and additions made to the dryer at the Globe Clay Company's plant at New Comerstown, Ohio. This will enable the general manager, J. W. Bucher, to double the present capacity of the plant.

In an explosion at the Austin Brick Works, at Boulder, Colo., the proprietor, E. G. Austin, and two of the employes were seriously burned. The men saved themselves from fatal burns, perhaps, by jumping into a nearby pond of water.

The Windsor Brick and Tile Company, of Clinton, Mo., has filed incorporation papers. The company will move its plant, which is now located at Walnut, Kan., to Windsor, and when in complete operation will have an output of 150,000 brick per day.

The Hope Shale Brick Company, of Lock Haven, Pa., have under way plans for the erection of a paving brick plant of 45,000,000 capacity per year. The construction and equipment of the plant will be under the direction of the C. W. Raymond Company, Dayton, Ohio.

The plant of the Summitville Tile Company, at Summitville, Ind., was almost completely destroyed by fire Sunday, November 5. The office, one storage shed and the barns were the only buildings that were saved. The loss is estimated at between \$50,000 and \$60,000, on which there is an insurance of \$16,000. The plant will be rebuilt at once.

The Chicago Fire Brick Company has under contemplation the erection of a large fire brick plant at Fulton, Mo. The proposition is contingent, it is said, upon the ability of the citizens of Fulton to raise a bonus of \$10,000. The matter is in the hands of the Fulton Commercial Club, and it is thought there will be no difficulty in raising same. As the proposed plant will employ about six hundred men, the citizens of Fulton are much interested in the project.

Edwin M. Knowles, president of the E. M. Knowles China Company, of Chester, W. Va., and vice-president of the Knowles & Taylor Pottery Company, of East Liverpool, and Thomas B. Anderson, general manager of these potteries, will erect a fifteen-kiln pottery at Newell, W. Va. Both gentlemen have resigned their offices with the old companies and will give their entire attention to the establishment of the new plants. Joseph G. Lee, vice-president of the Knowles & Taylor and Knowles plant, will succeed Mr. Anderson as

general manager. Who will succeed Mr. Knowles has not been announced.

The Superior Brick Company, Ltd., of Ft. Williams, Ont., Can., has recently been capitalized at \$500,000.

The plant of the Red Cliff Clay Products Company, of Red Cliff, Alberta, Canada, was damaged recently by an explosion.

The Queen City Brick and Tile Company, of Cumberland, Md., will install machinery and increase the daily output of its plant to 50,000 brick.

Kier Bros. & Co., large brick manufacturers of Pittsburgh, Pa., recently purchased a large tract of land at Kittanning, on which is an exceptionally fine clay deposit.

The American Brick and Tile Company, of New York City, has filed an amendment to its charter increasing its capital stock from \$100,000 to \$200,000.

The Southern Paris China Company has been organized at Paris, Tenn., with a capital stock of \$25,000. Clay lands have been purchased and work on the erection of the plant will be started at once.

The Purington Paving Brick Company, of Galesburg, Ill., recently booked an order for one hundred carloads of brick for the Panama canal. This is the third order Uncle Sam has given the Purington Company this year.

Plant No. 2 of the S. A. Weller Pottery Company, at Zanesville, Ohio, was almost wholly destroyed by fire October 18. The loss is estimated at \$65,000, which is partly covered by insurance. The plant will be rebuilt at once.

The Ridgway Brick Company's plant, at Ridgway, Pa., is to be enlarged so as to increase the output to a million brick a month. J. Parker B. Fiske, of New York, is president of this company, and F. T. Owens, of Ridgway, is the local manager.

The Foster Paving Block Company, of Bradford, Pa., which recently took possession of the Melvin & Peterson Brick plant of that city, has installed machinery for the manufacture of paving block and are now building an additional kiln. The company has enough orders on its books to keep the plant in operation for some time.

The Geo. S. Good Company has broken ground at Clearfield, Pa., for a new sewer pipe, brick and drain tile plant which will occupy fifteen acres of land and furnish employment to about five hundred men. The company expects to have the plant in operation by January 1st, and already has sufficient orders in sight to keep the plant in operation for a year.

The Cambria Clay Products Company, of Portsmouth, Ohio, has recently been incorporated with \$75,000 capital stock and has taken over the property and business of the Black Fork Coal and Brick Company, recently purchased by Simon Labold, as trustee. The plant is located at Black Fork, Lawrence county, and has a capacity of about 50,000 brick a day. The company will make a number of extensive improvements to the brick plant in the very near future.

The immense plant of the Barr Clay Products Company, at Wanamingo, Minn., started operations the middle of October. This factory is one of the largest brick and tile factories in the northwest and is equipped throughout with electric motors, each machine having a separate motor and running independently of the other. Labor-saving machinery has been installed in the plant wherever possible in order to cut the cost of manufacture down to minimum. The officers of the company are, president and manager, Charles O. Roe; vice-president, N. M. Olsen; secretary and treasurer, H. S. Swan; superintendent of the works, P. B. Brough-

(Continued on Page 560.)



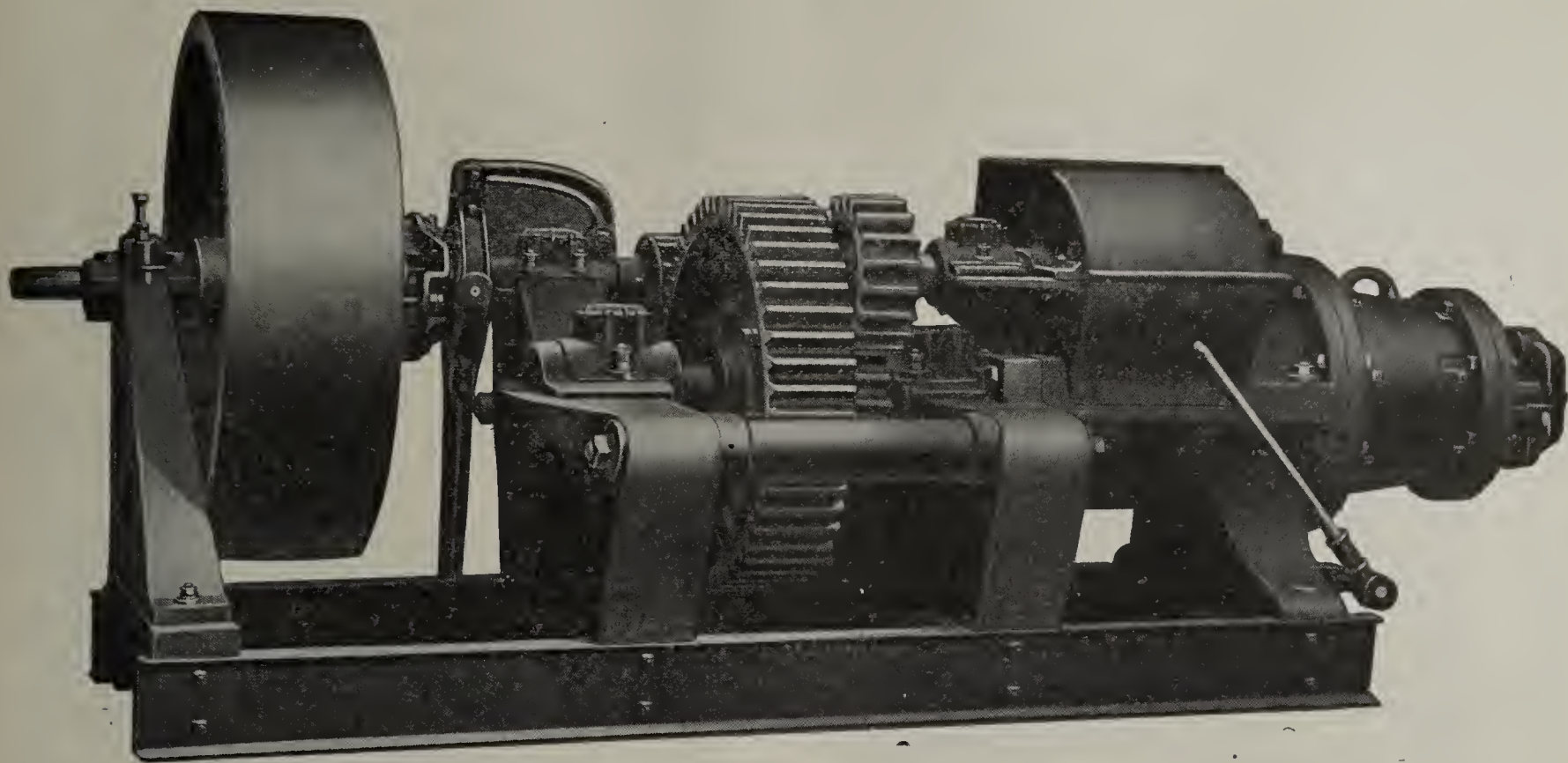
PULSOMETERS

consume no more steam than a duplex pump and have no cylinders, pistons, or sliding valves, therefore they can handle water containing up to 40% sand or solid matter and require no lubrication nor foundation. Over 26,000 in use.

Ask for our 50 page catalog.

PULSOMETER STEAM PUMP CO.
14 Battery Place

New York



Model "GA" Auger Brick Machine

In general design, this machine is similar to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and avoiding the use of high speed gears. The result is less wear and tear on gearing, less noise, less power lost through gear friction and consequently less expense for maintenance. Owing to the slow speed, the operation is unusually smooth and quiet. There is very little vibration to work loose nuts and keys. It is a reasonable conclusion that an almost noiseless machine will require less care and last longer than one which is continually shaking itself to pieces.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled for the foundation bolts, thus providing a very rigid construction. The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

This type of machine is built in several sizes—further particulars on request.

E. M. FREESE & COMPANY, Galion, Ohio

EDITORIAL NOTES AND CLIPPINGS—Continued.

ton. The products of the company will be vitrified brick, drain tile, fire proofing and silo blocks.

The Red Shale Brick Company, of Asheville, N. C., has recently been incorporated with \$25,000 capital stock.

The capital stock of the Madisonville Drain Tile Company, of Madisonville, Ky., has recently been increased from \$1,000 to \$10,000.

The creditors of the Ladd-Birchey Brick Company, at Ft. Payne, Ala., have filed a petition asking for the appointment of a receiver for the concern.

Notice of dissolution of the Edgar M. Heafer Tile Company, of Bloomington, Ill., has been filed with the Secretary of State. Mr. Heafer is one of the oldest tile men in Illinois.

James Hughes has brought suit against the W. A. Underhill Brick Company, of Croton Point, N. Y., for \$10,000 damages, for injuries received while at work for the company at this brick yard.

The Laclede-Christy Clay Products Company, at St. Louis, Mo., suffered a \$500 loss by fire recently. The origin of the fire is not known, but it is supposed to have been caused by spontaneous combustion.

The Inland Clay Products Company, of Chicago, has recently been incorporated with \$50,000 capital stock, by Henry Burkholder, John A. Voorhees and J. W. Ware. The company will manufacture and deal in clay products.

S. I. Alexander, a brick manufacturer, of Centralia, Wash., died at his home in that city, October 24. Mr. Alexander had only been in Centralia since May, 1910, having moved there from Fond du Lac, Wis., where he had operated a brick plant for years.

Joseph Morin, an old-time brick manufacturer, of Springfield, Mass., died at his home in that city late in October, after a short illness. Mr. Morin was born in Canada, but has been a resident of Springfield for more than fifty years. A wife and three daughters survive.

The plant of the Rio Delta Clay Products Company, at San Benito, Texas, manufacturers of brick and tile, has not been able to keep up with its orders for the past six months, and new machinery is now being installed to care for the heavy demand anticipated the coming spring.

The Rockford Brick and Tile Company, of Rockford, Iowa, is making a number of improvements in their plant with a view of increasing their output. They have just recently completed a new dry kiln which will double their ordinary capacity, and they are now constructing four new kilns. The present capacity of the plant is about ninety cars a month.

The plant of the Zoar Fire Clay Company, at Zoar, Pa., was almost completely destroyed by fire recently. The loss, which is estimated at \$2,500, is partly covered by insurance. The fire is supposed to be the work of tramps. Ernest Houeter, of Strasburg, Ohio, superintendent of the company, says that the work of rebuilding the plant will begin at once.

Thomas Murray, one of the well-known brick manufacturers of New Britain, Conn., was found dead in his bed recently. His death was probably due to heart failure, for Mr. Murray had been in excellent health when he retired the evening before. He was thirty-five years old and had been engaged in the brick manufacturing business since he had finished his schooling. On the death of his father, some years since, he and his brother, Richard Murray, Jr., incorporated the Murray Brick Company, purchased an additional

yard, and had conducted a very successful business. Mr. Murray is survived by a wife and three children.

A loss of \$300 was recently sustained at the plant of the St. Mary's (Ohio) Brick Company's plant by fire, which started from an overheated kiln.

W. J. Douglas, of Toronto, Ont., Can., is at the head of a company which has been capitalized at \$250,000 to erect a large brick and fireproofing plant at Tofield, Alberta.

The Nock Fire Brick Company, of Cleveland, Ohio, has been incorporated by Charles H. Nock, C. E. Meink, P. G. Shea, A. M. Snyder and N. I. Young. The company has a capital stock of \$25,000.

The plant of the Beggs Brick and Terra Cotta Company, at Wilmington, Delaware, was almost totally destroyed by fire October 26, which started in the boiler room. The loss is estimated at \$25,000.

The plant of the Ferris Brick Yard, at Ferris, Texas, was totally destroyed by fire recently, causing a loss of \$20,000, which is partly covered by insurance. The plant will be rebuilt in the very near future.

The Pee Dee Brick and Tile Company, of Pee Dee, S. C., has been chartered with a capital stock of \$25,000. The officers are W. R. Barringer, president; C. P. Perry, vice-president, and T. R. Barringer, secretary and treasurer.

T. B. Amiss, Jr., who for some time has been southern traveling representative for the Hydraulic Press Brick Company, of Baltimore, is now in charge of the sales office in that city, where he will be glad to greet his old friends and new ones as well.

The Chas. Taylor's Sons Company, fire brick manufacturers of Cincinnati, Ohio, have purchased a site at Enterprise, Ky., on which they will build an additional fire brick plant, which they will operate in connection with the parent plant at Cincinnati.

An involuntary petition of bankruptcy has been filed against the Livesy Brick Company, of Omaha, Neb., by its creditors. Although no definite amount is named in the petition, it is understood that the parties interested hold notes against the company aggregating close to \$12,000.

John H. Rich has resigned as president of the Red Wing Sewer Pipe Company, at Red Wing, Minn., to take effect November 15. This company is one of the largest in that section of the country, and has one plant at Red Wing and another at Hopkins. Mr. Rich's successor will be elected at the annual meeting of the stockholders to be held November 25.

The Improved Flue System Kiln, built by Geo. E. Snowden & Co., of New Cumberland, W. Va., is gaining popularity in Canada as well as in the States. The firm reports that they are now building some thirty-foot kilns for a Manitoba firm and a thirty-eight-foot kiln for a dry pressed brick concern at Hamilton, Ont. This, in addition to the regular line of work nearer home, is keeping them pretty busy, but they will be glad to correspond with clayworkers who are interested in the building of improved kilns.

Thomas I. Walker, of Lexington, Ky., and others, have organized a new concern to be known as the Clay Products Company. A tract of land comprising about four hundred acres, near Lexington, has been purchased, and it is up to the new company to ship clay on a larger scale to the potteries and other manufactories of Ohio. Clay has been shipped from there to Ohio potteries on a smaller scale for about thirty years, and the quality secured by the new company is regarded as among the best to be found anywhere for this purpose.

PACKING HAY ^{WE} SELL PACKING STRAW

Have shipping points in Illinois, Wisconsin, Ohio, Michigan and Indiana. Can ship to you from nearest point, therefore can deliver to you at low prices. Get our prices when you are in the market.

Write us today and we will put you on our regular quoting list and keep you posted on prices.

INTER-STATE HAY CO.

Goshen, Ind.



Barrett's PAVING PITCH



Chicago, Ill., Fullerton Avenue from 40th Avenue, Looking East.

Ordinary Pitch vs. Barrett's Paving Pitch

Not every kind of pitch will do for paving filler. Failure may result from the use of pitch of wrong consistency. Often when the specifications say "pitch" for filler, any pitch is used which the local dealer happens to have on hand—even hard roofing pitch.

To make a good paving pitch, however, requires long experience in distilling tar. The distillation of Barrett products is controlled by technical experts so that the resulting pitch is of the proper consistency for each purpose.

If Barrett's Paving Pitch is used, and used correctly, good results are assured.

Some of the pitch used in this country for paving and other purposes is what is called "cut back" pitch. It is lacking in the natural oils which are so necessary to its effectiveness, and is far inferior to Barrett's Paving Pitch. "Cut back" pitch is made by mixing with very hard pitch

sufficient oils or tars to "cut it back," or produce the required consistency. In making this hard pitch originally all the life-giving oils were removed, and it has been found impossible to put back oils into pitch and make a "cut back" pitch which would last for any length of time.

Barrett's Paving Pitch is all "straight run" pitch, that is, it is distilled to the proper consistency in the first place. It retains its waterproof qualities half a century or more.

In the effort to generate the much greater heat necessary for melting the harder pitches there is danger of over-heating, or burning the pitch, and spoiling it. Barrett's Paving Pitch has a low melting point. It is less troublesome to handle. Therefore, specify not "pitch," but "Barrett's Paving Pitch" as filler for the joints of all block pavements.

Booklets on request. Address our nearest office.

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DRYING

The BOSS TEN HOUR DRYER

is completed and has proven to be what every brick-maker is striving for:

A DRYER THAT WILL DRY BRICK IN TEN HOURS.

Your brick are dried exclusively with the exhaust from the engine that makes the brick. No extra fuel and no extra power required.

A dryer that does not have to be operated at night time.

Requires no expensive dry kiln, and no iron cars.

Cost of drying reduced to less than 4 cents per thousand.



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TRIAL TESTS CAN BE MADE ON APPLICATION.



JOHN C. BOSS COMPANY

Write for catalog.



ELKHART, IND.

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FOR SALE

FOR SALE.

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FOR SALE.

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190-ft. section Jeffery No. 110 chain pan conveyor; Penfield No. 20-A plunger brick machine; Raymond "Columbia" double mould steam repress; 6 Carnell hand represses; portable track; 100 light Colt's acetylene gas machine; 2 80-h. p. boilers; pulleys, shafting, etc.

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FOR SALE.

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1—Kells Tile and Brick Machine, dies 3 to 10 in., Hollow Block and Side Cut Brick Dies. Hand cut-off table for tile and brick.
1—Madden No. 5 Tile and Brick Machine.
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11 3 cm Emaus, Pa.

FOR SALE.

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1—C. W. Raymond Co., Daytonia No. 2 Auger Brick Machine with hand cutter.
1—C. W. Raymond Co., Cyclone No. 20 Disintegrator.
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100, 80, 60, 50, 40, 35, 30, 25, 20, 16, 12, 10 and 8 horsepower, etc.

Boilers—Vertical.

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All sizes, open and closed.

Pumps.

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Classified Advertisements—Continued.

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2—Double die Victor represses.
All in first-class condition. Cheap.
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Soft mud brick plant; daily capacity 40,000; good proposition at a bargain. Worth investigating For particulars, address, A. P. COOLIDGE,
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FOR SALE.

A Decided Bargain.

One Quaker soft mud brick machine in good repair, with molds and all necessary appurtenances. Capacity 40,000 daily; 15,000 wood pallets, 10 by 34 inches. Cheap for cash. Address,
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FOR SALE.

We offer for sale, cheap, the following parts of Standard dryer cars, made by the American Clay Machinery Co.:
50 complete cast iron lower decks in sections.

About 600 of each, right and left end posts with cross bars, complete, to fit any standard car of the above make.

About 300 middle posts with cross bars.

About 200 wood top decks, in one piece.

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11 2 d

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11 3 cm care Clay-Worker.

FOR SALE.

At a bargain, one steam press, two dry pans and one wet pan.
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Complete for drying 500 M brick, all hardwood runways, railroad switch adjoining. Could be loaded at minimum cost. Will be through using them in very short time. A splendid opportunity for any one who wants to be prepared for the heavy demand next spring. Apply

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10 1 d Care Clay-Worker.

WANTED—A man to take charge of plant manufacturing front face brick. Must be thoroughly capable. Address,
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10 1 d Care Clay-Worker.

WANTED — First-class mechanical draftsman who has had experience in clayworking machinery. Address,
BOX 11, DAY,
11 tf d Care Clay-Worker

WANTED.

A BUILDING MATERIAL CO.
Wishes to represent in Indianapolis or entire State, a hollow tile and brick concern. BOX 11, NEW,
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Position as director of glaze department in an art tile, terra cotta or brick plant. Many years experience in the manufacture of art pottery. Best of references. For particulars, address
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10 2 d Care Clay-Worker.

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An experienced clay man who can invest three to five thousand dollars in a growing plant located 25 miles from the Twin Cities, and take complete charge at a good salary or on a per centage basis. Address,
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WANTED—A first class man to take charge of our machine room who thoroughly understands Boyd Presses, American Dry Pans and who knows the manufacture of high class face brick. Prefer one who understands boilers and engines also, and knows his business thoroughly. We have no use for any other. SOUTHERN,
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A young, energetic and capable man to take entire charge and responsibility of the plant operations of a large common brick plant in the South. Must have had experience in handling and procuring negro labor and be capable of pushing the output up to the limit of capacity. Permanent position with good salary and large promise of future advancement. Address,
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Classified Advertisements.

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Care Clay-Worker.

8 tf d

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Indianapolis, Ind.

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Sewer Pipe or Drain Tile Plant, near Columbia, Ill., on the Mobile & Ohio R.R. Good Mine and three varieties of Shale, covering 82 acres. Equipped with American Clay Machinery Co.'s machinery—Six 25-ft. down-draft kilns—Private spur, track and locomotive—Advantageous freight rates—Fuel, water and labor all cheap. Offered at a Sacrifice Price. Address

COLUMBIA LOAN CO.

109 St. George St., St. Louis, Mo.

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This is a proposition that will stand the closest investigation.

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Room 1369

WASHINGTON, D. C.

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The "Red Brick" brand. Brilliant in tint; easy to mix, go farther than any other and none like them for Brick, Mortar, Cement, etc. Red, Brown, Purple and Black.
RICKETSON'S PURE MINERAL COLORS
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Conveying, Elevating and Power-Transmitting Machinery.

The only perfect spiral conveyor. Continuous flight—no laps or rivets.
A Complete Line of the Best Supplies.

Belt, Chain and Cable Conveyors.

Ask for General Catalogue No. 34.

H. W. CALDWELL & SON CO., Chicago.

Fulton Bldg., Hudson Terminal, No. 50 Church St., New York.

THIS WASHER MUST PAY FOR ITSELF

A MAN tried to sell me a horse once. He said it was a fine horse and had nothing the matter with it. I wanted a fine horse. But, I didn't know anything about horses much. And I didn't know the man very well either. So I told him I wanted to try the horse for a month. He said "All right, but pay me first, and I'll give you back your money if the horse isn't all right."

Well, I didn't like that. I was afraid the horse wasn't "all right" and that I might have to whistle for my money if I once parted with it. So I didn't buy the horse, although I wanted it badly. Now this set me thinking.

You see I make Washing Machines—the "1900 Gravity" Washer.

And I said to myself, lots of people may think about my Washing Machine as I thought about the horse, and about the man who owned it.

But I'd never know, because they wouldn't write and tell me. You see I sell my Washing Machines by mail. I have sold over half a million that way.

So, thought I, it is only fair enough to let people try my Washing Machines for a month, before they pay for them, just as I wanted to try the horse.

Now, I know what our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or by any other machine.

I know it will wash a tub full of very dirty clothes in six minutes. I know no other machine ever invented can do that, without wearing out the clothes.

Our "1900 Gravity" Washer does the work so easy that a child can run it almost as well as a strong woman, and it don't wear the clothes, fray the edges nor break buttons the way all other machines do.

It just drives soap water clear through the fibres of the clothes like a force pump might.

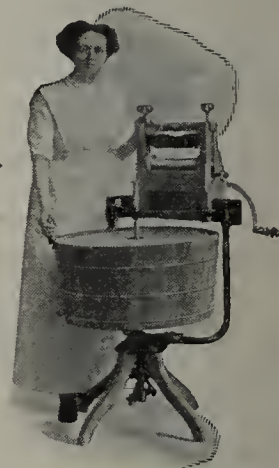
So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back and pay the freight, too. Surely that is fair enough, isn't it?

Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is? And you can pay me out of what it saves for you. It will save its whole cost in a few months, in wear and tear on the clothes alone. And then it will save 50 cents to 75 cents a week over that in washwoman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 60 cents a week, send me 50 cents a week 'till paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself earns the balance.

Drop me a line to-day, and let me send you a book about the "1900 Gravity" Washer that washes clothes in 6 minutes.

Address me this way—H. L. Barker, 800 Court Street, Binghamton, N. Y. If you live in Canada, address 1900 Washer Co., 357 Yonge St., Toronto, Ont.

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Names**

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St. Louis, Missouri.

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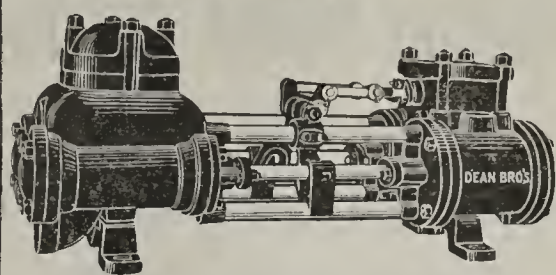
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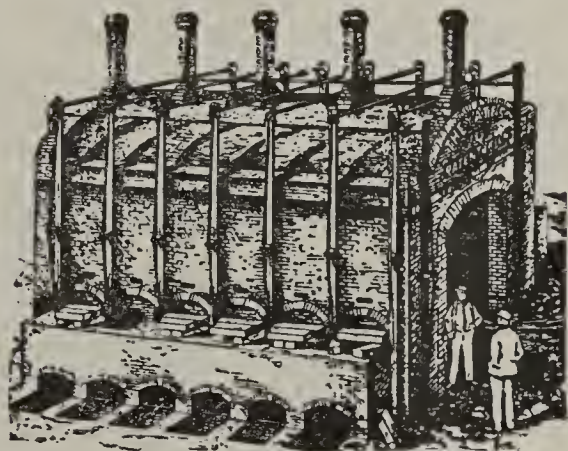
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Also Continuous.

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This system gives you the advantage of three men taking the place of nine, as here shown. Above is a photograph of elevator and staging in operation, saving you six men over old way of passing and tossing brick; same advantage taking brick out of kiln. Send for circular and special information.

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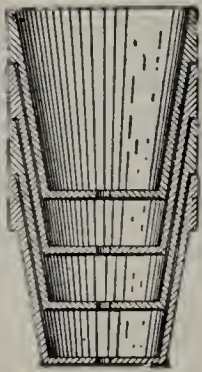
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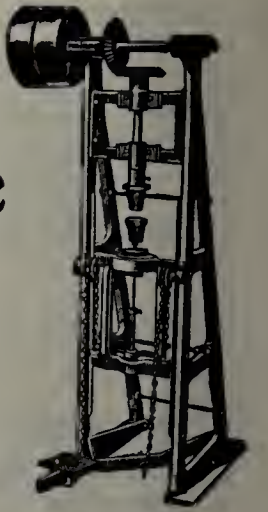
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Three of these Double Chamber Kilns will burn as many brick in a year as four single arch kilns the same size, because as soon as one side is unloaded you can set green brick, and so have the kiln half set by the time all the burned brick are unloaded. These kilns burn the brick hardest on the bottom. This feature is something new for Down Draft Kilns.

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Also
Rock and Ore Crushers.

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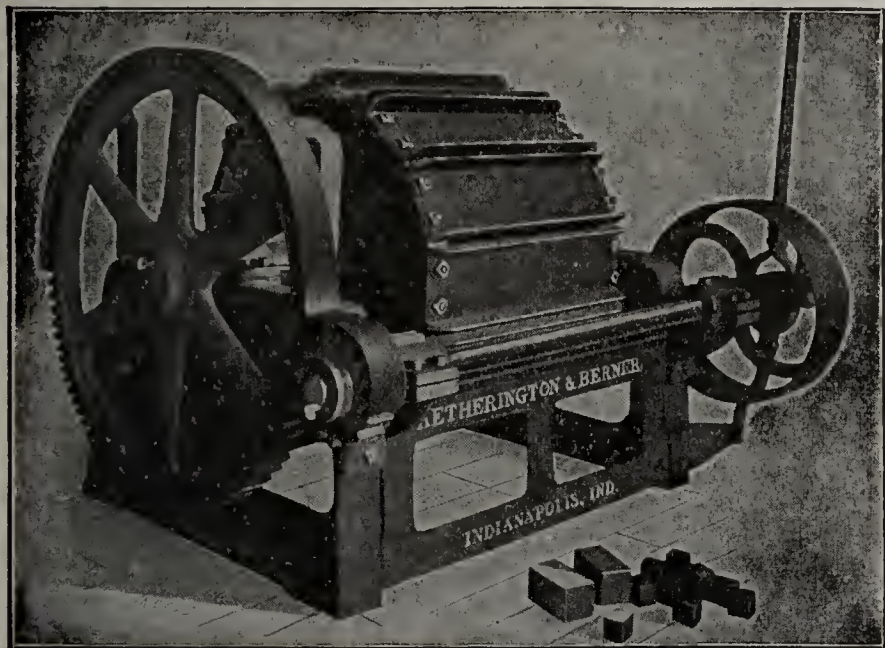
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No. 36

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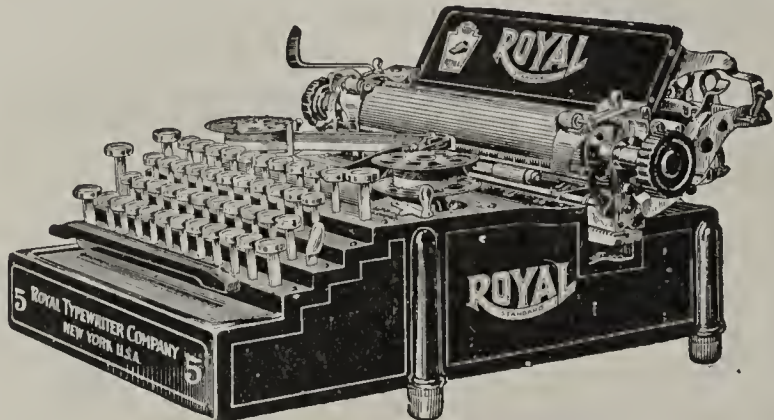
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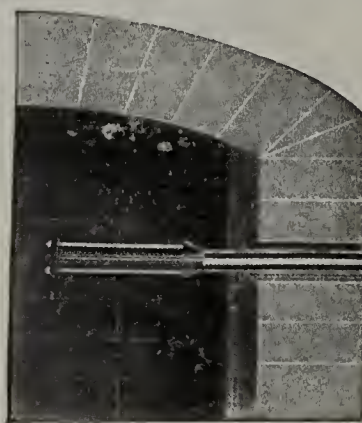
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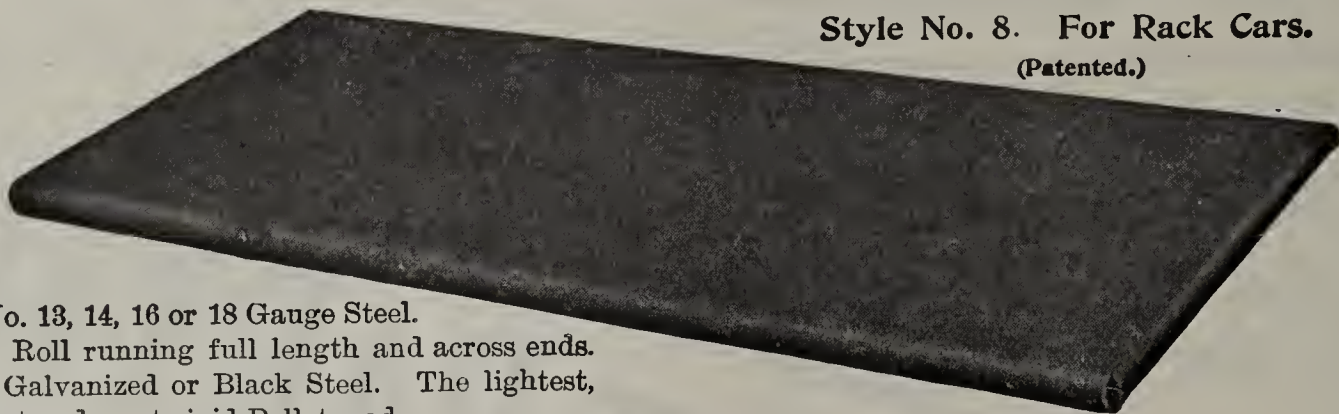
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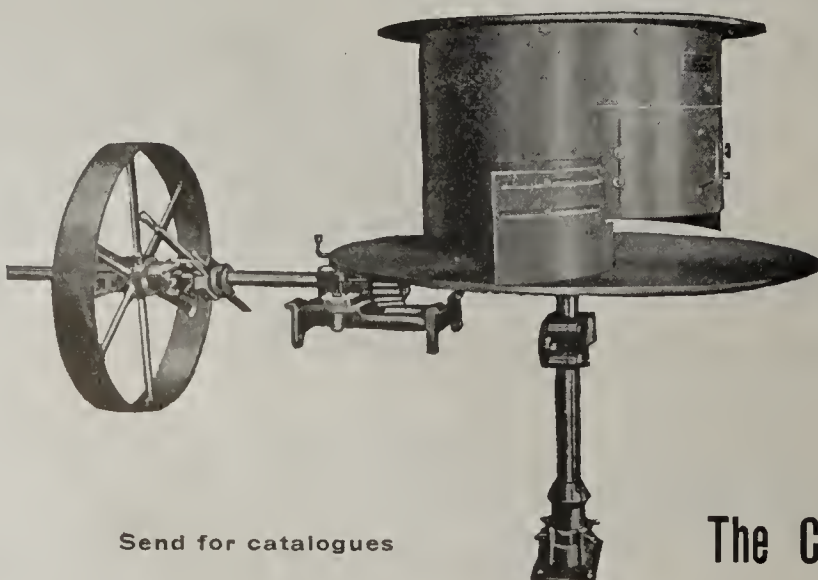
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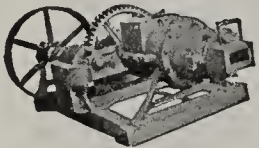
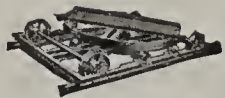
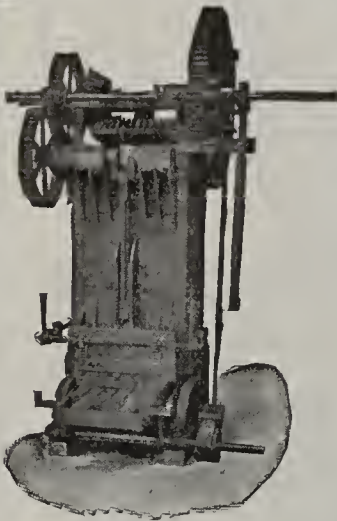
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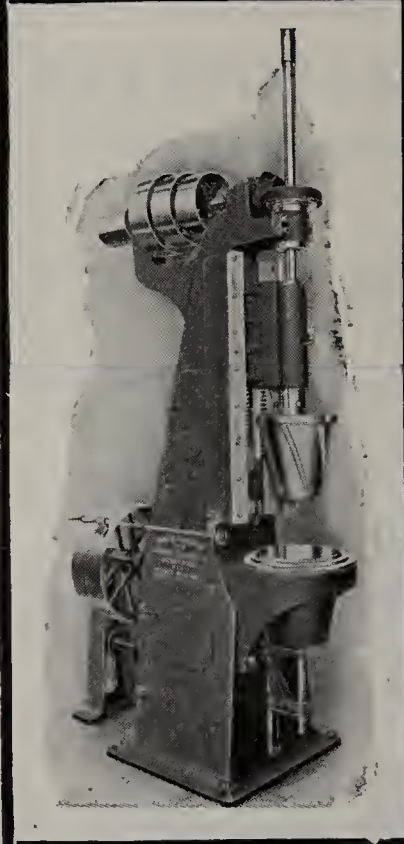


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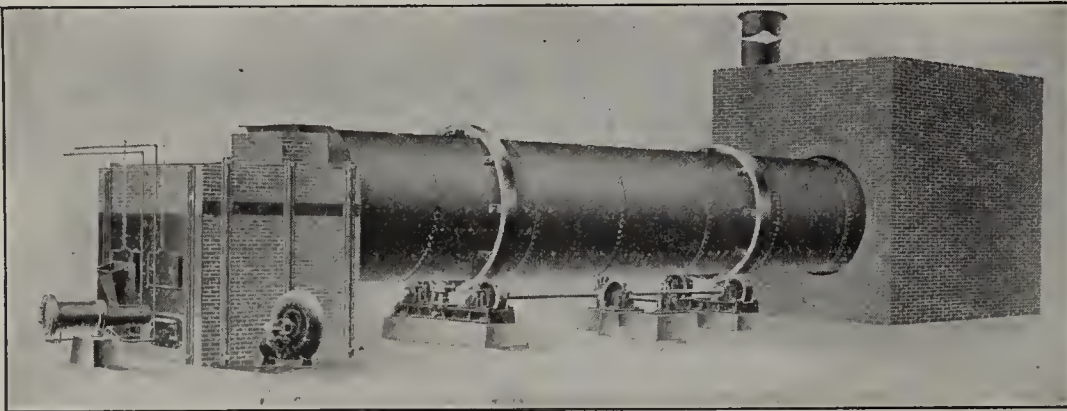


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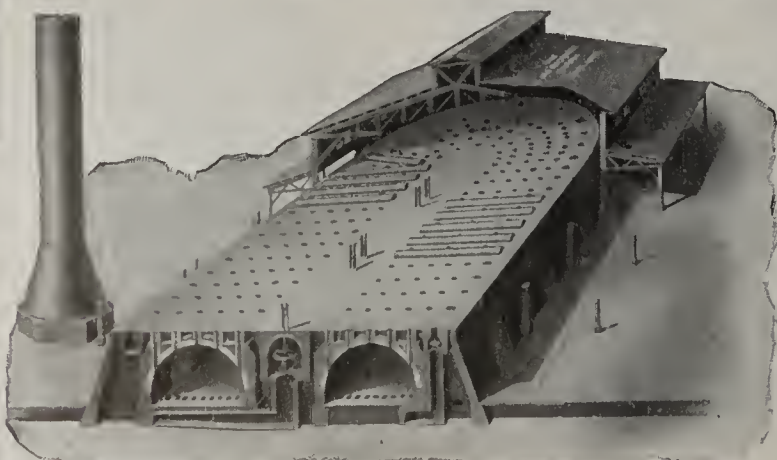


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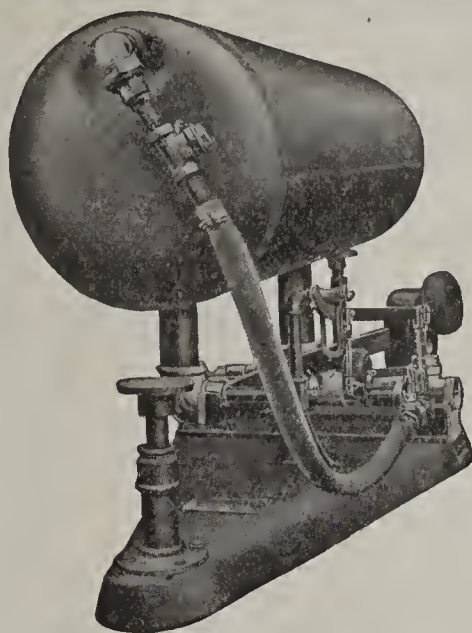
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and PULLS the accumulated water and air out of your steam lines, insuring rapid circulation. Enables you to cut down your boiler

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Particularly adapted for use in connection with reduced pressure and Exhaust Steam Heating Systems, Dry Kilns, Dryers, Fan Stacks, Etc.

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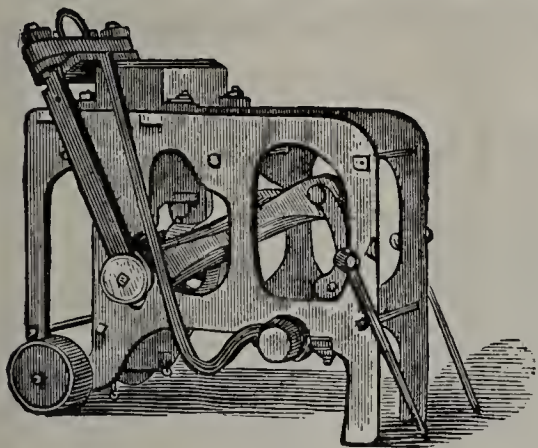
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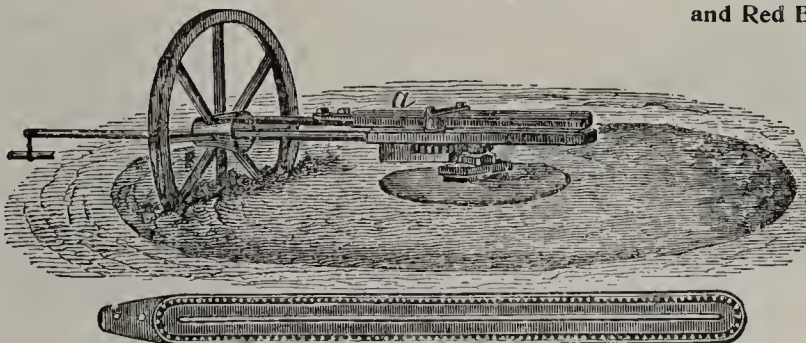


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Philadelphia Brick Machine Works.

Fire and Red Brick Presses All Sizes. Machinists and Engineers.

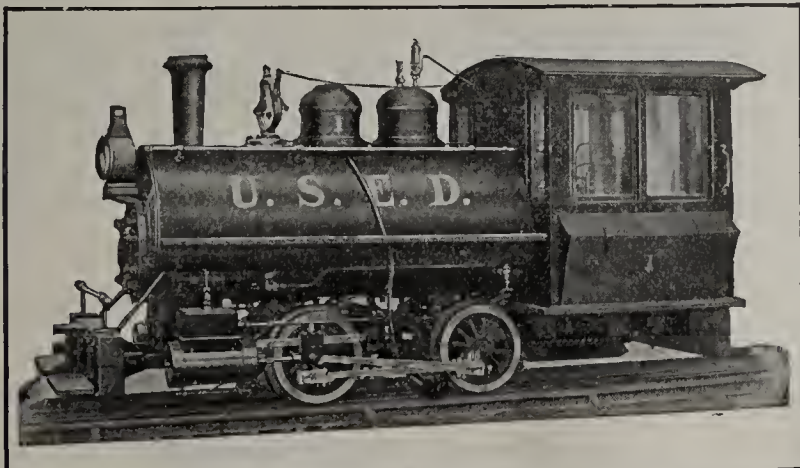
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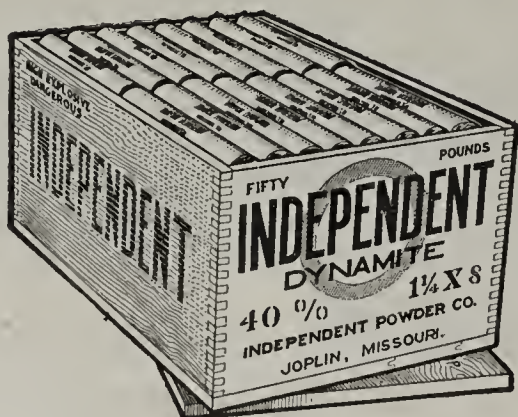
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FIGURE up the cost and let us quote you on a PERFECT CLAY SCREEN that will give you ABSOLUTE CONTROL OF YOUR CLAY. The same fineness every day in the year and you get every pound of clay that is fine enough for your product.

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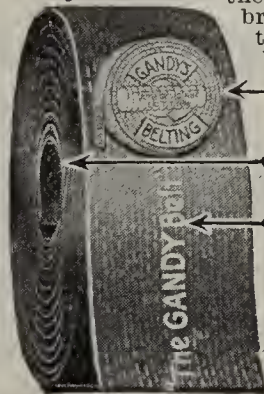
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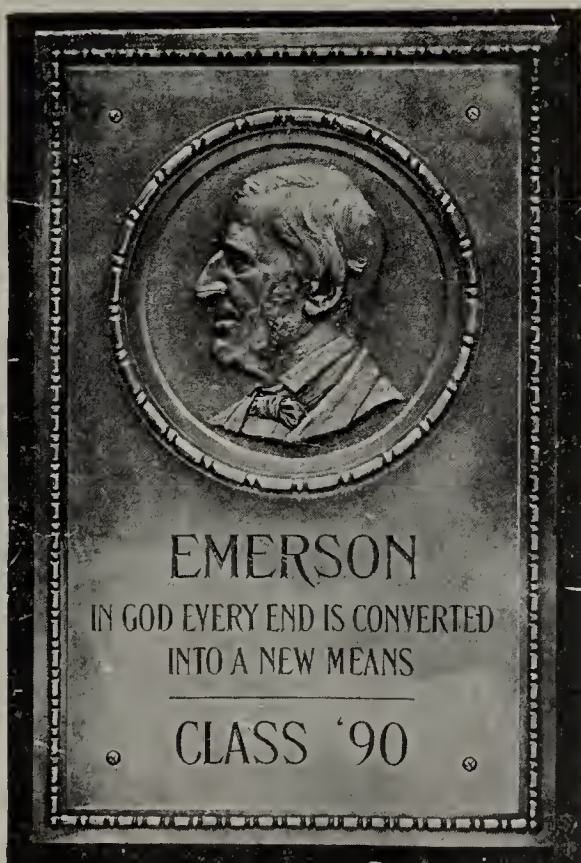
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With 5 Cwt. of Slack

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50%

**LABOUR
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The same applies to Hoffmann Continuous Tile, Pottery, Lime
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No Shifting Lever.

No Extra Moulds.

Mould always ready to be taken out at the proper time.

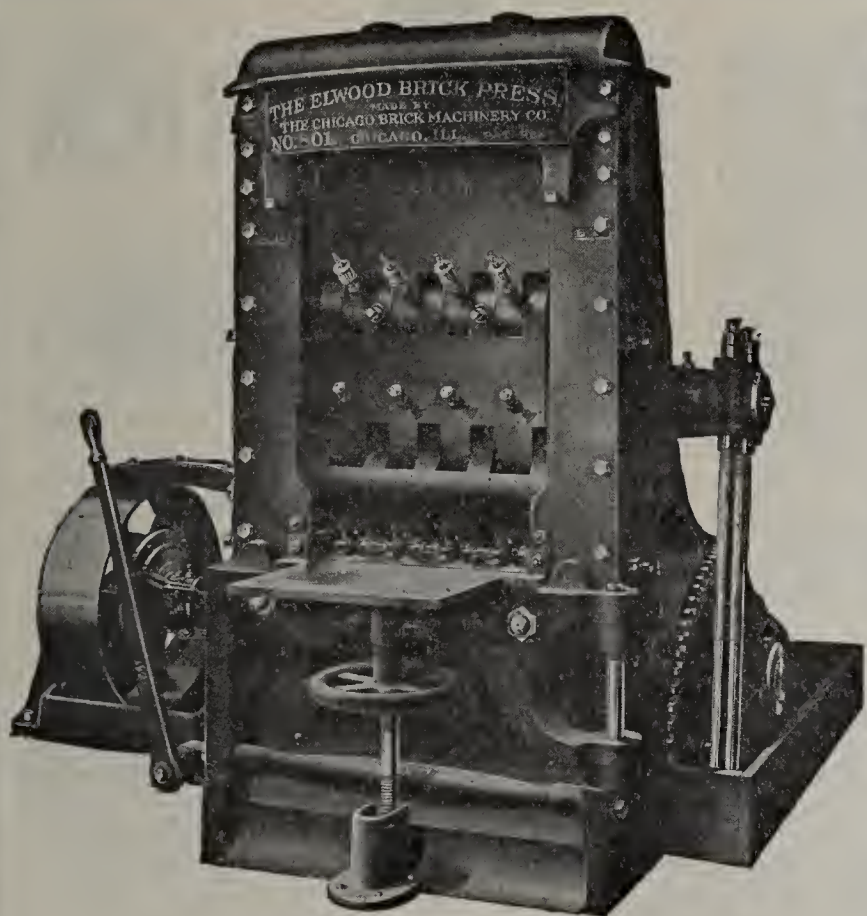
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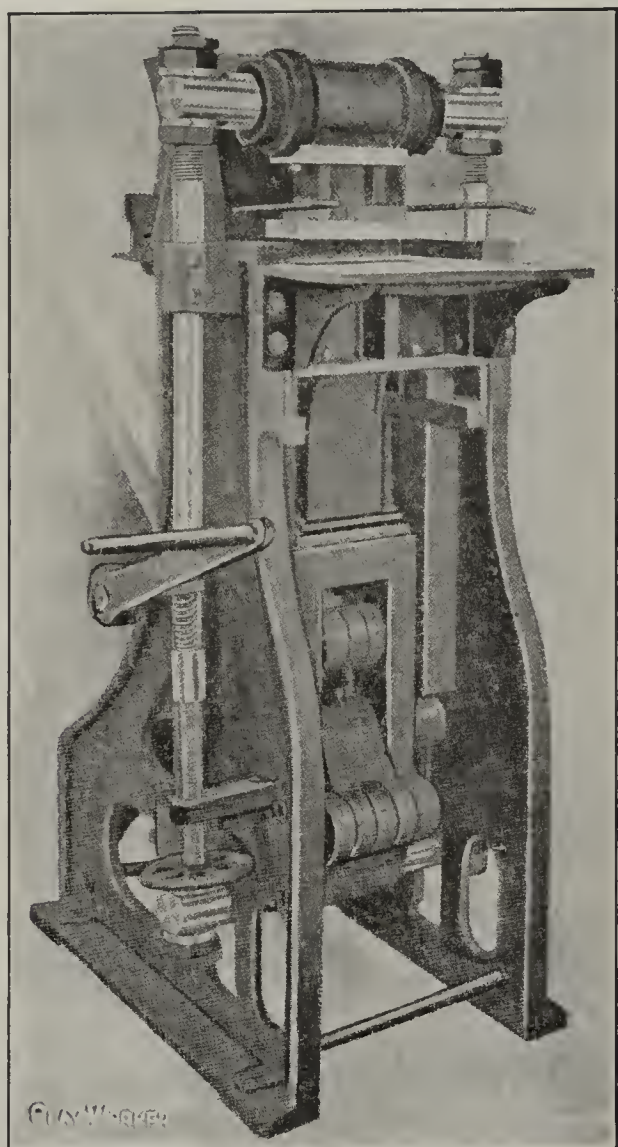
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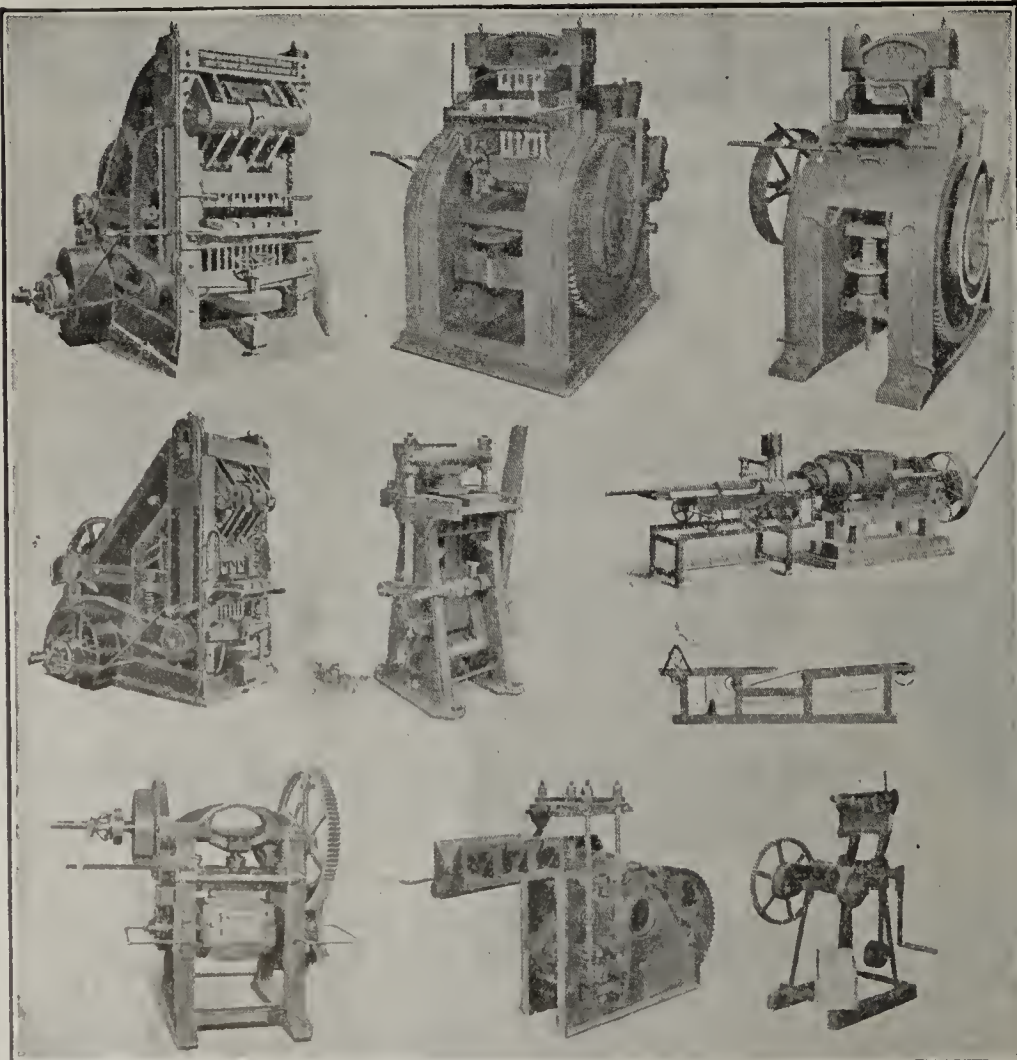
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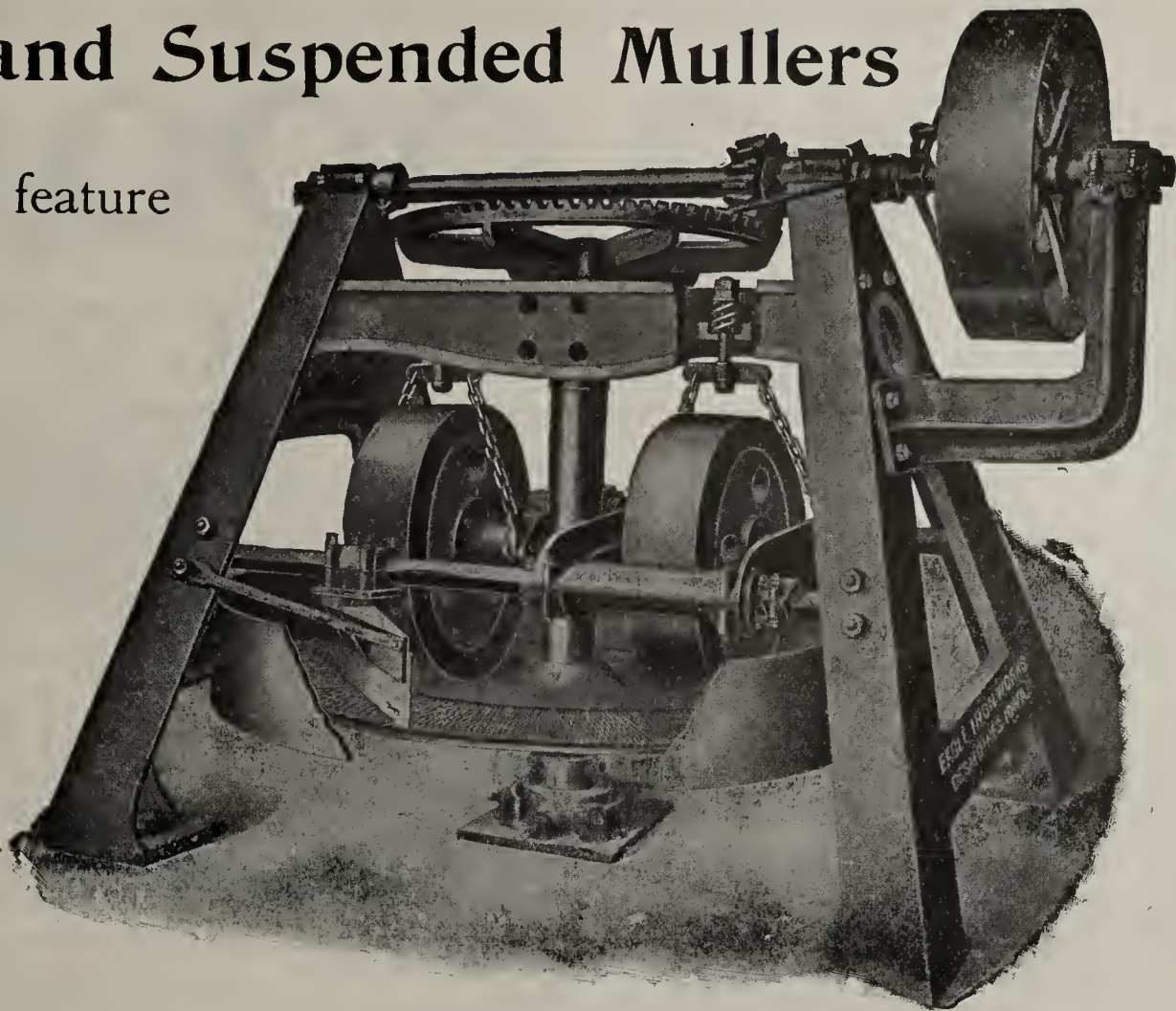
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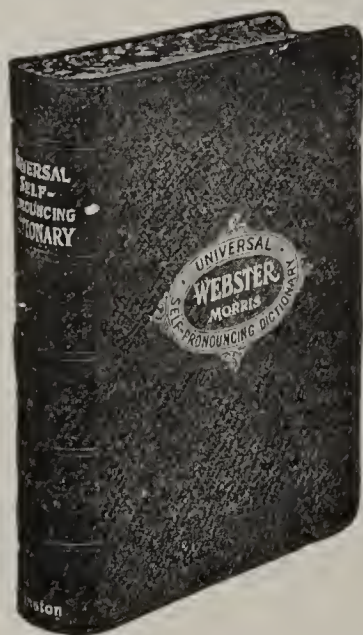
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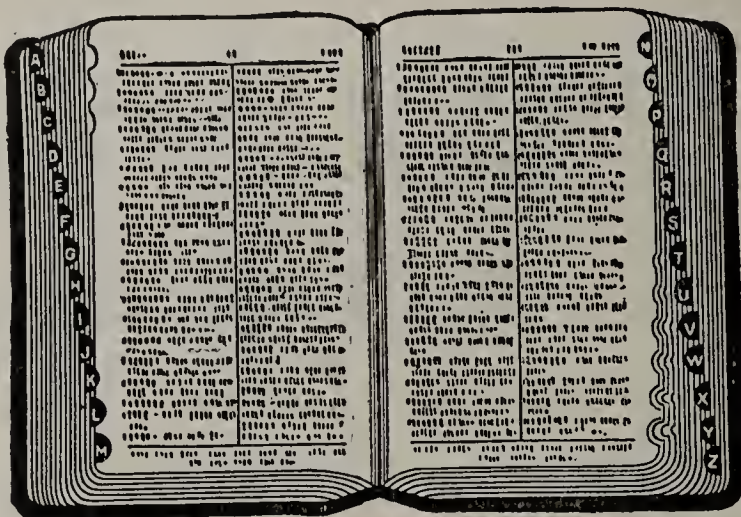
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Supplement

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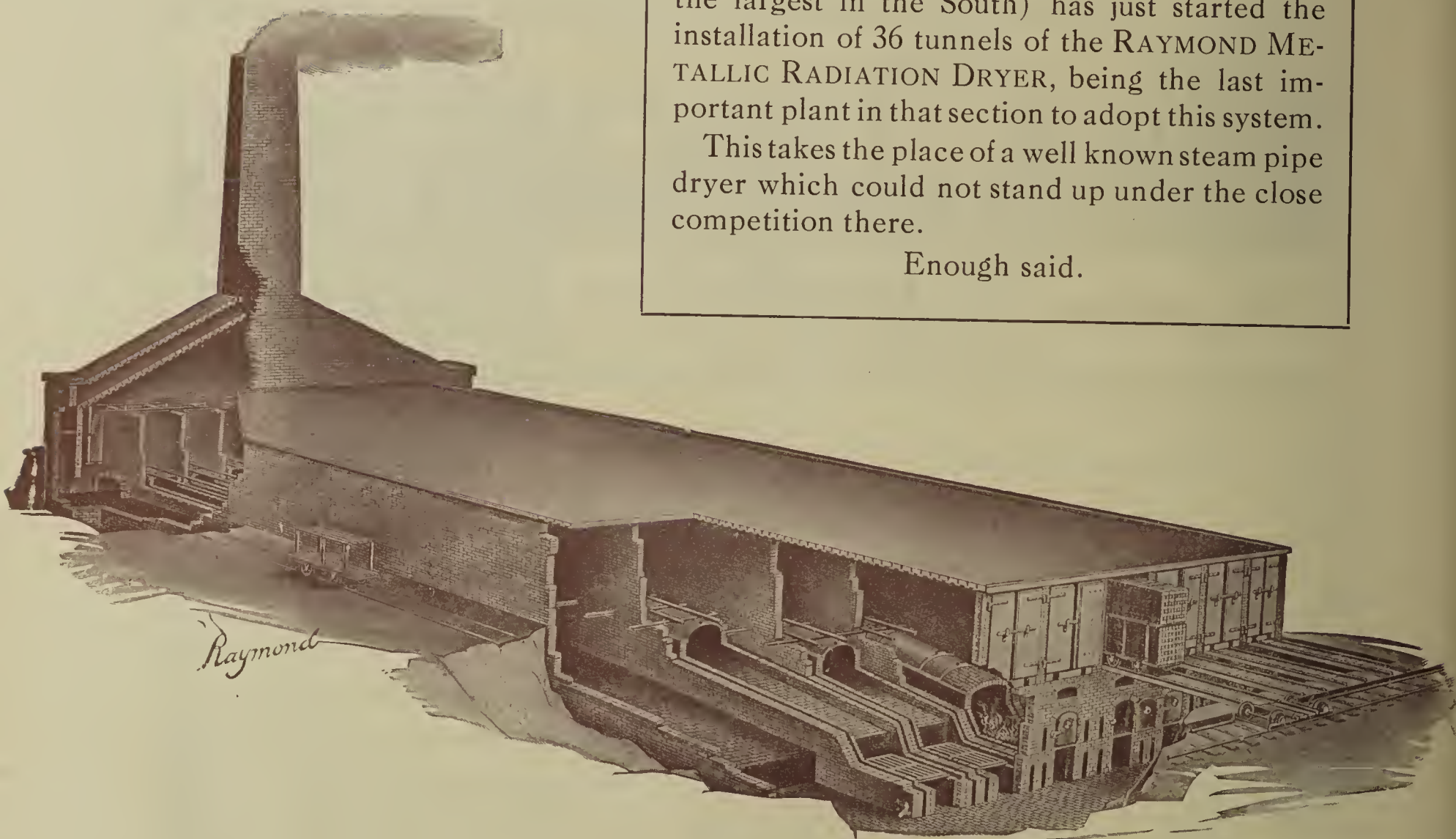
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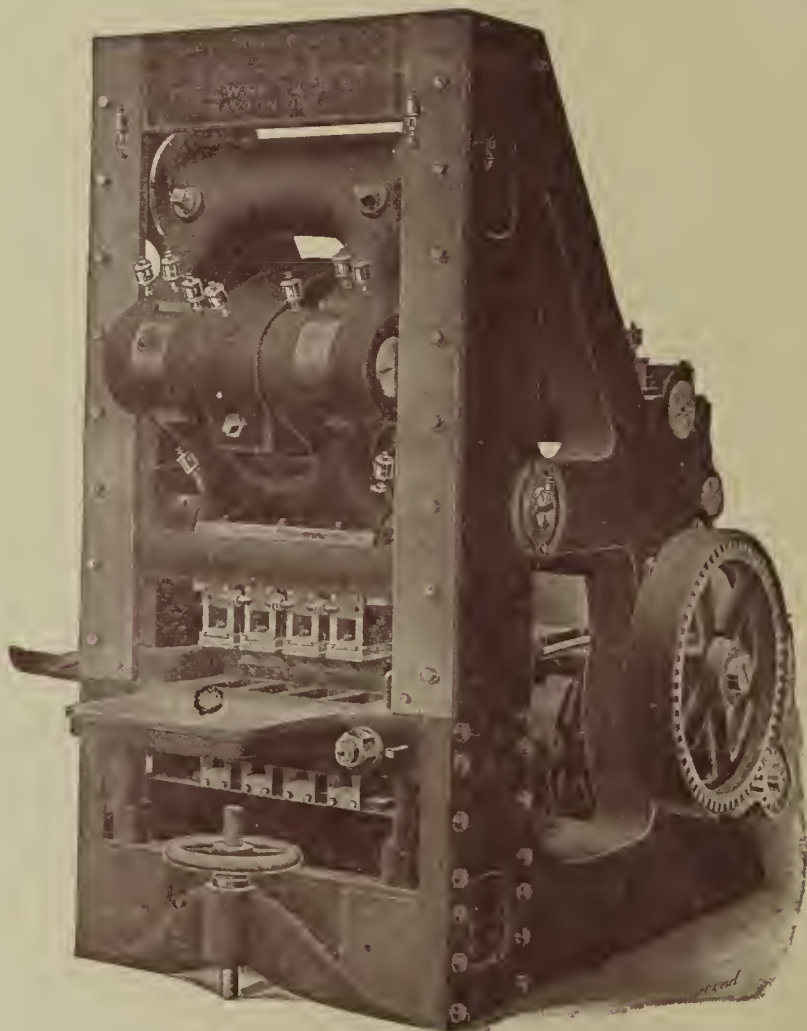
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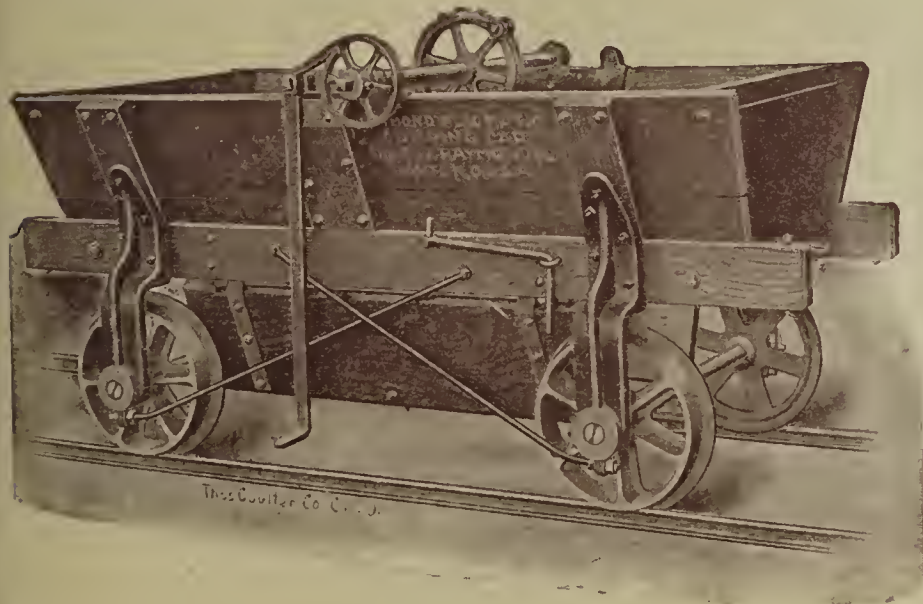
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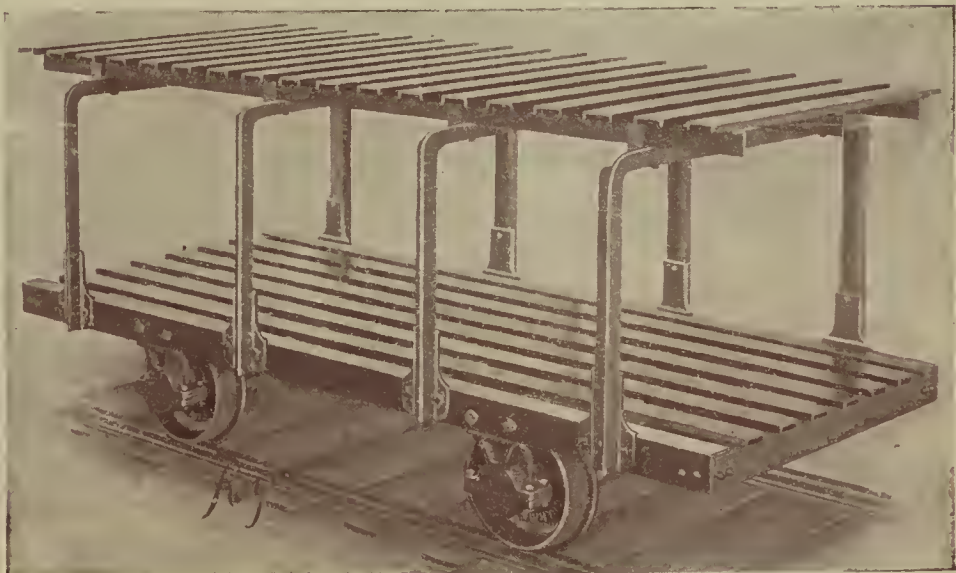
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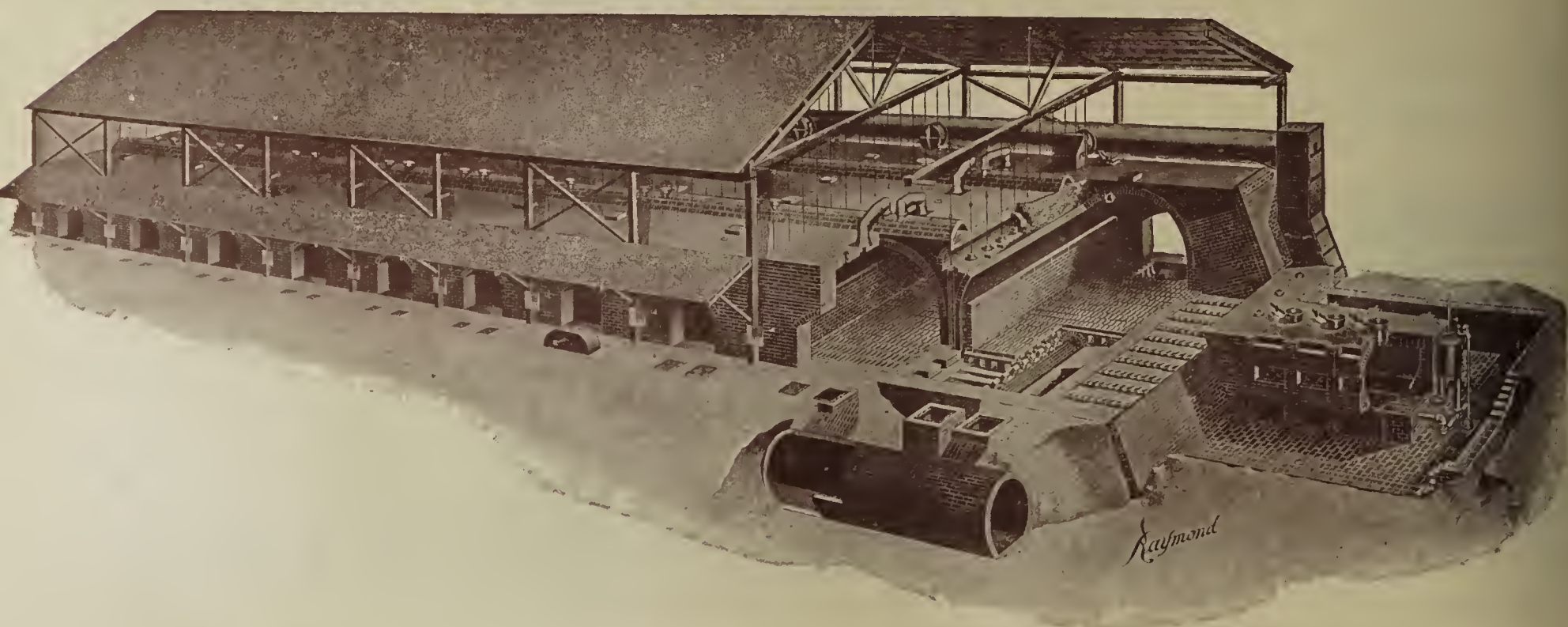
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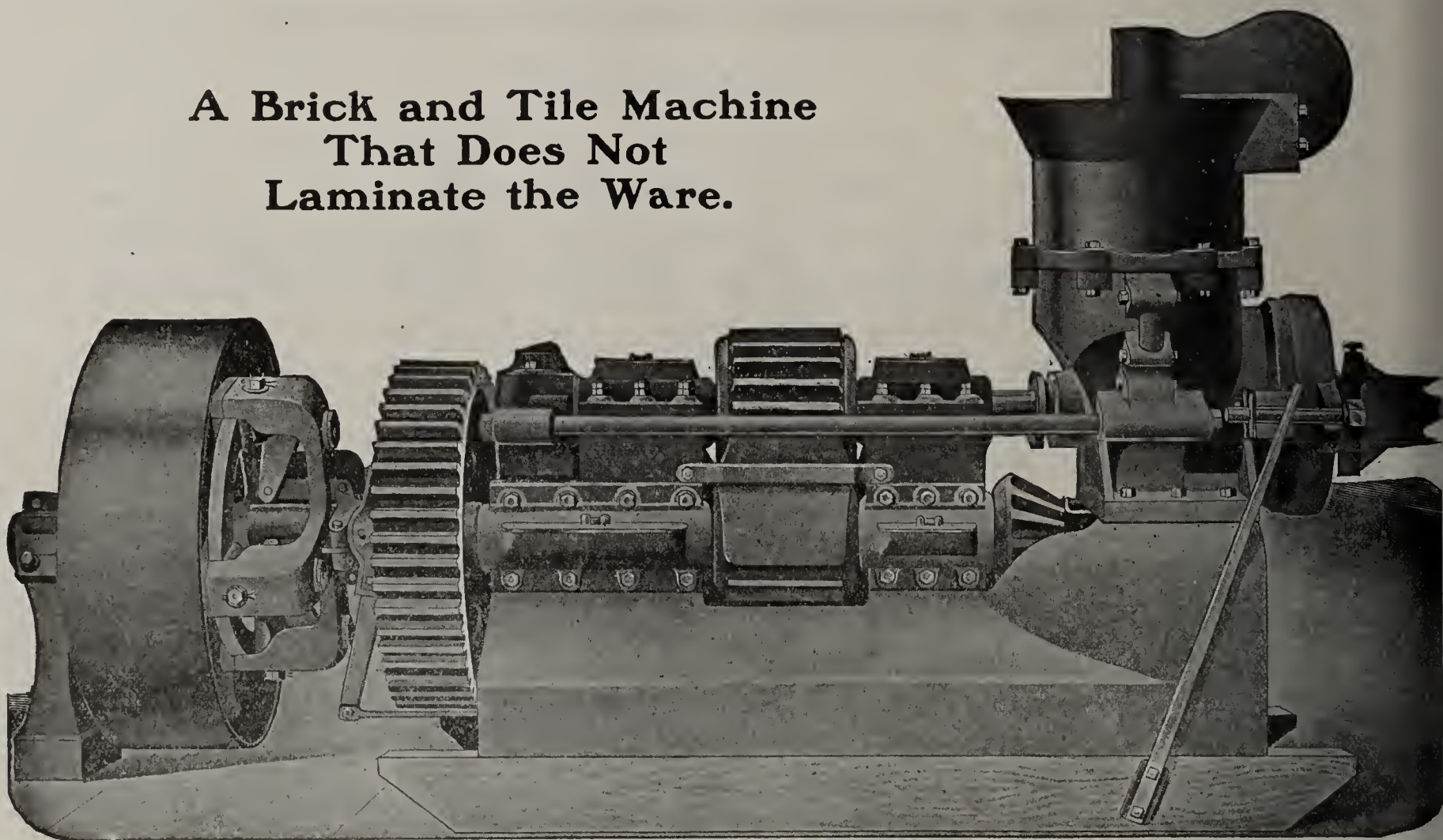
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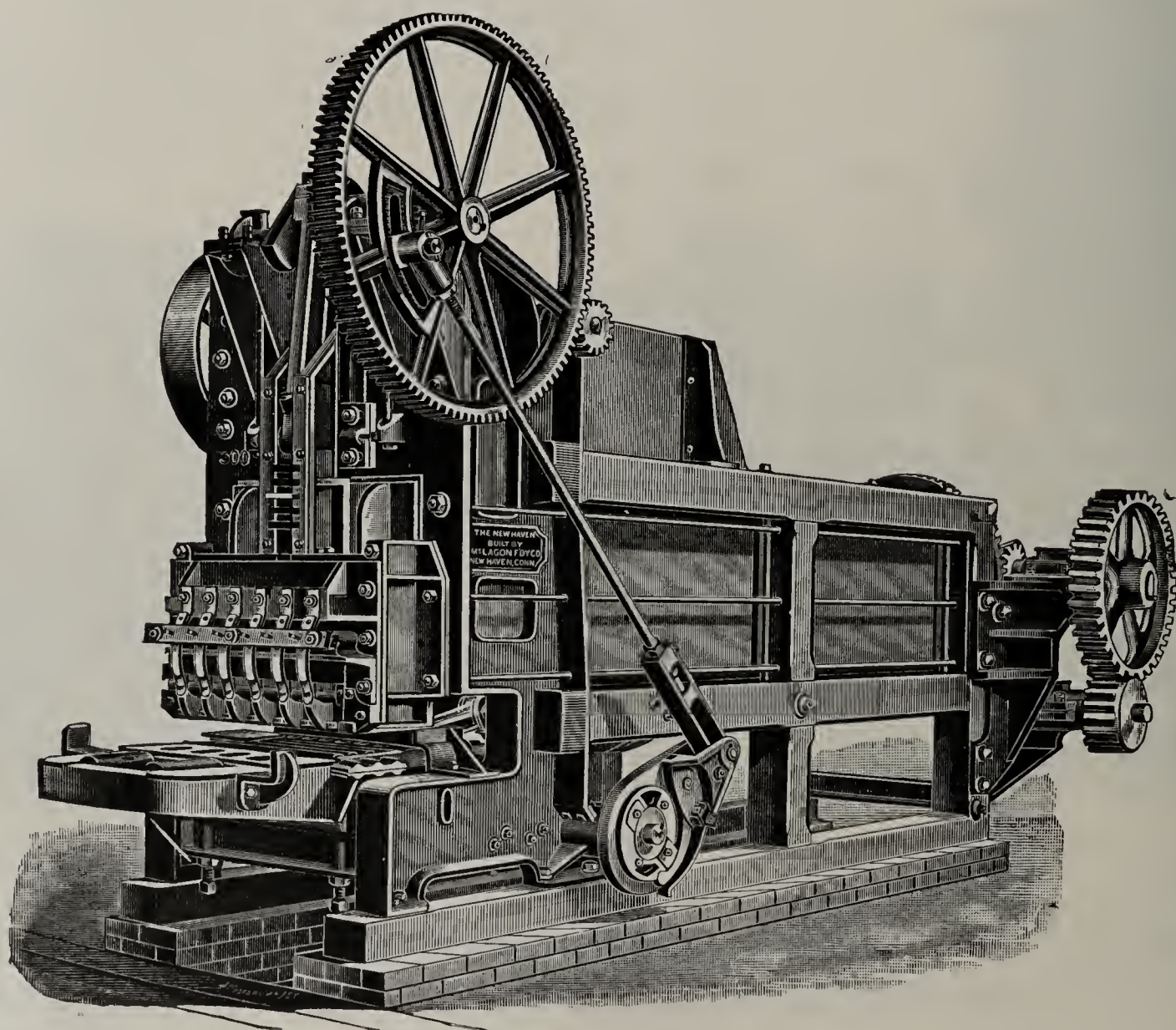
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CLAY-WORKER\$2.00	
Dealers' Record 1.00	
Brickbuilder 5.00	
Value.....\$8.00	6.25
CLAY-WORKER\$2.00	
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Value.....\$8.00	5.30

	OUR PRICE
CLAY-WORKER\$2.00	
Motor 3.00	
Suburban Life 3.00	
Pearson's 1.50	
Value.....\$9.50	\$7.20
CLAY-WORKER .....\$2.00	
Concrete 1.00	
Everybody's 1.50	
Ladies' World ..... .50	
Value.....\$5.00	3.35
CLAY-WORKER .....\$2.00	
Munsey 1.50	
Collier's 5.50	
Value.....\$9.00	7.50
CLAY-WORKER .....\$2.00	
Metropolitan 1.50	
Good Housekeeping 1.50	
Value.....\$5.00	3.50
CLAY-WORKER .....\$2.00	
Brickbuilder 5.00	
Cosmopolitan 1.50	
Value.....\$8.50	6.50
CLAY-WORKER .....\$2.00	
Concrete 1.00	
Woman's Home Companion 1.50	
Value.....\$4.50	3.00
CLAY-WORKER .....\$2.00	
Woman's Home Companion 1.50	
Delineator 1.50	
Value.....\$5.00	3.50

If none of the foregoing combinations is just what you want, write us for special prices on any magazines or papers desired and we will quote you equally low prices.

Send all orders to THE CLAY-WORKER.

T. A. Randall & Co., Publishers Clay-Worker, Indianapolis:

You will please send THE CLAY-WORKER and the other magazines named below to me for the ensuing year beginning with the next current issue of each for which

I enclose \$.....

Name.....

Postoffice.....

Street and No.....State.....

Names of magazines desired.....

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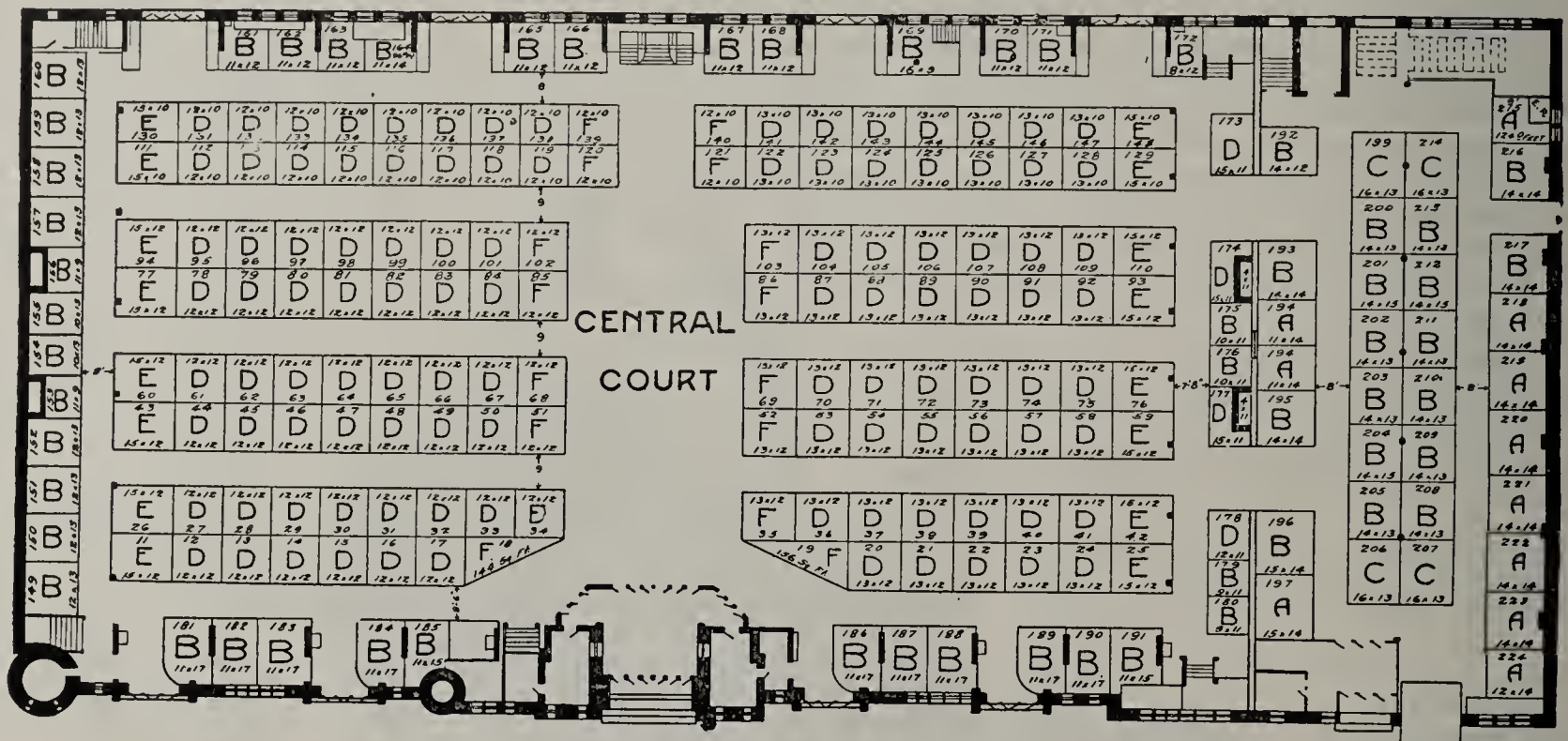
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Attention, Mr. Clayworker!

Here's a Means of Boosting Your Business.

Place an Exhibit of Your Products in the Great Clay Products Show--To be Held at the Coliseum, Chicago, February 26 to March 8, 1913.



Floor Plan of the Coliseum.

**The Architects and Contractors Will be There.
The Prospective Builders Will be There.**

Thousands of people who will sooner or later be in the market for YOUR PRODUCTS will attend this great exposition, and will be directly or indirectly influenced by the exposition as to the character and kind of material which they purchase.

You Cannot Afford to Stay Out—This is YOUR Show

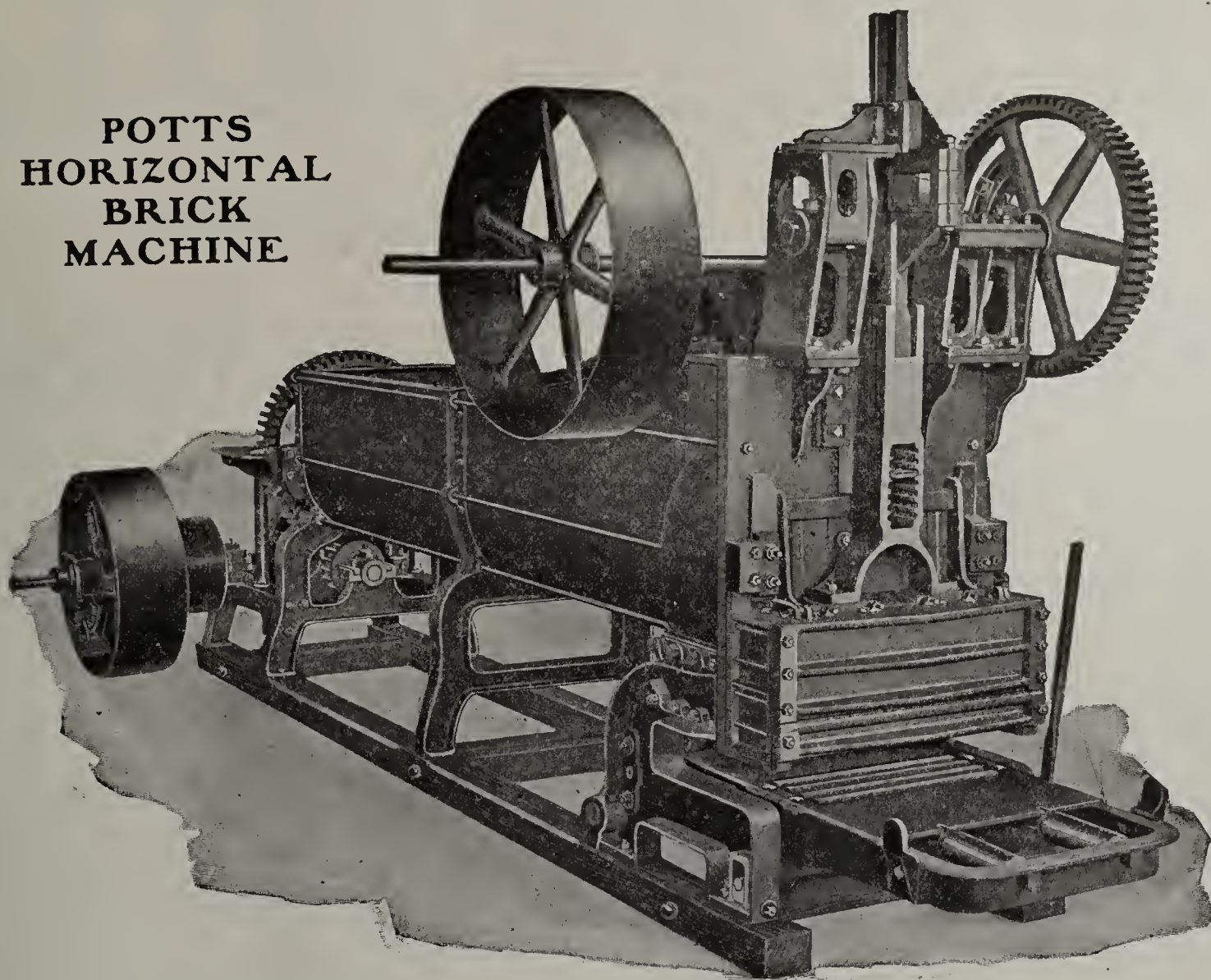
It will benefit your interests and help in increasing your sales anyway, but it will be doubly valuable if you have your products properly displayed in suitable exhibit space for the inspection of

100,000 PAIRS OF EYES

Write NOW for floor plan and particulars regarding reservation of space. You cannot afford to wait until the last minute.

The Clay Products Exposition Co.
815 Chamber of Commerce Bldg., CHICAGO

**POTTS
HORIZONTAL
BRICK
MACHINE**



**The Potts Brick Machine
Cannot Be Equaled for
SIMPLICITY**

It has only one tempering shaft. This means that there are **fewer exposed bearings, less gearing to operate, and no working parts** in the clay or underneath the machine. Every working part is easily accessible.

STRENGTH

All shafts are made of steel, and the gear and crank shaft of cast steel. All wear-resisting parts are made extra heavy of the best steel and iron castings. It guarantees sure service.

OR WORKMANSHIP

Potts workmanship has made our reputation. Every joint is planed, insuring good solid bearings. All bolt holes are drilled from the solid iron and bolts made to measure. The Potts Brick Machine will stand continuous operation at highest speed.

C. & A. POTTS & CO.
Indianapolis, Ind.

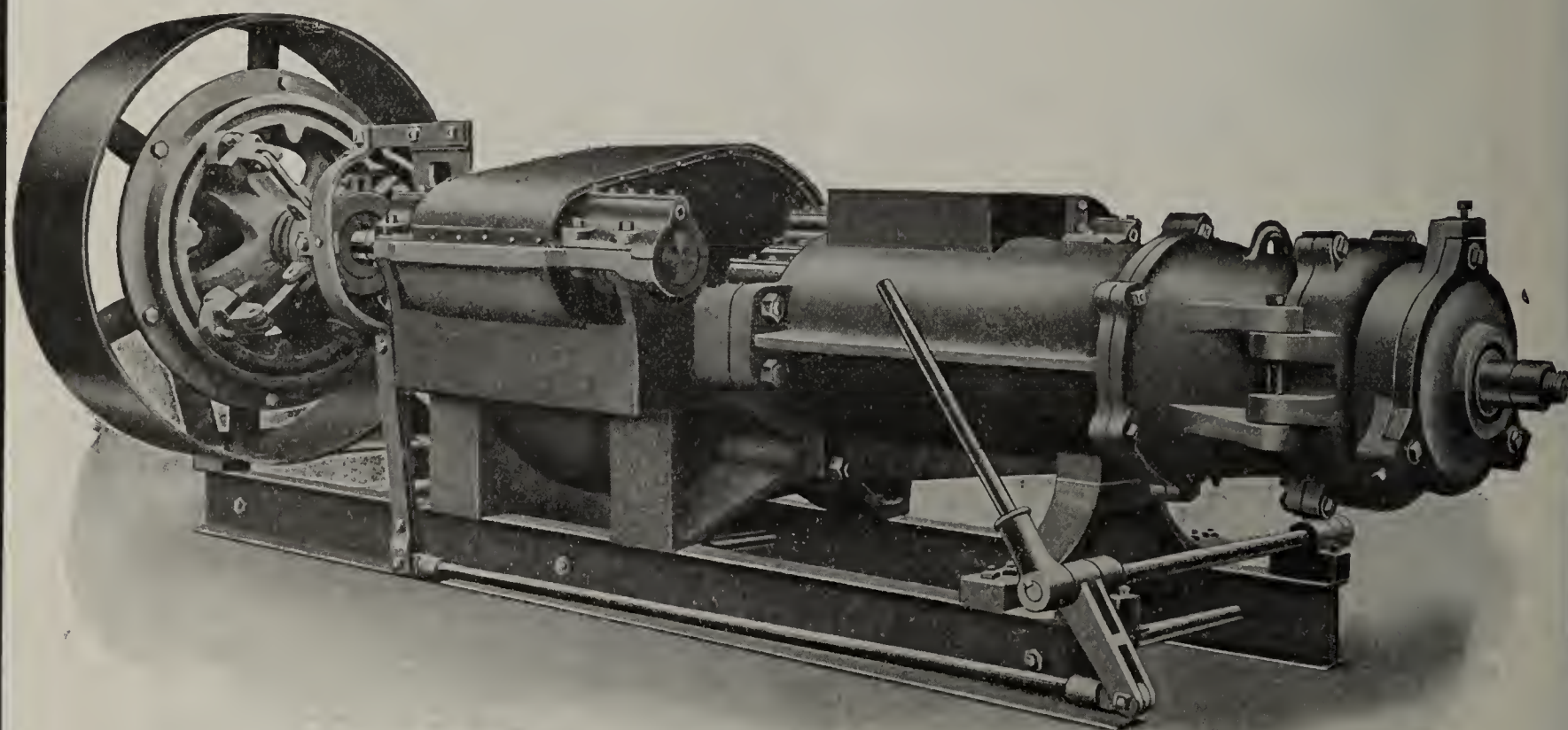
**OUR NEW
MACHINERY CATALOG**

is just off the press. Not only does it give complete descriptions and prices on Potts Machines, but it contains information that is useful to every brick-maker.



The Brewer No. 88 Horizontal DRAIN TILE MACHINE

A high grade, high speed, heavy duty pattern, new enough to be up to the minute, but old enough to have shown what it can do.



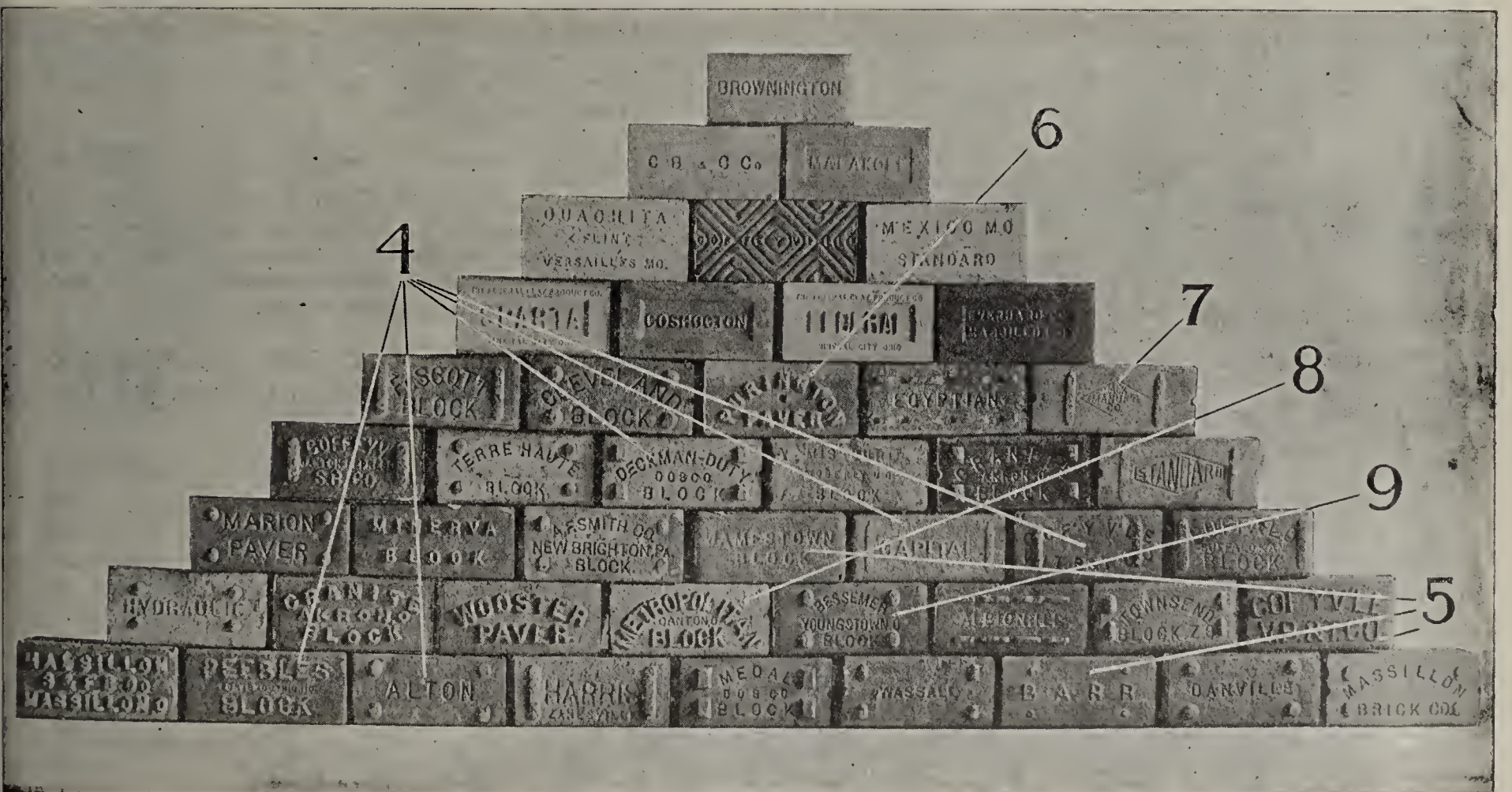
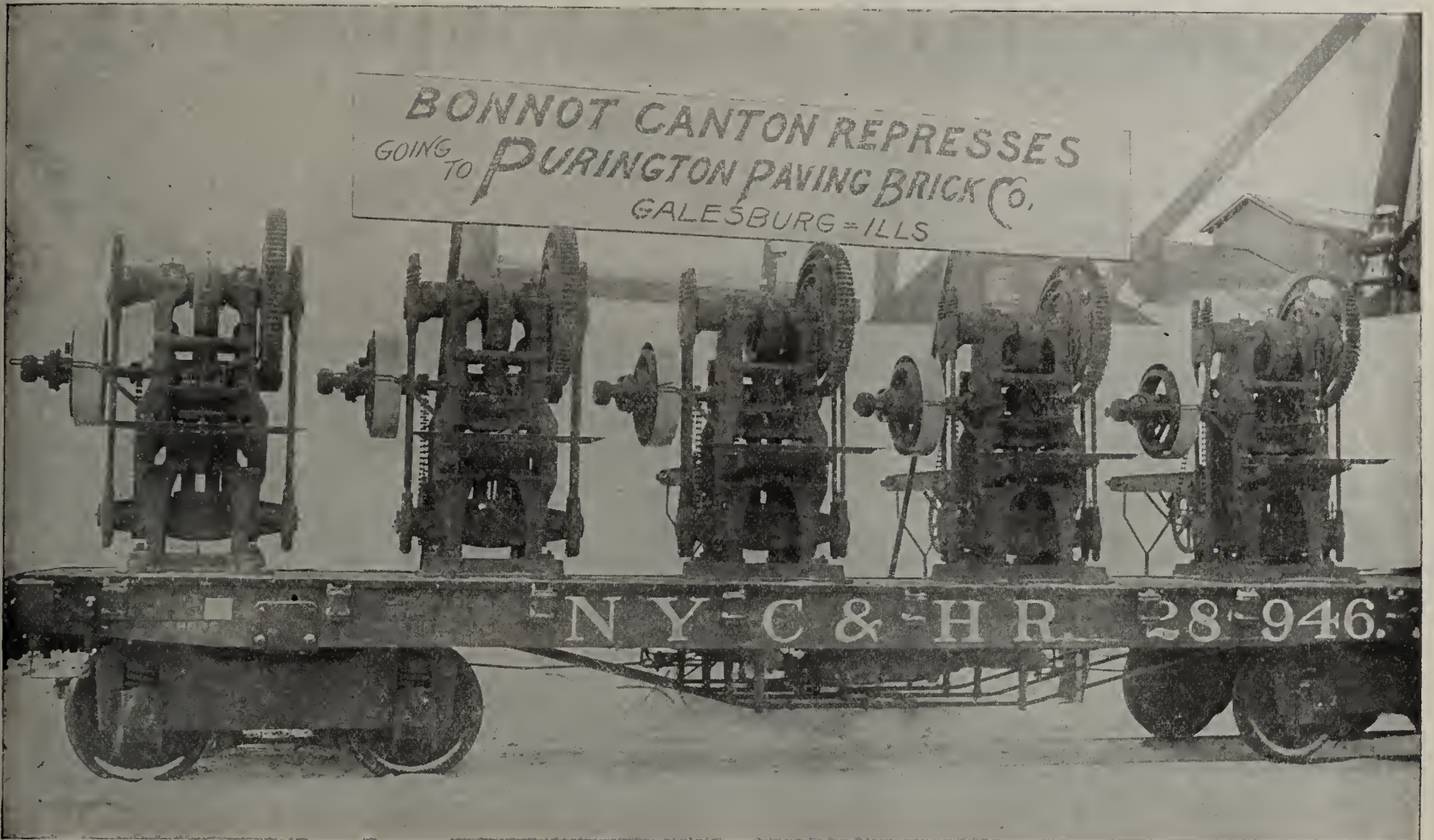
Here Are a Few Construction Points:

- Cut gears, covered and running in oil.
- Gear frame cast in one piece.
- Cylinder cast in one piece.
- Hammered steel shafts. Self-oiling bearings.
- Sectional lined screw case. Heavy 29-in. disc clutch.
- Tool steel bushed dies.

Ask for complete catalog, references and prices.

H. BREWER & COMPANY, Tecumseh, Mich.

Bonnot Repress has been Adopted by Purington Paving Brick Co.



A study of this cut will show the class of brickmakers who use BONNOT REPRESSES and the number of machines some of them are using.

909 N. Y. Life Bldg., Kansas City, Mo.
631 Higgins Bldg., Los Angeles, Cal.

THE BONNOT COMPANY, Canton, Ohio

Mention THE CLAY-WORKER.

BOOKS FOR CLAYWORKERS.

These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

The Clayworkers' Handbook, by the Author of "The Chemistry of Clayworking." Price \$2.00.

A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport, Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting or Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

Modern Brickmaking, by Alfred B. Searle. Price \$5.00.

It contains well-written chapters on the nature and selection of clays and other materials used, general brickmaking, the different processes, machinery, kilns, setting and burning, various products and uses, and sources of difficulty and loss.

Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

Clays: Their Occurrence, Properties and Uses, by Heinrich Ries. Price \$5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

Bricklaying, by Owen B. Maginnis. Price \$2.00.

This book contains extensive explanations of the most improved modern methods of bricklaying, and is the current practice and experience of the best authorities, making an invaluable work of reference for architects, engineers, contractors, builders and mechanics.

The Effect of Heat Upon Clays, by Prof. A. V. Bleining. Price \$2.00.

A book of valuable information on burning and drying, told in a plain, practical way, and invaluable to the burner or superintendent.

Bricklaying System, by Frank B. Gilbreth. Price \$3.00.

A book whose 330 pages are filled with rules and hints for the foreman and bricklayers, designed to increase the output of the workmen and enable them to do difficult work in the best manner.

Vitrified Paving Brick, by H. A. Wheeler, E. M. Second Edition. Price \$2.00.

A review of present practice of the manufacture, testing and uses of vitrified paving brick.

Tables of Analyses of Clays, by Alfred Crossley. Third Edition. Price \$2.00.

Including analyses of chemically pure clays, well-known common and pressed brick clays, paving brick clays, fire clays, shales, etc., both in this country and abroad. A valuable book for those desiring to compare their clays with well-known and standard clays.

Kiln Records, by W. D. Richardson. Price \$1.00.

To establish a successful system of burning, observations and records should be made regularly, carefully and conscientiously, and this can be done to best advantage by the use of Mr. Richardson's Kiln Records.

Engineering for Land Drainage, by C. G. Elliott. Price \$2.00.

Giving instructions for laying out and constructing drains for the improvement of agricultural lands intended for the use of those who are charged with the responsibility of making plans for and executing drainage improvement.

Practical Farm Drainage, by C. G. Elliott. Price \$1.50.

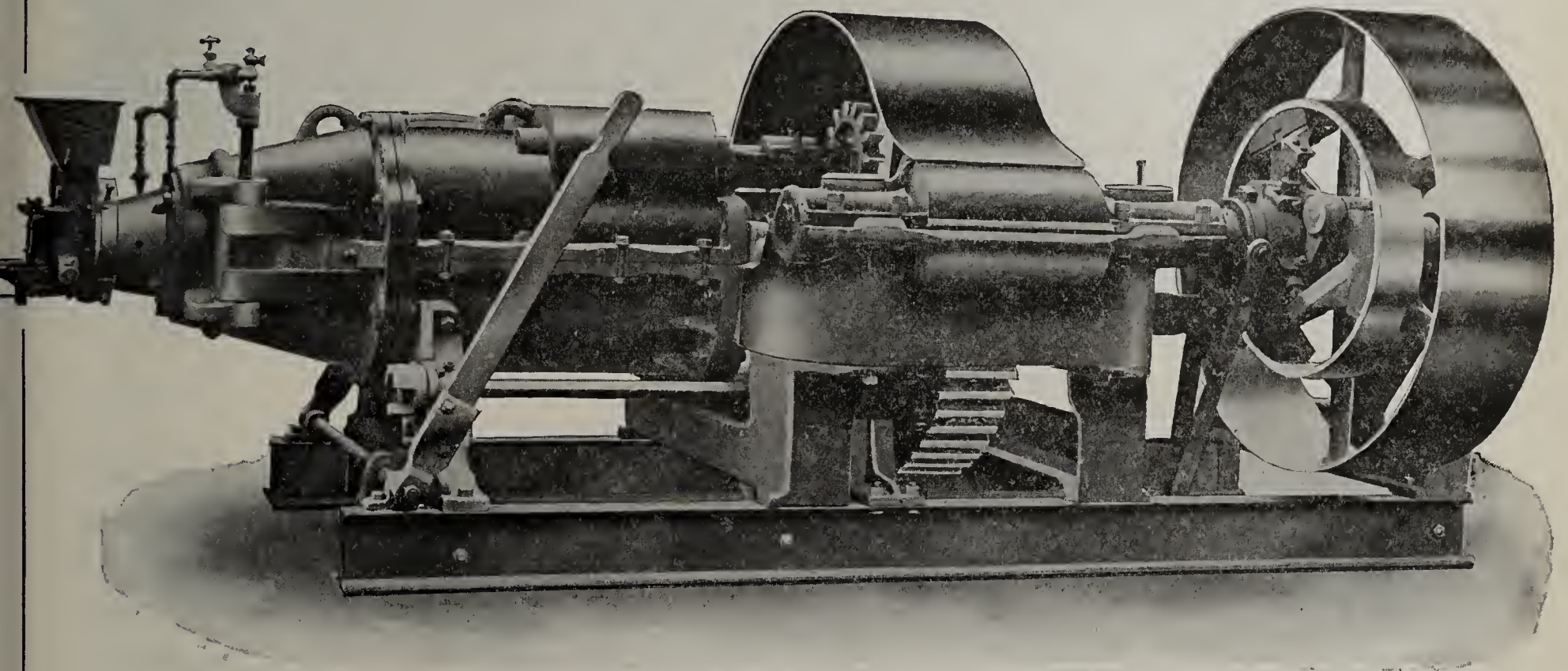
A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

Tile Underdrainage, by J. J. W. Billingsley. Price 25 Cents.

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distributing among tile users. In lots of 100, \$2.50; in lots of 1,000, \$20.00.

T. A. RANDALL & CO.,
Indianapolis, Ind., U. S. A.

Special Attention Given to Medium and Small Plants



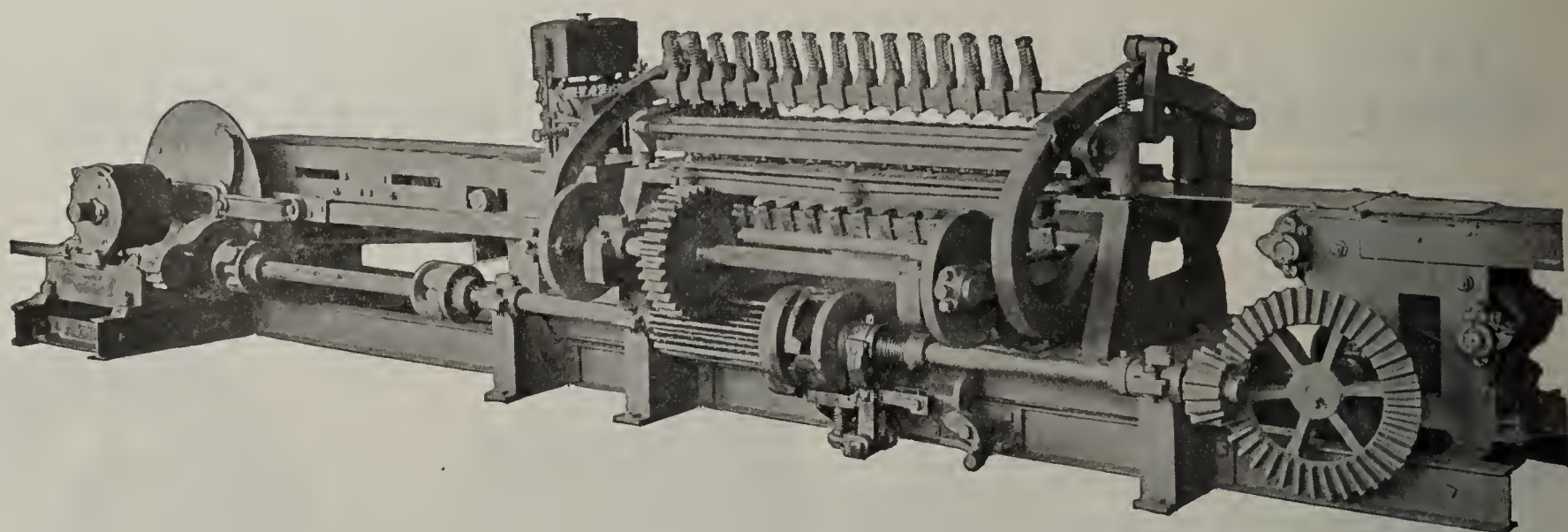
Our machines for small capacities receive just the same attention as our larger machines. We know the requirements of the small brick-maker by long experience, and have given special attention to simplifying and improving these machines.

We think it better policy to carefully consider the necessities of our customers rather than to load them up with machinery not suited to their conditions. With our machines, you are at no disadvantage with the large plants.

We will be glad to help you if you are having any kind of troubles.

J. C. STEELE & SONS
STATESVILLE, N. C.

Manufacturers of the Better Kind of Brick Machinery.



Model T 60 Reciprocating Automatic Cutter

This cutter, which is of the reciprocating type, is built in two Models "T 50" and "T 60" for capacities up to 12,500 brick per hour or more. The design is extremely simple and substantial. It embodies many of the well tried features of our Rotating Automatic Cutters.

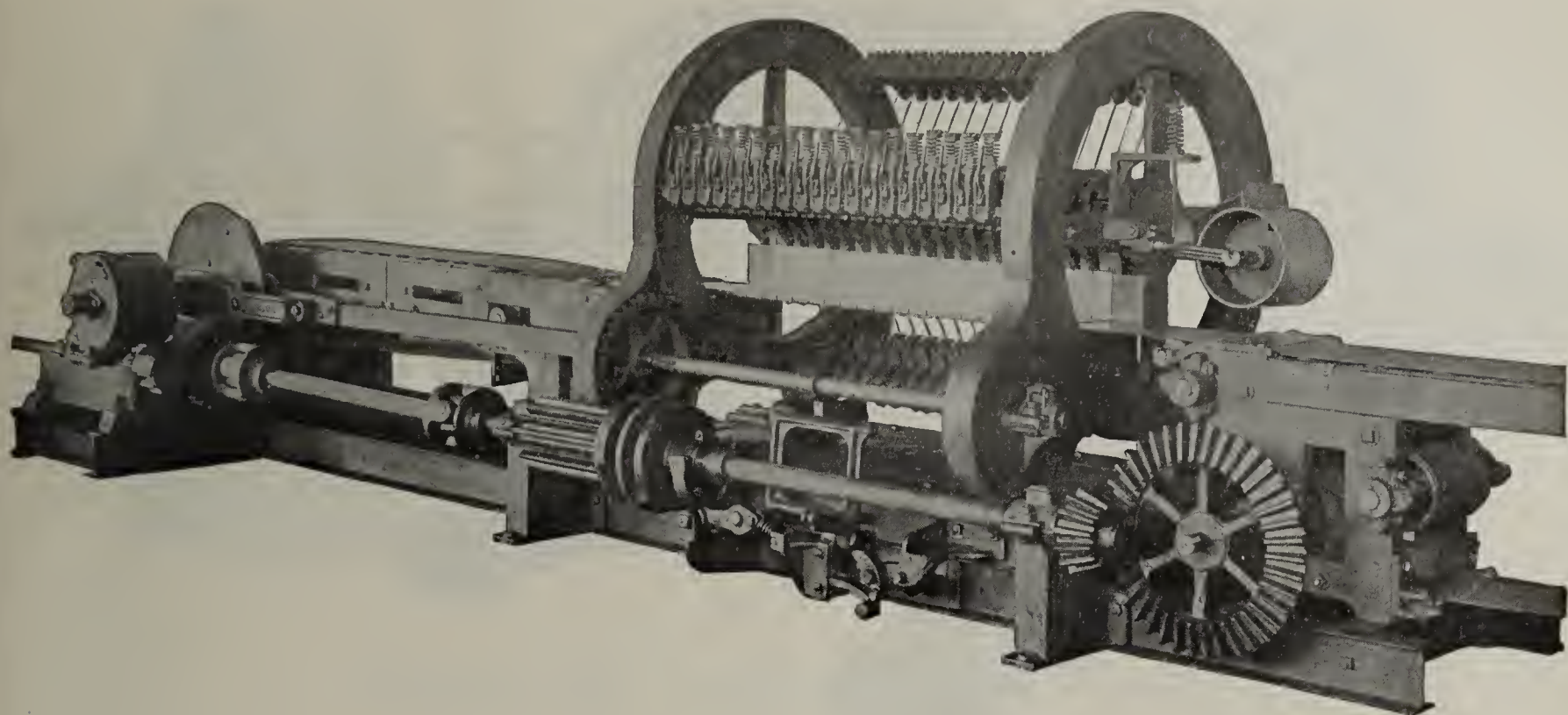
The cutting frame carries only one set of cutting wires and has a swinging movement, avoiding the wear and play common to sliding parts. It is actuated by cranks, driven by a single gear and pinion, giving a smooth, quiet starting and stopping of the cutting stroke. The frame remains stationary between cuts, affording ample time to renew broken wires.

The platens are very easily removed and replaced when the thickness of cut is to be changed. Four bolts hold the platen in place. When these are removed it can be lifted straight up, between the end castings. Only a few minutes required to make the change.

An upper platen (Dunn Patent) can be furnished to insure smooth upper edges on the brick. This is automatically raised to clear the clay column after the cut is completed and is returned to position in time for the next cut, avoiding any tendency for the column to become wedged. Solves the problem of making smooth edge brick on a reciprocating cutter.

Either Model is made to suit a variety of work. The "T 60" is built special to accommodate the largest sizes of fireproofing, etc. These cutters can also be especially arranged for cutting the Dunn Wire-Cut-Lug Paving Blocks.

E. M. FREESE & COMPANY, Galion, Ohio



Model C 20 Rotating Automatic Cutter

We build rotating automatic cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for hollow ware, fireproofing, radial chimney blocks, etc., up to $13\frac{1}{2}$ in. by $7\frac{1}{2}$ in.

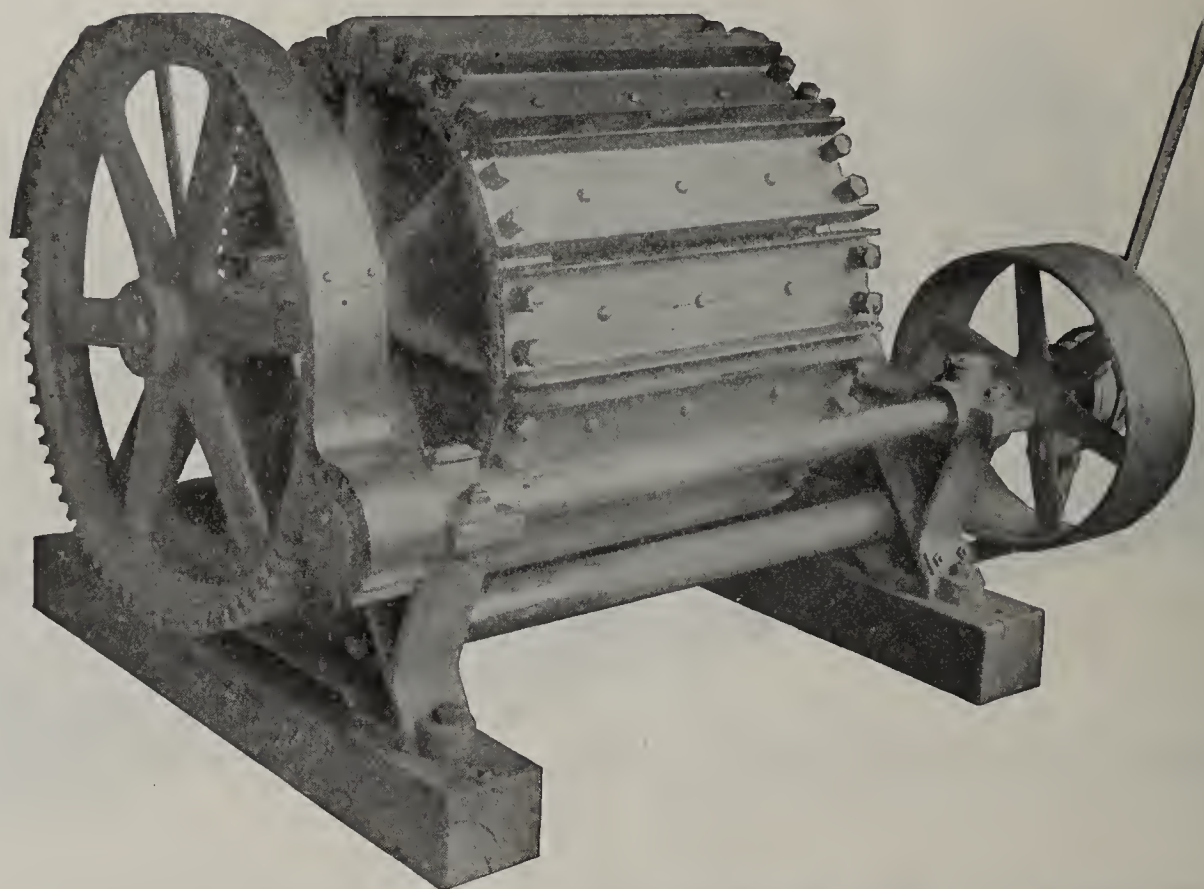
The above illustration shows the Model C 20 Cutter, which is an improved model of our well-known Size 16. It is intended for capacities up to 7,500 standard size brick per hour—18 brick are cut at each cut. At this speed the cutting reel makes only a little over two revolutions per minute, remaining stationary between cutting strokes. It is not necessary to stop the brick machine to renew broken wires, as this gives ample time.

The cutting apparatus, including drive for separating belt, is entirely self-contained, being mounted upon one set of I-beam sills, assuring permanent alignment of all parts. The measuring and separating tables are built with iron or steel sides.

Cutting reel and carriage are carried on rollers requiring little or no oiling. Carriage is positively moved with the clay by an accurate cam. Clutch mechanism is the simplest possible. Wearing surfaces have renewable steel plates.

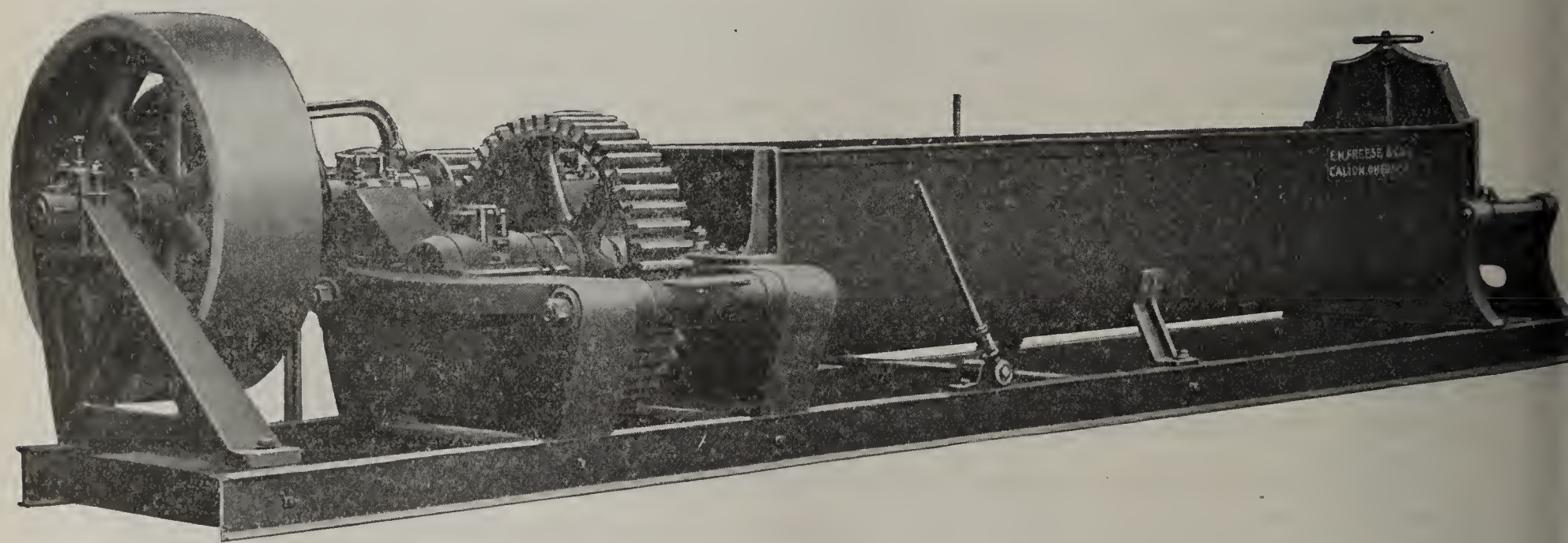
Particular attention is called to the platen construction. The platen is cast in one piece of tubular cross section and is very rigid. Surfaces covered with renewable steel plates, insuring fine slots. The angle of the cutting wires has been changed to give perfect edges on the brick. Built to give long service without skilled attention. Complete description will be furnished on request.

E. M. FREESE & COMPANY, Galion, Ohio



STANDARD RATTLER FOR PAVING BRICK

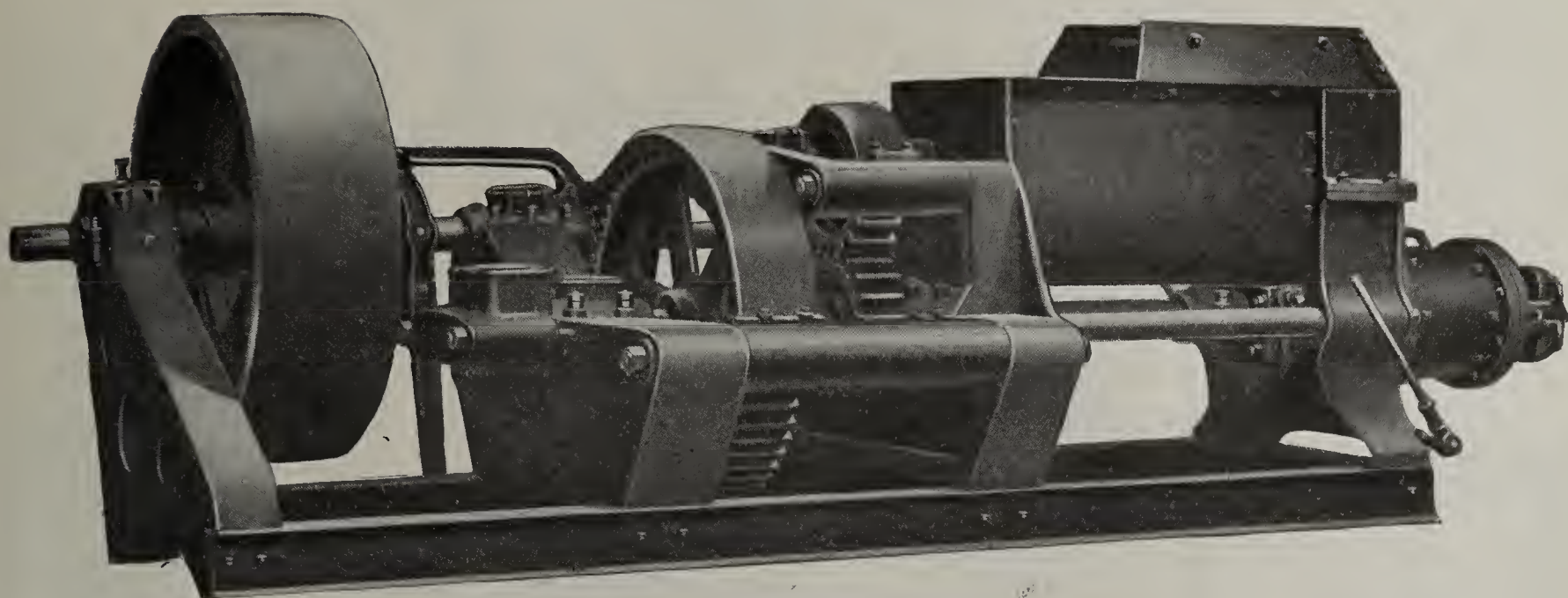
Built to fully comply with the new specifications adopted by the National Paving Brick Manufacturers' Association. Write for detailed information.



We are building Pug Mills in great variety—more than forty patterns and sizes. We have both spur and bevel geared Pug Mills of all sizes, arranged to discharge at either end as may be specified. The above is an example of a heavy, direct geared machine of large capacity, designed for most exacting requirements.

Let us send particulars.

E. M. FREESE & COMPANY, Galion, Ohio

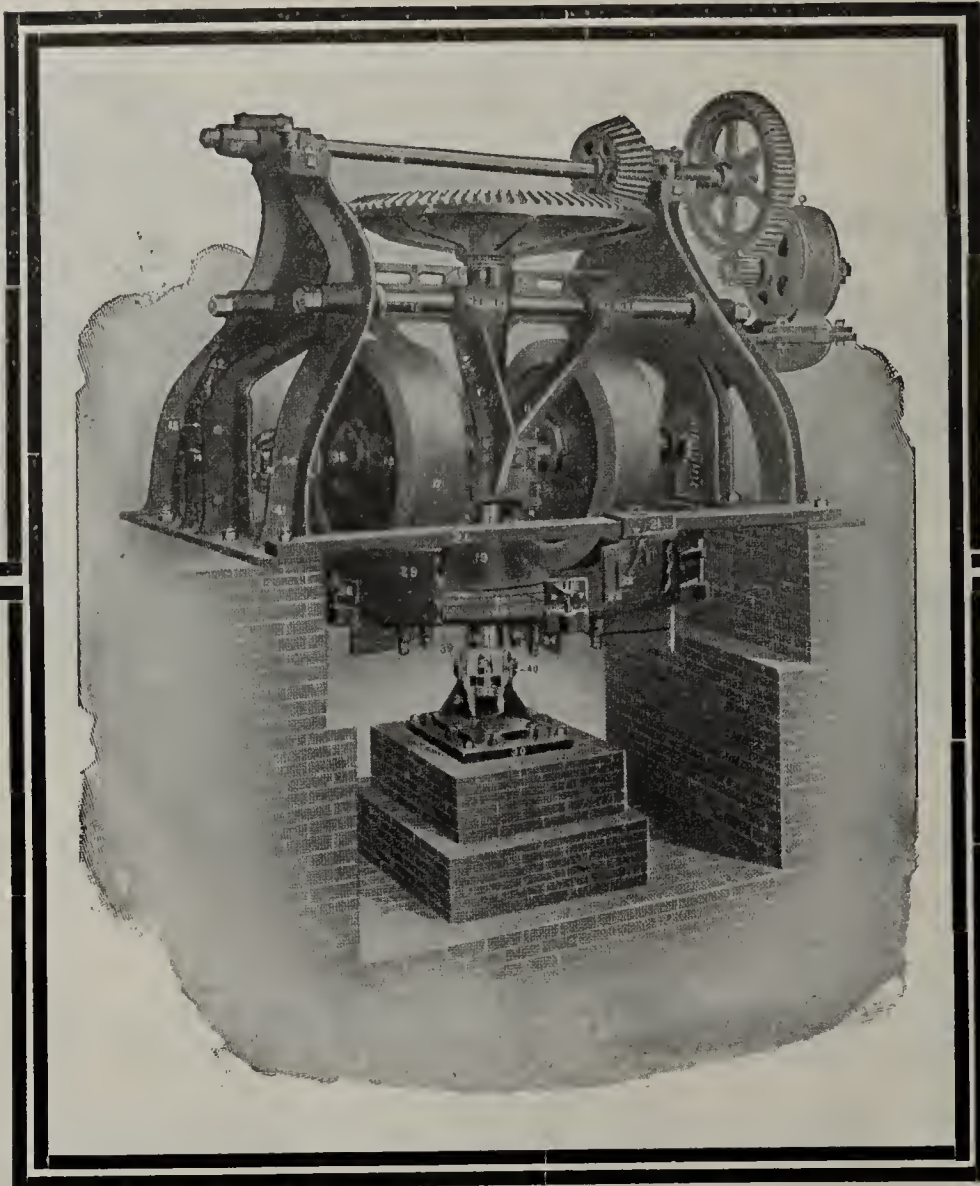


Model "KC" Auger Brick Machine

This machine has several features of merit. The construction is simple. The parts conveniently accessible. Each of its three shafts has three journal bearings, insuring substantial support for the gearing and more permanent alignment. The feeding chamber is open its entire length and the auger chamber is kept positively and uniformly supplied with clay. The gearing is designed for smooth and quiet operation. All the shafts are of large diameter and the proportions throughout are extremely heavy. The workmanship and material are of the best.

Intended for first-class product and economical operation.

E. M. FREESE & COMPANY, Galion, Ohio



*Ask for full
information
on Stevenson
Grinding Pans
Tempering Pans
Grinding and
Mixing Pans
etc. Catalog
free on request*

One hundred cents' worth of value from every dollar invest- ed in Stevenson Machinery

You are not paying for experiments—and you're not taking chances—when you install Stevenson Pans and Presses. Wherever big drain tile is profitably produced, it's ten chances to one you'll find Stevenson equipment right there on the job.

Stevenson Grinding and Mixing Pans are famous for efficiency throughout the world. And where conditions are severest Stevenson Pans are needed—because they can “stand the strain.” All styles and sizes.

The biggest profits in the clay business lie in making BIG DRAIN TILE—are you getting your share?

Do you know that the demand for big tile is increasing at a greater rate than manufacturers can supply it? Do you know that price cutting in big tile is practically unknown?

Buy a Stevenson Press and get the cream of the tile business—the big contracts. The Stevenson makes drain tile up to 24 and 36 inches diameter—and is the most-used press for big tile on the market.

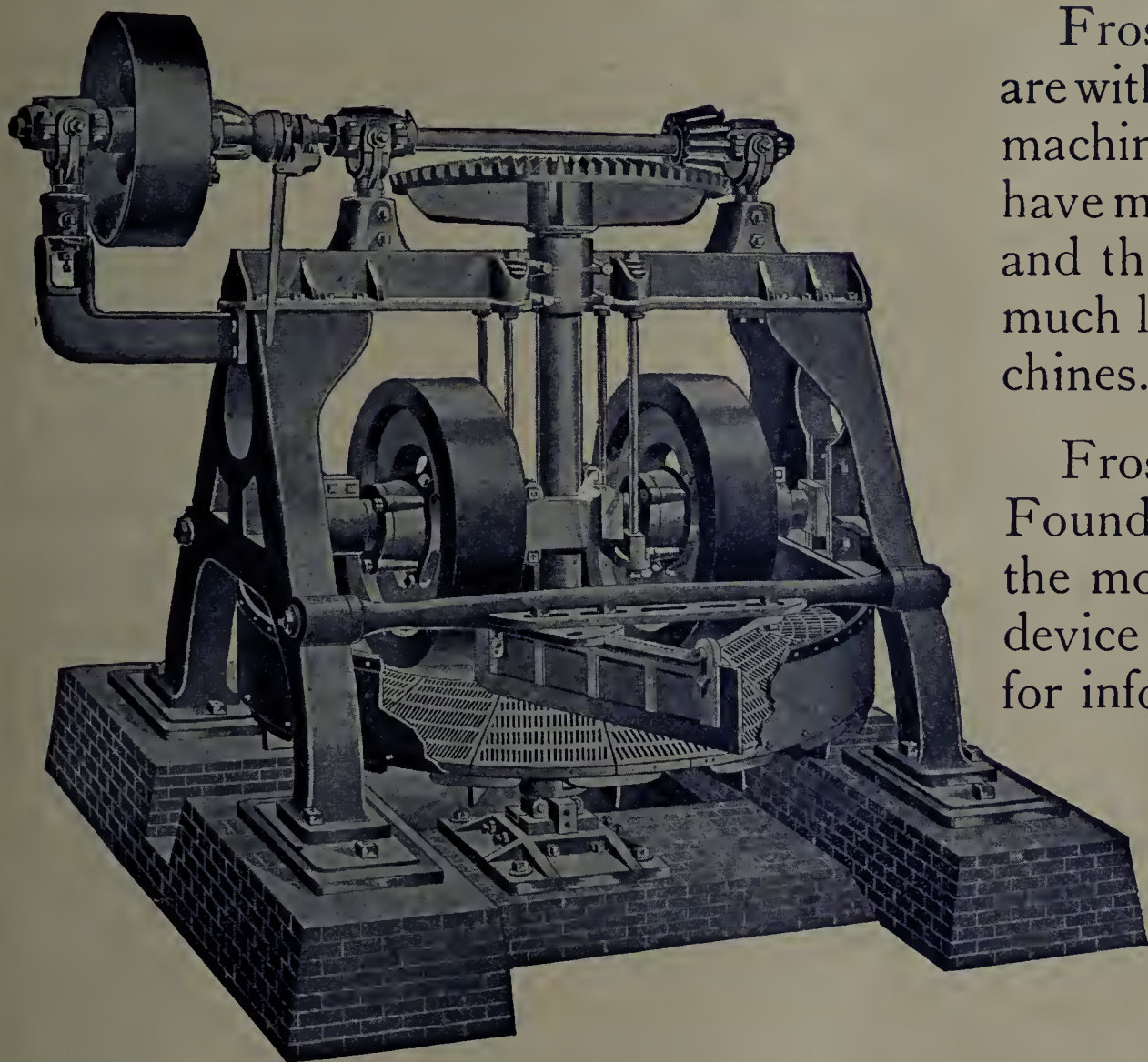
If you're out for bigger business—if you're after the “plums” in the drain tile business—you'll surely write for full information on Stevenson Machinery. A few words on a postcard will be sufficient.

The Stevenson Company
Wellsville, Ohio

For Sixty
Years
The Name

Frost

Has stood for all
that is best in
Power Plant
Equipment, Clay
Crushing and
Mixing Machinery



Frost Dry and Wet Pans are without doubt the standard machines of their kind. They have more capacity, longer life, and the cost of repairs is very much less than on similar machines.

Frost Sand Mills for Steel Foundries are equipped with the most successful emptying device on the market. Write for information.

Ask any user
how they are
liked.

We are manufacturers of Engines and Boilers as well as
a full line of Dry and Wet Pans.

Write us for descriptive matter.

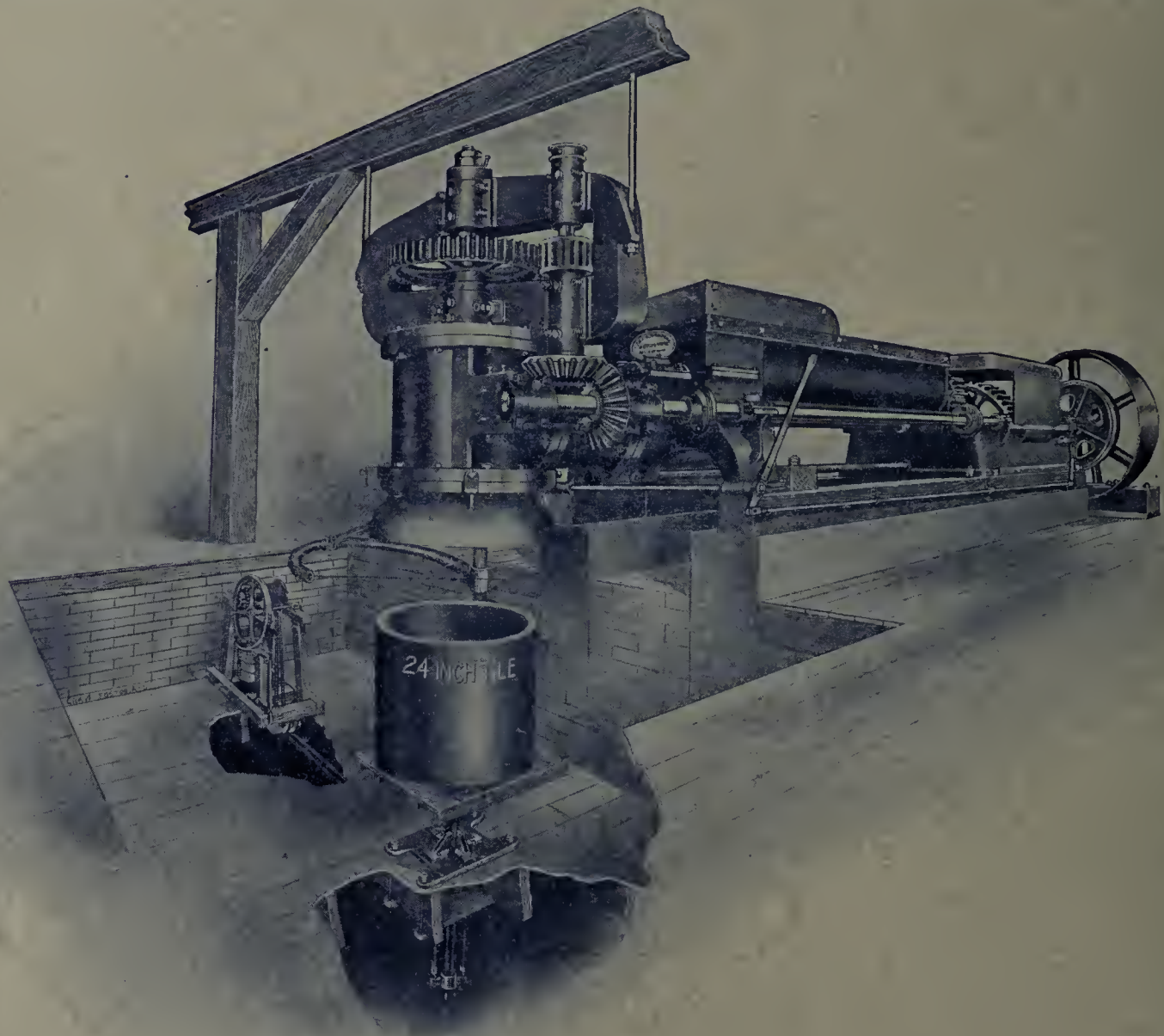
The Frost Manufacturing Co.

Works at
GALESBURG, ILL.

GENERAL SALES OFFICE:
112 West Adams St., CHICAGO, ILL.
Cable Address "FROSTMANCO," Chicago.

Mention THE CLAY-WORKER.

An Improved Vertical Attachment for Extra Large Tile



Built practically on the same plan as the well known Vertical Attachment built by the J. D. Fate Company for a number of years, and which is in successful operation in many tile factories.

The demand for machinery to make the extreme large sizes became so great that the Fate Company designed a new and improved attachment for their Imperial Machine by means of which tile as large as 30 inches in diameter can be successfully molded.

One of the features of the machine is the hollow auger shaft in the attachment by means of which the core bridge is eliminated.

Another feature is the improved cutting arrangement, it being of the sewer pipe type.

A postal card will bring you full information.

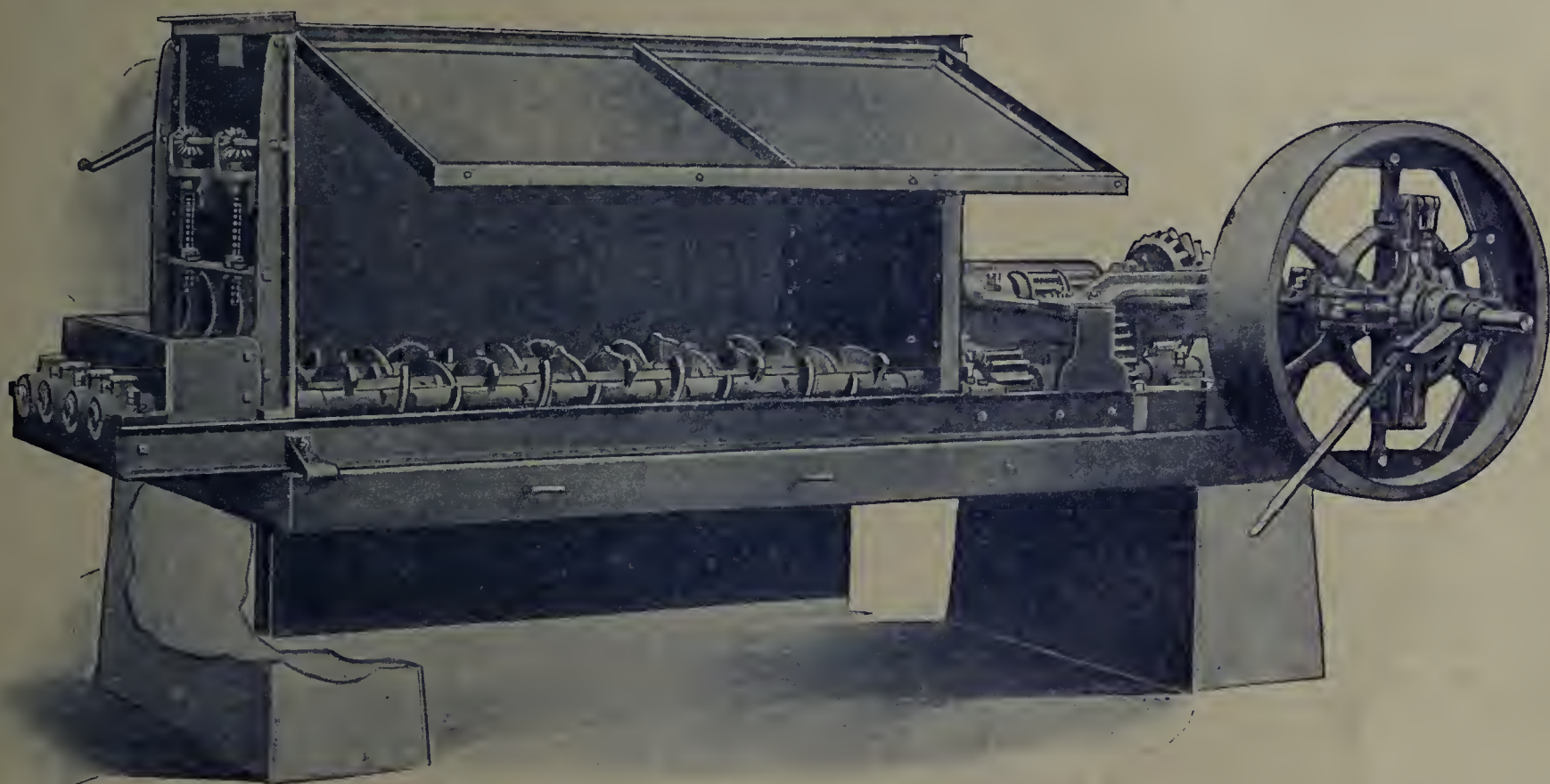
The J. D. Fate Company
Plymouth, Ohio

Western Office, 604 Blake-McFall Bldg., Portland, Oregon. A. E. Davidson, Representative.
Manufacturers' Equipment Co., Dayton, Ohio, Sales Agents.

THE JUSTICE RADIATED HEAT DRYER—SUCCESSFUL RESULTS ALWAYS CERTAIN.

A PRACTICAL CLAY FEEDER—

Increases the Capacity of Your Machine



The hopper of the Feeder will hold the contents of two ordinary clay cars which is fed automatically to the machine in a regular and steady stream, insuring a constant supply of clay in the machine, and saves the labor of a man who ordinarily shovels the clay into the disintegrator or machine.

Are not these two items inducement enough for you to fully investigate this feeder?

A postal card will bring you full information.

The J. D. Fate Company
Plymouth, Ohio

Western Office, 604 Blake-McFall Bldg., Portland, Oregon. A. E. Davidson, Representative.
Manufacturers' Equipment Co., Dayton, Ohio, Sales Agents.

THE JUSTICE RADIATED HEAT DRYER—SUCCESSFUL RESULTS ALWAYS CERTAIN.

We manufacture a complete line of

BRICK MACHINERY

and make a specialty of equipping yards.

Roller Bearing Brick Barrows.

Everybody duplicates orders; they must be used to be appreciated.

Price \$7.50 each.

Stock size wheel, 20 inches diameter.
(If wanted, 18 inches.)

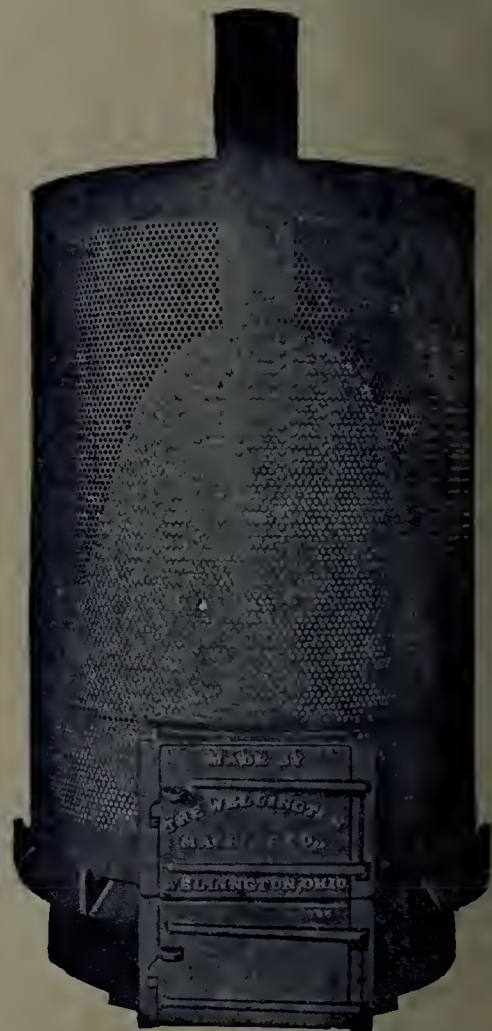


For catalogue and any further information address

James W. Hensley,

Successor to S. K. Fletcher.

Indianapolis, Ind.



SAND DRYER.

Weight, 1,100 lbs. Every brick work needs one. Diameter over all, 3 ft. 1 in. Height 4 ft. 9 in. We will be glad to send one to any responsible party subject to ten days' trial and approval. We sell them that way and not one ever came back.



No. 241



No. 230



No. 244



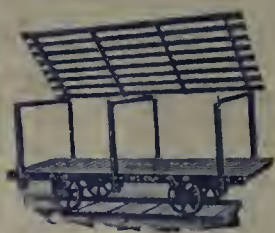
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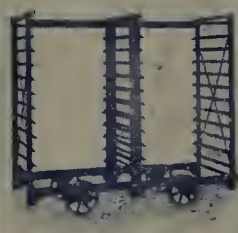
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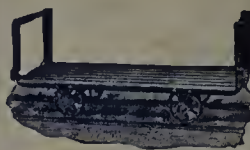
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Electric Transfer



No. 201



No. 210



LAKEWOOD LINE

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PITTSBURGH—1202 Fulton Bldg.
QUEBEC—A. D. Masson, 30 Nicholas St.
CINCINNATI—Ohio Ceramic Engineering Co.
2622 Essex Place.

THE CLAY WORKER



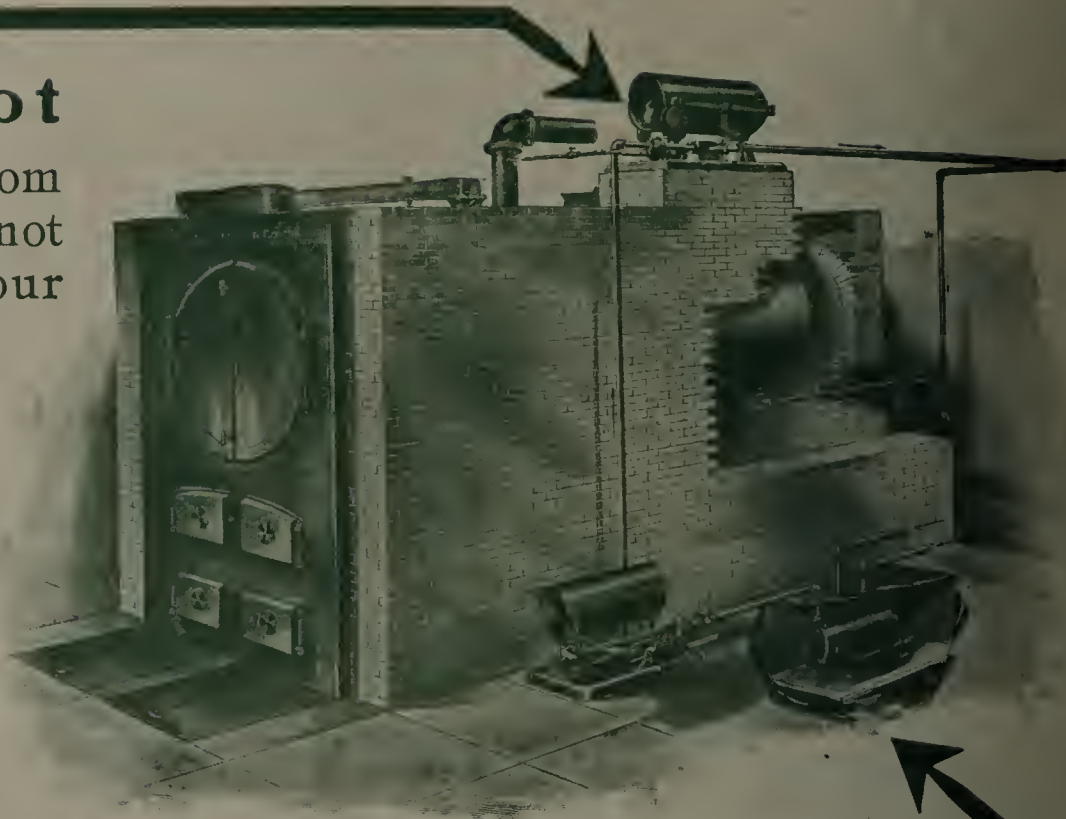
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Get It Back Hot

By getting the water back from your steam dryer hot, you not only save fuel, but save your boilers as well.

"Detroit" RETURN TRAPS

take the water direct from your heating surface and deliver it **automatically** back to your boiler at a temperature considerably higher than is possible with pumps. It requires less than 10% of the steam required to operate good pumps and **absolutely** no attention or repairs.

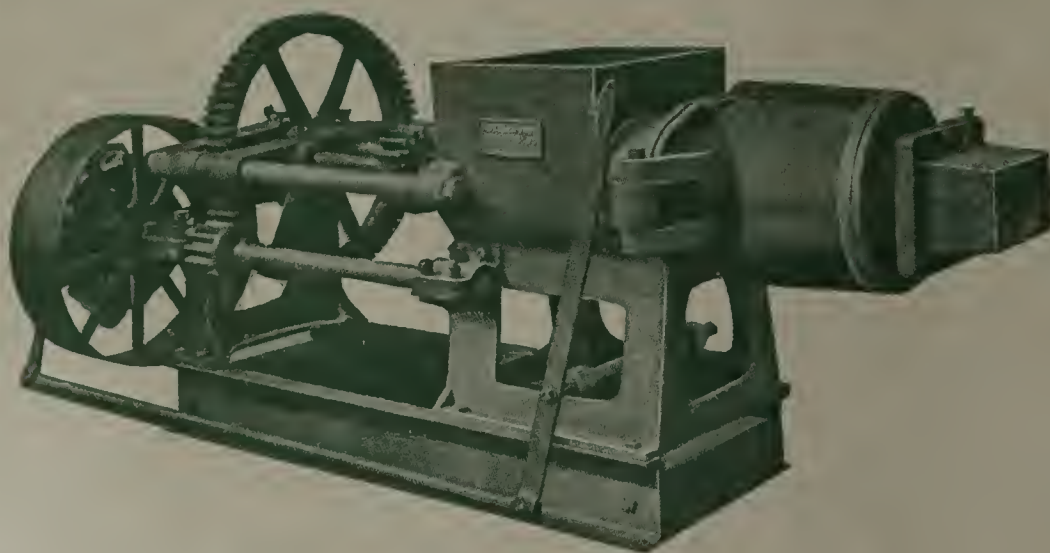


Ask for Bulletin No. 326 C.

AMERICAN BLOWER COMPANY
DETROIT, MICH.
U. S. A.

Canadian Sirocco Company, Limited, Windsor, Ontario, Manufacturers for Canada.

MUELLER'S NEW AUGER BRICK MACHINERY



A separate feeding shaft prevents all clogging and intensifies mixing.

The hinged front parts of cylinder, easy to swing open, permit quick access to all augers and knives.

The new Auger System develops a positive, irresistible driving force, prevents idle turning of clay in cylinder and therefore lamination.

We build machines of all capacities, also small auger machines for laboratories, horsepower brick machines, hand plunger presses, pug mills, single and double shaft, clay feeders, elevators, piano wire screens.

Smooth and break roll crushers of any size and combination.

Brick, block and tile dies, lubricated in full or parts, hand and automatic cutting tables, recutters for all kinds of standard bricks, blocks and clay products.

Lowering brick trucks for hot floor driers.

ROOFING TILE MACHINERY

Revolving presses for standard interlocking tiles.

Trimming press for ridge tile, special shapes, etc.

Hand presses, molds in metal and plaster.

Special double shaft auger machines for stream roofing tiles, as shingles, promenade tiles, interlockings, Spanish S or mission tiles, etc., as well as dies and special cutting tables for each of those tiles

We equip complete plants of any size with all necessary machinery for the manufacture of any known type of roofing tiles.

MUELLER BROS.

1436 Macklind Ave., (on Frisco Tracks)

ST. LOUIS, MO.



For Making TILE or HOLLOW WARE



No. 17 Bonnot Tile Machine PARTICULARLY BUILT for That Work.

In this machine you will find the very highest class of construction.

It rests upon a massive one-piece bed plate which gives rigidity to the entire machine. The gears are cut from steel, are fully housed and run in oil.

The marine type of collared thrust bearing is used with an area of about three times that found on other machines. You know the advantage of this on a hollow ware machine.

Provision is made for adjusting the position of the nozzle to compensate for any wear on the auger. Three sizes of augers can be furnished.

NEW CATALOG READY DECEMBER 20---Write for Your Copy

Read pages 736 and 737 of this issue.

THE BONNOT COMPANY

909 N. Y. Life Bldg., KANSAS CITY, MO.

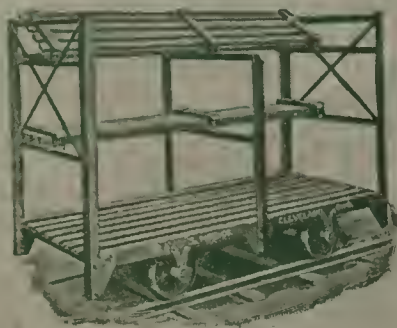
CANTON, OHIO

631 Higgins Bldg., LOS ANGELES, CAL.



Mention THE CLAY-WORKER.

ATLAS HIGH EFFICIENCY CARS



No. 1205
Triple Deck Car.



No. 6425
Electric Locomotive.

If you are interested in

SAVING MONEY

in the handling of your material it will pay you
to investigate our

Cars and Locomotives

Send for catalogue of our

STORAGE BATTERY LOCOMOTIVE

which requires no trolley wire or third rail.

Dryer Cars, Dump Cars,
Locomotives,
Turntables,
Track, Switches, Etc.



No. 103
Stiff or Soft Mud Car.



No. 145-C
Pressed Steel Top, Ball Bearing
Turntable; Patented.



No. 217-E
Side Dump Car
Equipped With Motor.

THE ATLAS CAR & MFG. CO.

Dept. D

1189 Marquette Road, CLEVELAND, OHIO

The Taplin, Rice-Clerkin Co.

The Pioneer Machinery Folks of Akron, Ohio.

Some Plants We Have Installed

Wm. E. Dee Clay Mfg. Co., Mecca, Ind.
National Drain Tile Co., Terre Haute, Ind.
White Hall Sewer Pipe Co., White Hall, Ill.
Lehigh Clay Product Co., Lehigh, Ia.
The Denny Renton Co., Seattle, Wash.
The Gladding-McBean Co., San Francisco, Cal.
The Pacific Clay Products Co., Los Angeles, Cal.
W. S. Dickey Clay Mfg. Co., Kansas City, Mo.
Blackmer & Post Co., St. Louis, Mo.
Post Pipe Co., Texarkana, Tex.
San Antonio Sewer Pipe Co., San Antonio, Tex.
Henry Stevens Sons & Co., Macon, Ga.
Pomona Terra Cotta Co., Pomona, N. C.
Shawmut Clay Co., Shawmut, Pa.
Ohio Clay Co., Cleveland, Ohio.
Robinson Graves Sewer Pipe Co., Uhrichsville, Ohio.
Dominion Sewer Pipe Co., Swansea, Ont., Can.
The Hamilton & Toronto Sewer Pipe Co., Toronto, Can.
British Columbia Clay Products Co., Vancouver, B. C.

"Pioneer Machinery is simply the best,
And Used in Clay Products it stands every test;
Durable, high-class, efficient, and true,
It does for its users what others can't do."

"We would build better,
But we can't.
"We could build cheaper,
But we won't."

Send for catalog.



PERFORATED STEEL SCREENS.

No Doubt You Use Screens—Let's Get Acquainted.

¶ You may never have obtained them from us. It would pay you to do so.

¶ There's more to a Perforated Steel Screen than a sheet of metal with some holes in it. The shape, the spacing, the size and accuracy of the perforations and the quality of the metal of which the Screen is made, all have a bearing on the working and wearing of the Screen—all must be *exactly right*.

¶ There are Screens that cost less than ours, but then guess-work always does seem cheaper than know-how.

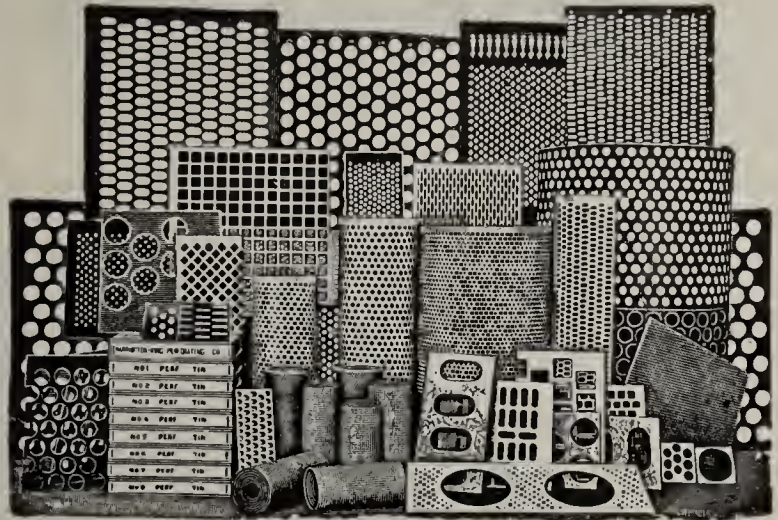
¶ We make Screens for Clay, Sand, Gravel, Cement, Stone, etc., and for Drying Floors, Car Bottoms, Conveyers, Dry Pans and cleaning and grading apparatus.

¶ You are not likely to want a size that we can not furnish. During our experience of over thirty years in the business (and that counts for something) we have acquired patterns by the thousand.

¶ Give us the size of sheets, the gauge (or thickness), the size and shape of holes, the number of sheets wanted and what for.

¶ With quotation we will send samples or Blue Prints.

¶ The work is made entirely to order.



The Harrington & King Perforating Co.,

NEW YORK OFFICE,
No. 114 Liberty St.

No. 624 North Union St.,
CHICAGO, ILL., U. S. A.



EXPERIENCE! ECONOMY! RESULTS!

Three important factors for you to consider when building a plant or a Waste Heat Dryer.

That we give attention to these points is proven by the fact that we are now the **LEADERS** in America in the designing of complete plants and the installing of Waste Heat Dryers.

You **must** have noticed the mention of our name "as Engineers" when reading about the up-to-date modern plants that are being built throughout the country.

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists,
Brick Works Engineers.

Largest Manufacturers of Brick Drying Equipment in the United States.

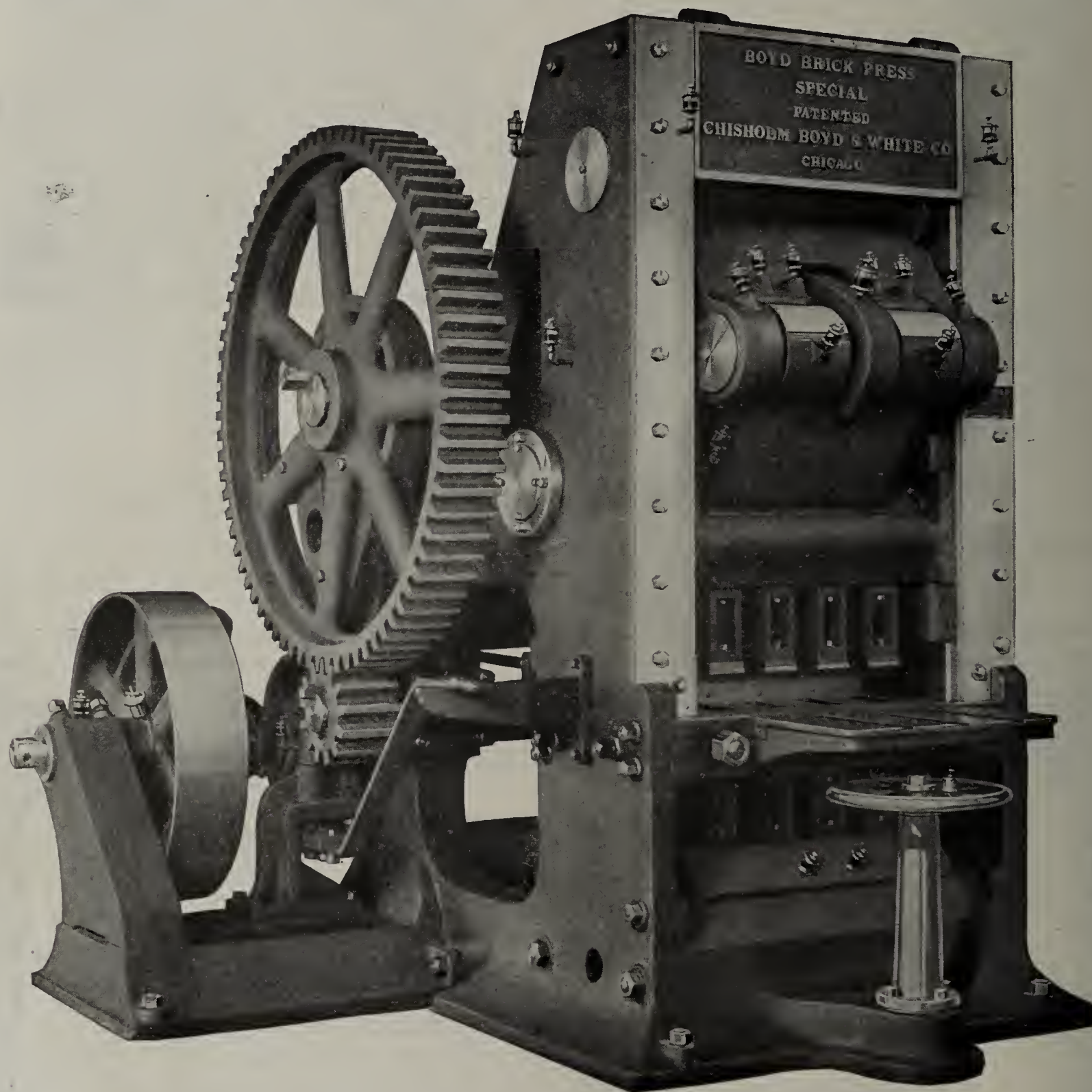
30 North La Salle St.

CHICAGO.



The Boyd Brick Press

"Built Up to a Standard—Not Down to a Price."



SPECIAL FEATURES OF THE BOYD BRICK PRESS

BALANCED-PRESSURE—brick lifted in molds under pressure.
PRESSING TIME FACTOR—long duration, 50% of the cycle.
GEARS, SHAFTS, BEARINGS and other parts exceptionally large.
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TOP and BOTTOM of brick equal hardness—**NO** granulated surfaces.

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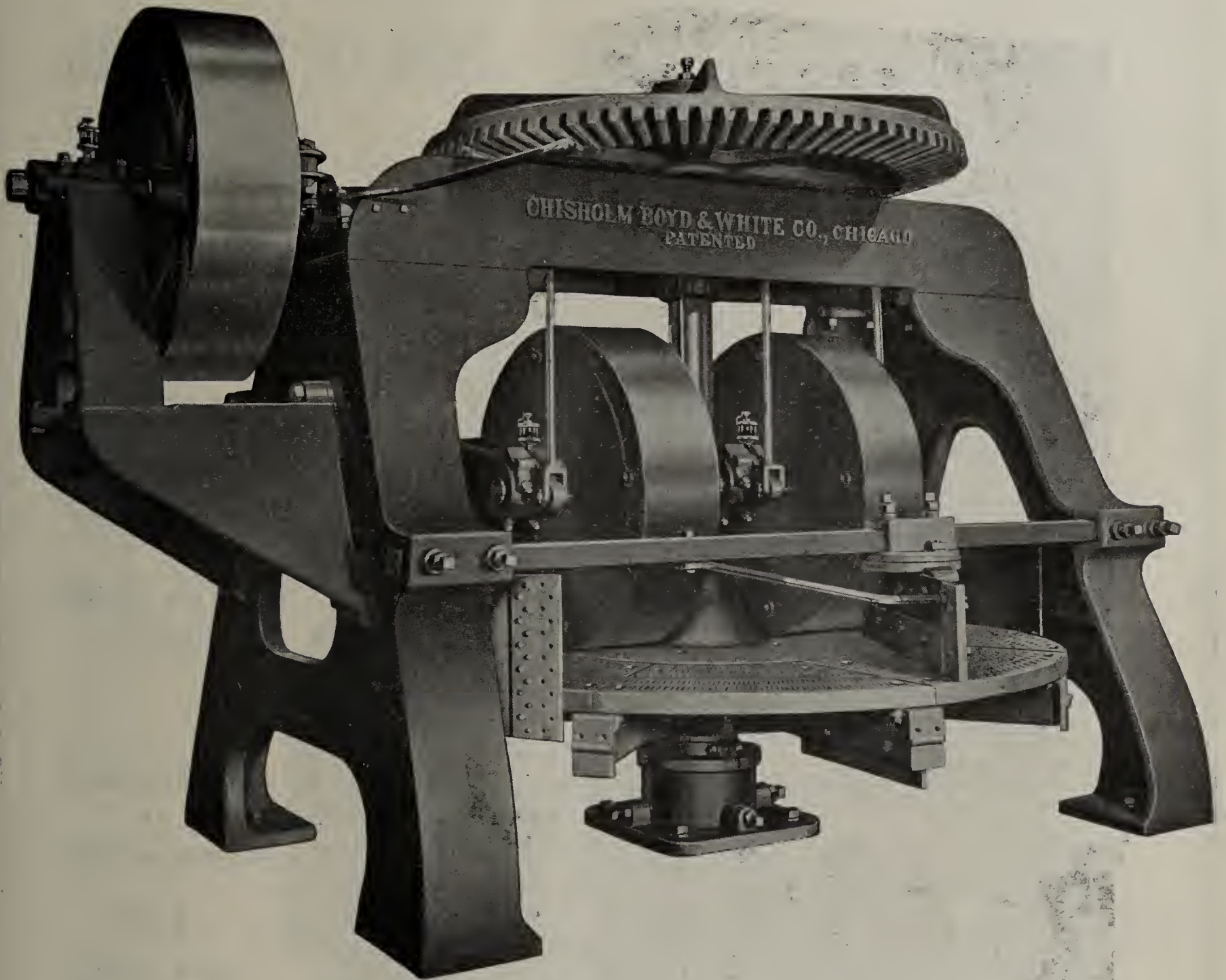
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Office and Works, 57th and Wallace Sts.

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BOYD QUALITY



OUR NEW NINE-FOOT HEAVY DUTY DRY PAN.

For design, strength, durability and efficiency
this Dry Pan has no equal.

Chisholm, Boyd & White Company,

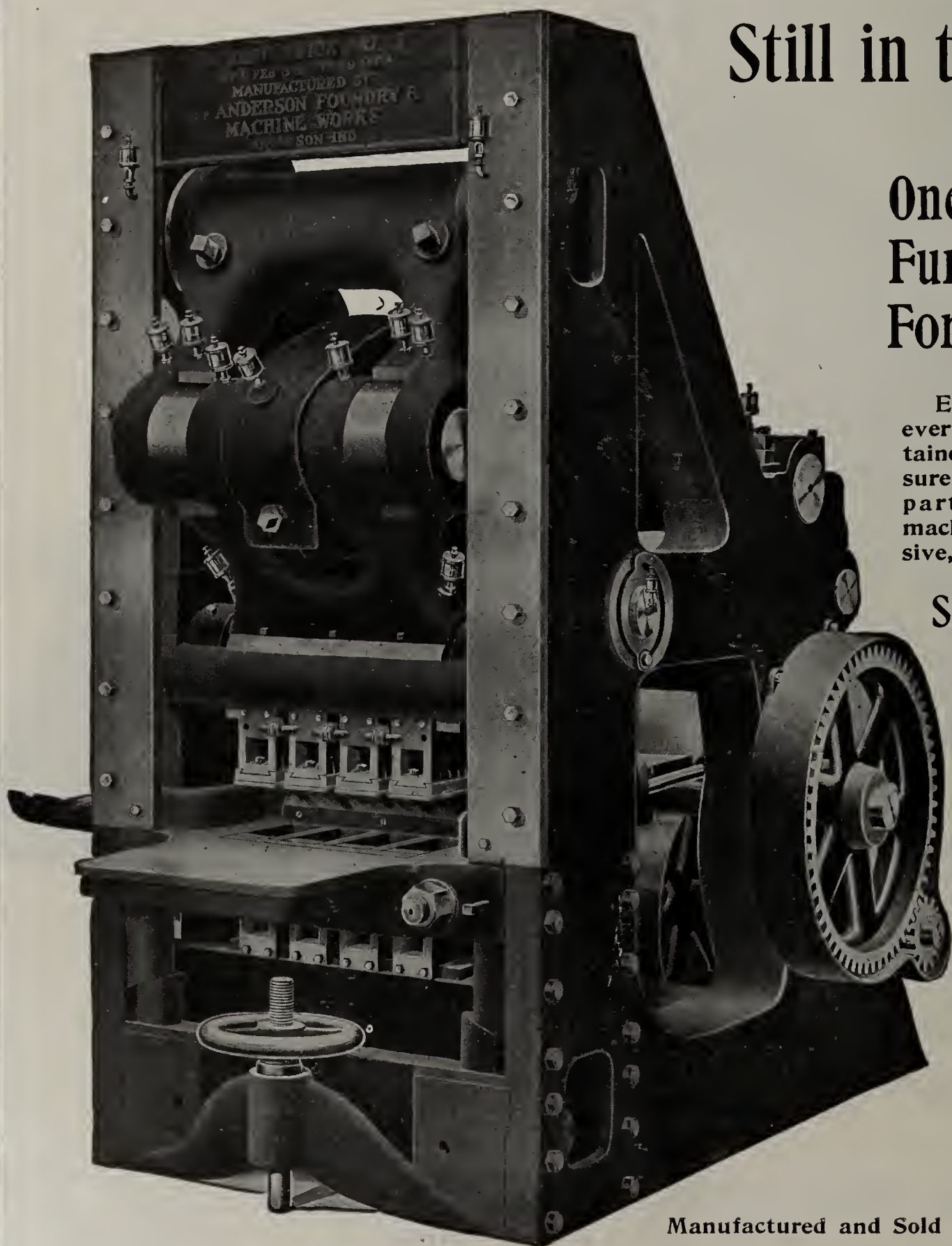
Office and Works, 57th and Wallace Sts.

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Mention THE CLAY-WORKER.

NEW MODEL BERG BRICK PRESS

WE MANUFACTURE AND INSTALL COMPLETE PLANTS UNDER GUARANTEE FOR THE MANUFACTURE OF SAND-LIME BRICK.



Still in the Lead

and

One Step Further Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact and

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All Machines
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Equipped With

CUT GEARING.

Manufactured and Sold by

THE ANDERSON FOUNDRY & MACHINE WORKS

Manufacturers of Soft Mud Brick and Drain Tile Machinery

Sold by the C. W. RAYMOND CO.,
Dayton, Ohio.

ANDERSON, IND.

Buyers Ready Reference List.

To Find Any Particular Firm or Advertisement See "Index to Ads" as Cited on Front Cover Page.

Ammeters.

The Brown Instrument Co.

Analysts and Chemists.

Ceramic Supply & Con. Co.
N. J. State University.
Ohio State University.
Richardson-Lovejoy Engr Co.

Automatic Clay Bin Emptier.

Raymond Co., The C. W.

Automatic Cutting Tables.

(See Cutting Tables.)

Barrows and Trucks.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
H. Brewer & Co.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Illinois Supply and Con. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Barytes, Carbonate of

Gabriel & Schall.
Roessler-Hasslacher Chem. Co.

Bearings, Roller.

(See Supplies.)

Belting.

Gandy Belting Co.
Sawyer Belting Co.

Belt Conveyors.

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Caldwell & Sons Co., H. W.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Gandy Belting Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.

Blowers

American Blower Co.
American Clay Machinery Co.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

Boilers.

American Clay Machinery Co.
Arbuckle & Co.
Frost Mfg. Co.
Morehead Mfg. Co.

Brick (Building).

Bloomfield Clay Co.
Bolivar Face Brick Co.
Fiske & Co., Inc.
Kushequa Brick Co.
Marion Brick Works.
Purinton Paving Brick Co.

Brick (Fire).

Chicago Retort & Fire Brick Co.
Evans & Howard Fire Brick Co.

Brick (Paving).

Alton Brick Co.
Barr Clay Co., The
Bessemer Limestone Co.
Clinton Paving Brick Co.
Danville Brick Co., The
Hocking Valley Fire Clay Co.
Marion Brick Works.
Metropolitan Paving Brick Co.
Natl. Pav. Brick Mfgs. Assn.
Purinton Paving Brick Co.
Terre Haute Vit. Brick Co.
Thurber Brick Co.
Shawmut Vit. Pav. Brick Wks.
Wabash Clay Co.

Brick Conveyors.

American Clay Machinery Co.
Mathews Gravity Carrier Co.

Brick and Tile Machinery.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Carnell, Geo.
Chambers Bros. Co.
Chicago Brick Machy. Co.
Chisholm, Boyd & White Co.
Dunn Wire Cut Lug Brick Co.
Eastern Brick Machinery Co.
Fate Co., The J. D.
Fernholtz Brick Machy. Co.
Freese & Co., E. M.
Frost Mfg. Co.
Hensley, J. W.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Ohio Ceramic Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Brick Machines (Soft Mud).

American Clay Machinery Co.
Anderson Fdy. & Mch. Works.
Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Wellington Machine Co.

Brick Machines (Stiff Mud).

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin-Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Brick Machines (Dry Press).

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Chisholm, Boyd & White Co.
Chicago Brick Machinery Co.
Fernholtz Brick Machinery Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Mueller Bros.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.

Brick Recutter.

Raymond Co., The C. W.

Brick Setting Machinery.

American Clay Machinery Co.

Brickyard Engineering.

Callaway Eng. Co., Ed. H.

Buffing Machinery.

American Clay Machinery Co.

Burning and Drying Systems.

Boss, John C.
Buhner, Jacob
Dennis, F. W.
Gas Machinery Co.
Hoffmann Construction Co.
Illinois Supply & Con. Co.
Koch, J. J.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Eng. Co.
Rodgers Engineering Co., L. E.
Snowden & Co., Geo. E.
Standard Dry Kiln Co.
Tate, Jones & Co.
Trautwein Drying & Engr. Co.
Vogt, Anton.
Yates, Alfred.

Cars.

(See Dryer and Dumping Cars.)

Castings.

Arbuckle & Co.
Caldwell & Sons Co., H. W.
Chambers Bros. Co.
Edgar Allen Am. Mang. Steel Co.
Frost Mfg. Co.
Taplin, Rice-Clerkin Co.

Ceramic Engineers.

Hoehne, Richard B.
Koch, J. J.
Richardson-Lovejoy Engr. Co.

Clay Crushers and Pulverizers.

American Pulverizer Co.
American Road Machine Co.
Arbuckle & Co.
Brewer Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Phillips & McLaren Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Clay Dryers.

American Process Co.

Clay Feeders and Mixers.

American Clay Machinery Co.
Arbuckle & Co.
Brewer & Co., H.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Raymond Co., The C. W.
Taplin, Rice-Clerkin Co.
Scott-Madden Iron Works Co.
Stevenson Co., The.

Clay Gatherers.

(See Scrapers.)

Clay Steamers.

American Clay Machinery Co.
Raymond Co., The C. W.

Clay Technologists.

Koch, J. J.
Richardson-Lovejoy Engr. Co.

Clutches.

(See Supplies.)

Coloring Materials.

Chattanooga Paint Co.
Clinton Metallic Paint Co.
National Paint & Manganese Co.
Ricketson Mineral Paint Co.
Roessler-Hasslacher Chem. Co.
Williams & Co., C. K.

Cones.

Orton, Edward, Jr.

Conveying Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The

Brewer & Co., H.
Caldwell & Sons Co., H. W.
Ceramic Supply & Con. Co.
Chambers Bros. Co.
Dunlap Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Mueller Bros.
Newton, A. C.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.

Continuous Kilns.

Gas Machinery Co.

Contracting Engineers.

Dennis, F. W.
King, E. A.
Koch, J. J.
Richardson-Lovejoy Engr. Co.
Vogt, Anton.

Couplings.

(See Supplies.)

Cutting Tables (Brick and Tile).

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Dunn Wire Cut Lug Brick Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Mueller Bros.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.

Cutting Wires.

Arbuckle & Co.
Brewer & Co., H.
Ceramic Supply & Con. Co.
Freese & Co., E. M.
Manufacturers Equipment Co.
Raymond Co., The C. W.

Dampers.

(See Supplies.)

Dies.

(See Supplies.)

Disintegrators.

American Clay Machinery Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Drain Tile.

Evans & Howard Fire Brick Co.

Drain Tile Machinery.

(See Brick & Tile Machinery.)

Drums, Hoisting and Winding.

(See Supplies.)

Dryers.

American Blower Co.
American Clay Machinery Co.
American Process Co.
Chambers Bros. Co.

(Continued on next page.)

Buyers' Ready Reference List—Continued.

Manufacturers Equipment Co.
Martin Brick Mach. Mfg. Co., H.
Ohio Ceramic Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Rodgers Engr. Co., The L. E.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Trautwein Dryer & Engr. Co.

Dryer Cars.

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Freese & Co., E. M.
Fate Co., The J. D.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Rodgers Engr. Co., The L. E.
Scott-Madden Iron Works Co.
Standard Dry Kiln Co., The
Steele & Sons, J. C.
Taplin, Rice-Clerkin Co.
Trautwein Dryer & Engr. Co.
Wellington Machine Co.

Dry and Wet Pans.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Chisholm, Boyd & White Co.
Crossley Machine Co.
Eagle Iron Works.
Fate Co., The J. D.
Freese & Co., E. M.
Frost Mfg. Co.
Illinois Supply & Con. Co.
Phillips & McLaren Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Stevenson Co., The
Taplin, Rice-Clerkin Co.

Dump and Clay Cars.

American Clay Machinery Co.
Atlas Car & Mfg. Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chase Fdy. & Mfg. Co.
Eastern Brick Machinery Co.
Freese & Co., E. M.
Hensley, J. W.
Ohio Ceramic Engineering Co.
Potts & Co., C. & A.
Raymond Co., The C. W.
Steele & Sons, J. C.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.
Wellington Machine Co.

Dynamite.

Independent Powder Co.

Electric Equipment.

Westinghouse Electric & Mfg. Co.

Electric Instruments.

Brown Instrument Co., The

Electric Shovels.

Thew Automatic Shovel Co.

Electrical Furnaces.

Brown Instrument Co., The
Richardson-Lovejoy Engr. Co.

Electrical Locomotives.

Atlas Car & Mfg. Co.

Electrical Supplies.

American Clay Machinery Co.
Raymond Co., The C. W.

Elevating Equipment.

(See Conveyors.)

Engines.

American Clay Machinery Co.
Chambers Bros. Co.
Frost Mfg. Co.

Engineers

Callaway Eng. Co., Ed H.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

Explosives.

Independent Powder Co.

Fans.

American Blower Co.
American Clay Machinery Co.
Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.

Feed Water Heaters.

American Blower Co.
American Clay Machinery Co.
Frost Mfg. Co.
Morehead Mfg. Co.
Standard Dry Kiln Co.

Filler (Paving).

Barrett Mfg. Co.

Filter Presses.

American Clay Machinery Co.
Raymond Co., The C. W.
Stevenson Co., The
Taplin, Rice-Clerkin Co.

Fire Brick and Fire Clay.

Bloomfield Clay Co.
Chicago Ret. & Fire Clay Co.
Evens & Howard Fire Brick Co.

Fire Clay.

Bloomfield Clay Co.
Evens & Howard Fire Brick Co.

Fire Proofing.

Evens & Howard Fire Brick Co.

Floor Tile.

Chicago Ret. & Fire Brick Co.
Evens & Howard Fire Brick Co.

Flower Pot Machinery.

Baird Machine & Mfg. Co.
Rockwood Mfg. Co., The
Taplin, Rice-Clerkin Co.

Friction Clutch Pulleys.

(See Supplies.)

Furnaces.

Brown Instrument Co., The
Illinois Supply & Con. Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Tate, Jones & Co.

Gas Fire Continuous Kilns.

Raymond Co., The C. W.

Gears.

(See Supplies.)

Granulators.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., The J. D.
Freese & Co., E. M.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Steele & Sons, J. C.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Gravity Carriers.

Taplin, Rice-Clerkin Co.

Gravity Haulage.

American Clay Machinery Co.

Hand-Power Presses.

American Clay Machinery Co.
Carnell, Geo.
Illinois Supply & Con. Co.
Mueller Bros.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Stevenson & Co.

Hand Winch.

(See Supplies.)

Hangers.

(See Supplies.)

Holsts.

(See Supplies.)

Hollow Block Machinery.

American Clay Machinery Co.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.

Freese & Co., E. M.
Raymond Co., The C. W.
Scott-Madden Iron Works Co.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.

Hollow Partition Tile.

Evens & Howard Fire Brick Co.

Illustrators.

Lamb, J. & R.

Insulating Material.

Scheel, Wm. H.

Jacks.

(See Supplies.)

Kilns.

American Clay Machinery Co.
Boss, J. C.
Chisholm, Boyd & White Co.
Dennis, F. W.
Gas Machinery Co.
Hoffmann Construction Co.
Illinois Supply & Con. Co.
Manufacturers Equipment Co.
Raymond Co., The C. W.
Richardson-Lovejoy Engr. Co.
Snowden & Co., G. E.
Shumaker, J. H.
Vogt, Anton.
Yates, Alfred.

Kiln Doors, Castings and**Frames.**

(See Supplies.)

Kiln Floor Tile.

Chicago Ret. & Fire Brick Co.
Evens & Howard Fire Brick Co.

Kiln Irons.

Tecktonius Mfg. Co., E. C.

Kiln Furnaces.

Illinois Supply & Con. Co.

Kiln Lugs.

Tecktonius Mfg. Co., E. C.

Knives.

(See Supplies.)

Locomotives.

Davenport Locomotive Works.

Manganese.

(See Coloring Materials.)

Mechanical Draft.

American Blower Co.
Boss, J. C.
Rodgers Engr. Co., The L. E.

Mineral Paint.

(See Coloring Materials.)

Molds (Brick).

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Martin Brick Mach. Mfg. Co., H.
Mentz, George B.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wallace Mfg. Co.
Wellington Machine Co.

Mold Sanders.

Carnell, Geo.
Eastern Brick Machinery Co.
Hensley, J. W.
Hilton Sanding Machine Co.
Martin Brick Mach. Mfg. Co., H.
Potts & Co., C. & A.
Raymond Co., The C. W.
Wallace Mfg. Co.
Wellington Machine Co.

Mortar Colors.

(See Coloring Materials.)

Motors.

Westinghouse Electric & Mfg. Co.

Oil Burners.

Illinois Supply & Con. Co.
Tate, Jones & Co.

Packing Hay.

Interstate Hay Co.

Paints.

(See Coloring Materials.)

Pallets.

Ohio Ceramic Engineering Co.
Ohio Galvanizing & Mfg. Co.

Pans (Dry and Wet.)
(See Dry and Wet Pans.)

Patents.

Scientific American.
Watson & Boyden.

Paving Brick or Block.

(See Brick.)

Perforated Sheet Metal.

Caldwell & Sons Co., H. W.
Harrington & King Perf. Co.

Pitch (Paving).

Barrett Mfg. Co.

Flows.

(See Scrapers.)

Portable Track.

Atlas Car & Mfg. Co.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.

Pottery Machinery.

American Clay Machinery Co.
Baird Machine & Mfg. Co.
Crossley Machine Co.
Raymond Co., The C. W.
Rockwood Mfg. Co.
Stevenson Co., The
Taplin, Rice-Clerkin Co.

Power Plant Equipment.

Rodgers Engr. Co., The L. E.
Trautwein Dryer & Engr. Co.
Westinghouse Electric & Mfg. Co.

Powder.

Independent Powder Co.

Presses.

(See Brick Machines, also Sew-
er Pipe Machinery, also Roof-
ing Tile Machinery.)

Pug Mills.

American Clay Machinery Co.
Anderson Fdy. & Mach. Works.
Arbuckle & Co.
Bonnot Co., The
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., The J. D.
Freese & Co., E. M.
Hensley, J. W.
Mueller Bros.
Raymond Co., The C. W.
Steele & Sons, J. C.
Scott-Madden Iron Works Co.
Stevenson Co., The
Taplin, Rice-Clerkin Co.
Wallace Mfg. Co.
Wellington Machine Co.

Pulleys.

(See Supplies.)

Pulverizers.

Bradley Pulverizer Co.
Illinois Supply & Con. Co.
Scott-Madden Iron Works Co.
Taplin, Rice-Clerkin Co.

Pumps.

Dean Bros. Steam Pump Wks.
Pulsometer Steam Pump Co.

Pyrometers.

Brown Instrument Co.
Ceramic Supply & Constr. Co.
Rodgers Engr. Co., The L. E.

Rails and Railway Equipment.

Atlas Car and Mfg. Co.
Arbuckle & Co.
Davenport Locomotive Works.
Ohio Ceramic Engineering Co.
Scott Madden Iron Works Co.

Rattlers (Paving Brick).

Ceramic Supply & Constr. Co.
Freese & Co., E. M.
Hetherington & Berner.
Phillips & McLaren Co.

Recording Gauges.

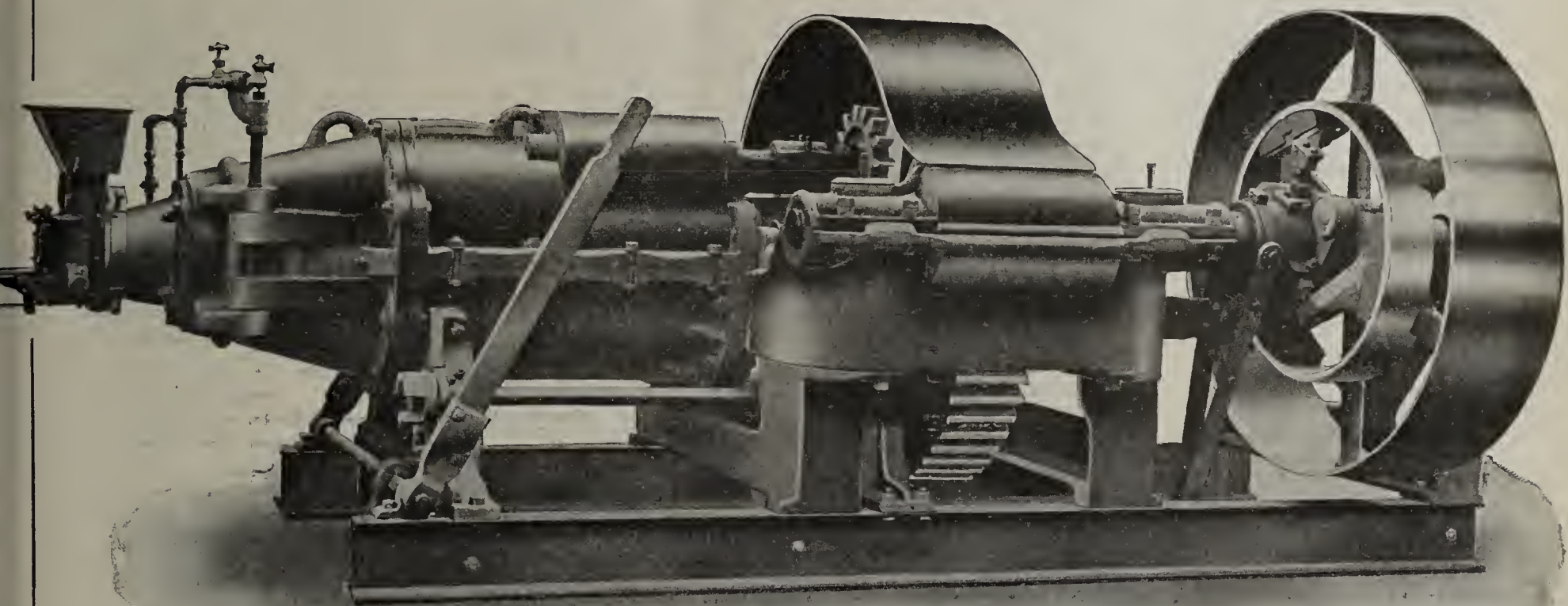
Brown Instrument Co.
Ceramic Supply & Constr. Co.

Represses.

American Clay Machinery Co.
Bonnot Co., The
Chambers Bros. Co.
Fate Co., The J. D.

(Continued on page 620.)

Special Attention Given to Medium and Small Plants



Our machines for small capacities receive just the same attention as our larger machines. We know the requirements of the small brick-maker by long experience, and have given special attention to simplifying and improving these machines.

We think it better policy to carefully consider the necessities of our customers rather than to load them up with machinery not suited to their conditions. With our machines, you are at no disadvantage with the large plants.

We will be glad to help you if you are having any kind of troubles.

J. C. STEELE & SONS
STATESVILLE, N. C.

Manufacturers of the Better Kind of Brick Machinery.

Buyers Ready Reference List—Continued.

Freese & Co., E. M.
Illinois Supply & Con. Co.
Mueller Bros.
Ohio Ceramic Engineering Co.
Raymond Co., The C. W.
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(See Rails.)

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(See Supplies.)

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(See Barrows.)

Wet Pans.

(See Pans.)

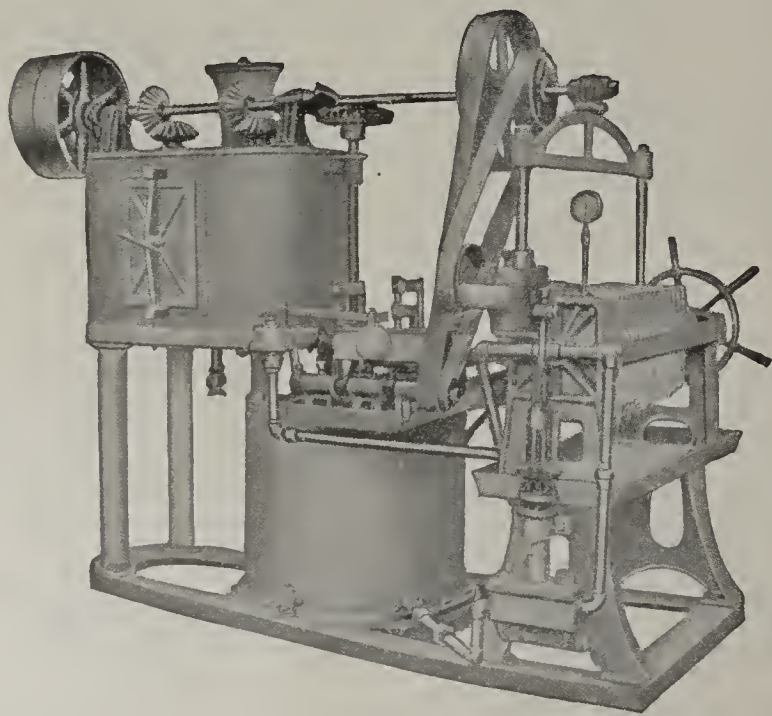
Wire.

(See Cutting Wire.)

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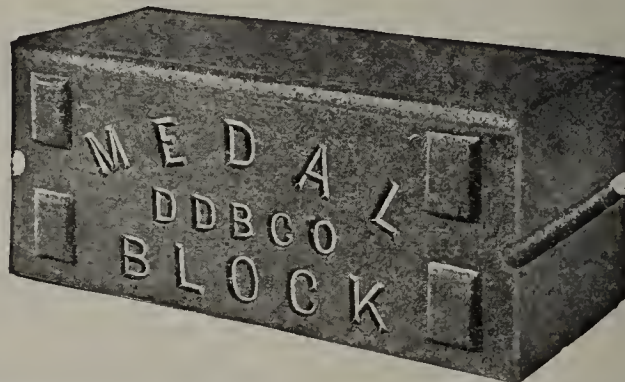
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Our material has for over twenty years successfully stood the heaviest traffic of Indianapolis, Terre Haute, East St. Louis and dozens of other large cities of Indiana and Illinois. We ask investigation and comparison by those seeking the best paving material. Samples furnished on application.

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The Most Uniform Shale Paver
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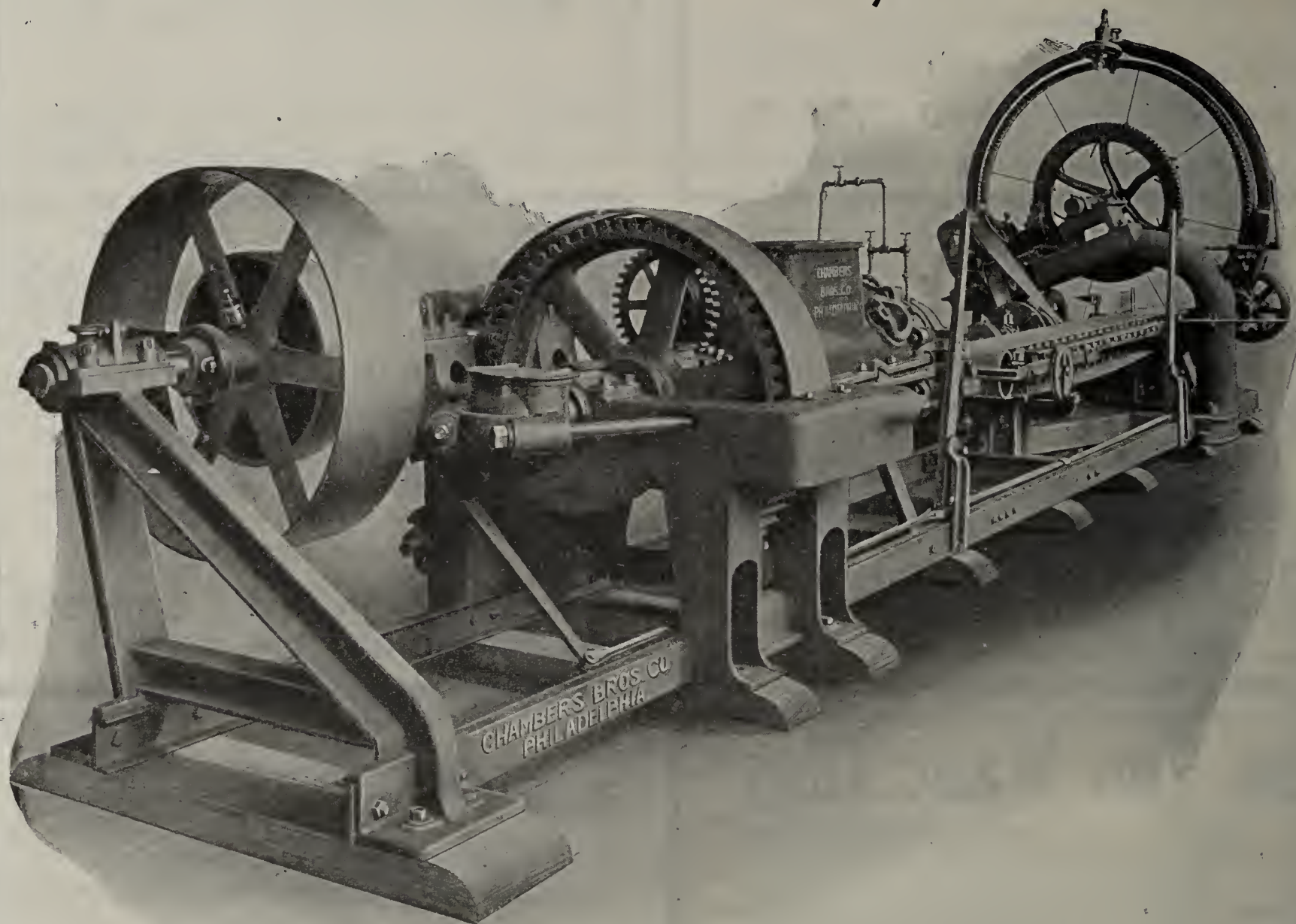
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THE PURINGTON PAVING BRICK CO.

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Cuts Building Brick, Hollow Brick and various thicknesses and lengths of Furnace Block Material.

Auger Brick Machines of Various Capacities with Rotary End-Cut and Side-Cut Tables.

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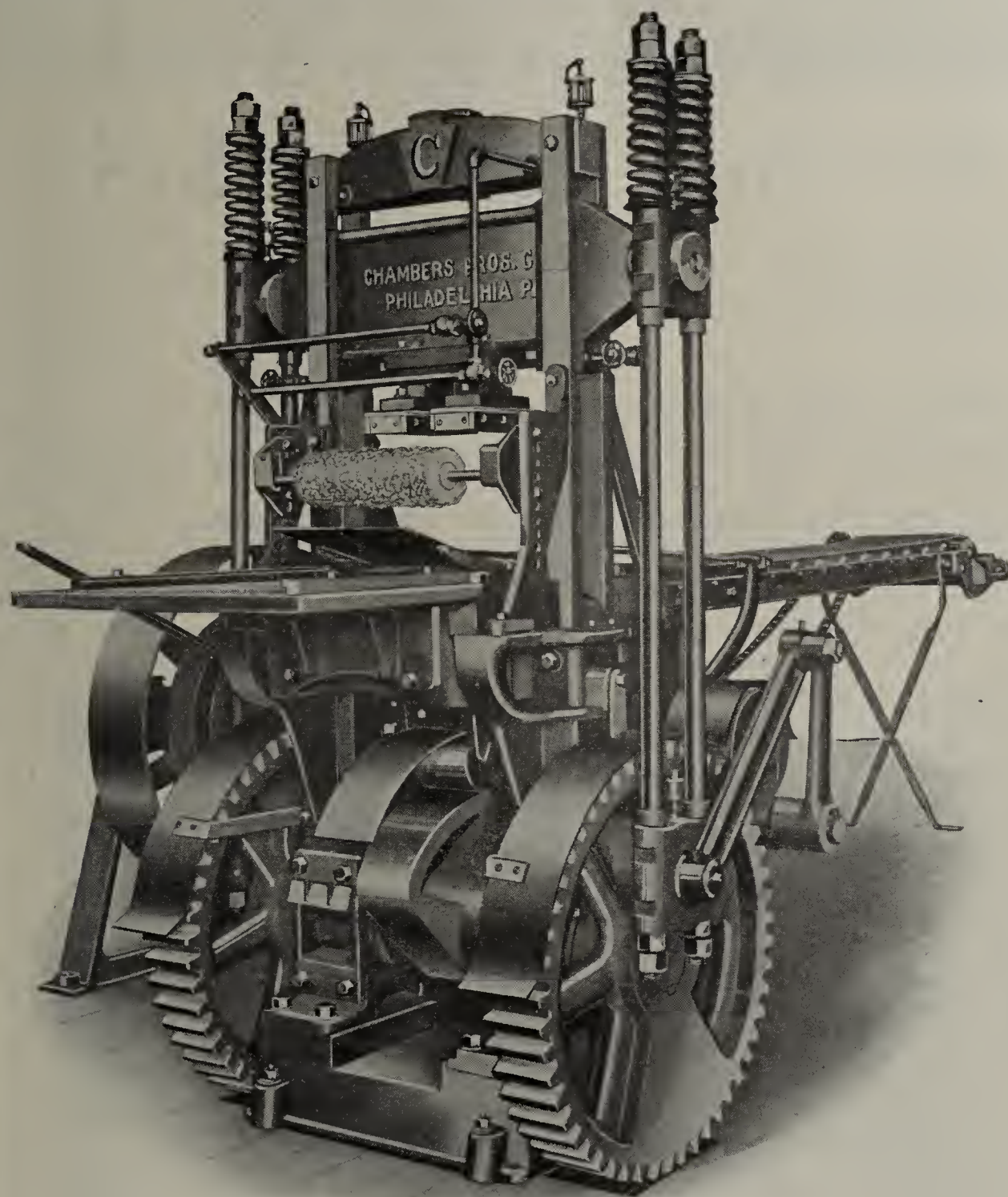
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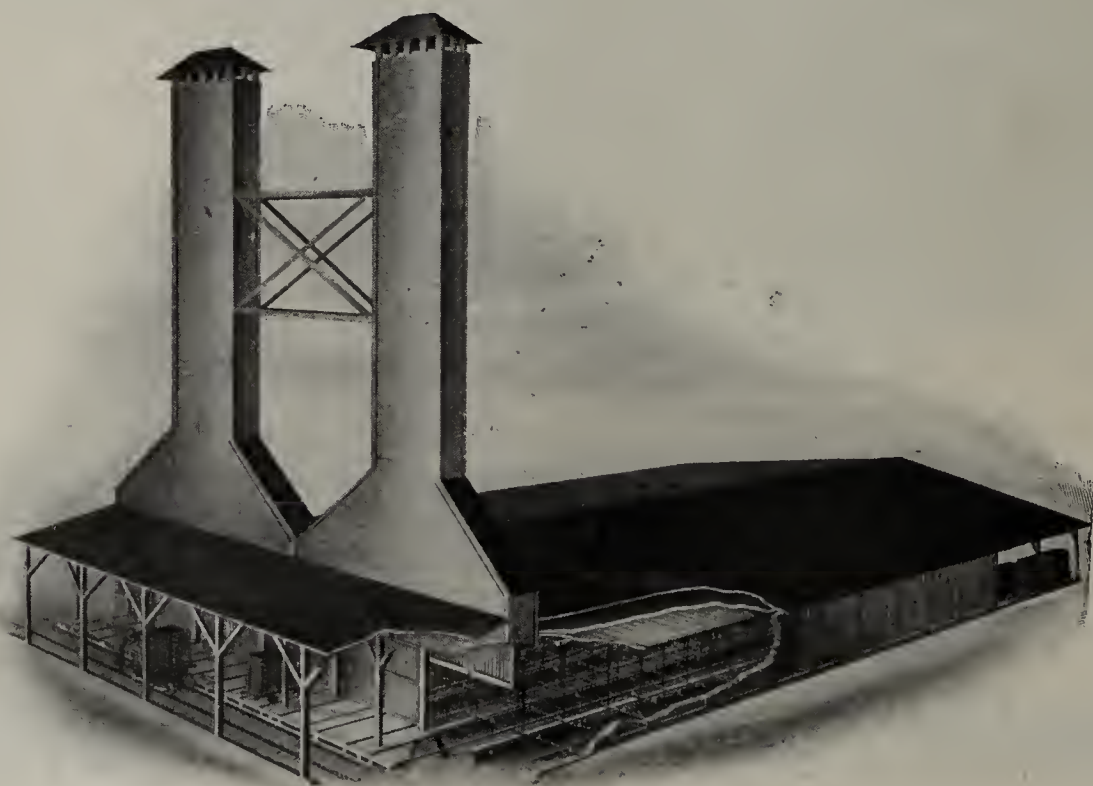
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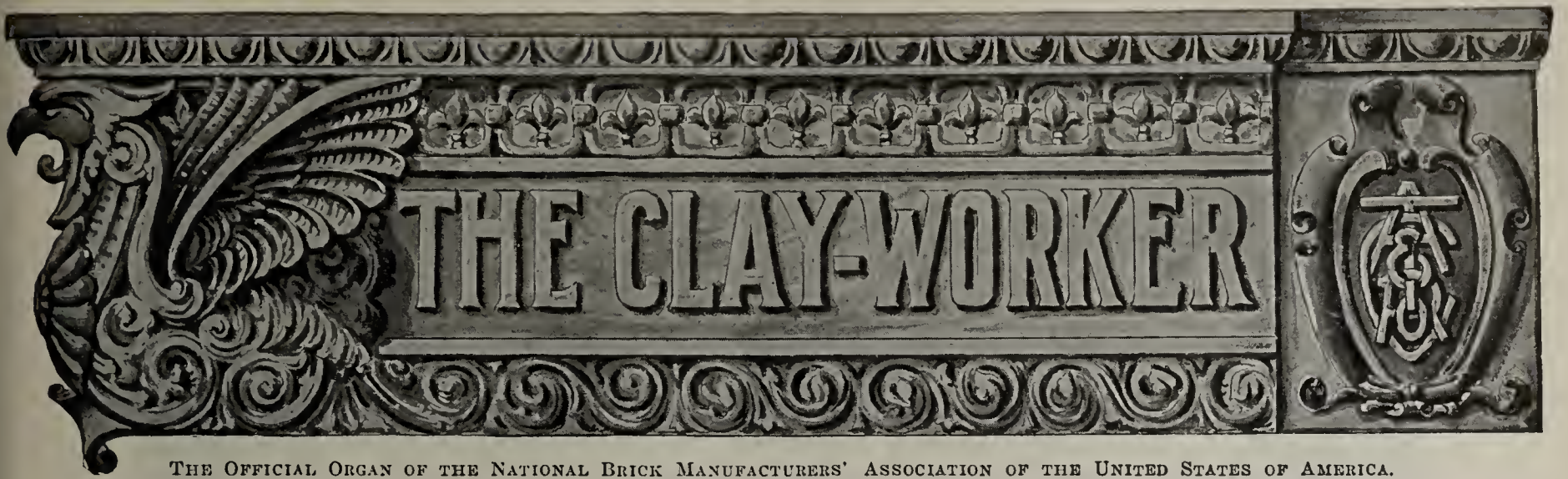
Don't buy a drier just because it is cheap. That kind of a drier will cost you at least as much in the end as The Standard Natural Draft Steam Drier costs at the outset. And it won't---can't---give you the same amount of satisfaction for the money invested.

Write for the Standard catalog and find out why we can afford to make our guaranty as strong as it is. Address The Standard Dry Kiln Co., 1547 McCarty St., Indianapolis, Ind.



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Mention THE CLAY-WORKER.



THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LVIII.

INDIANAPOLIS, IND., DECEMBER, 1912.

No. 6

Written for THE CLAY-WORKER.

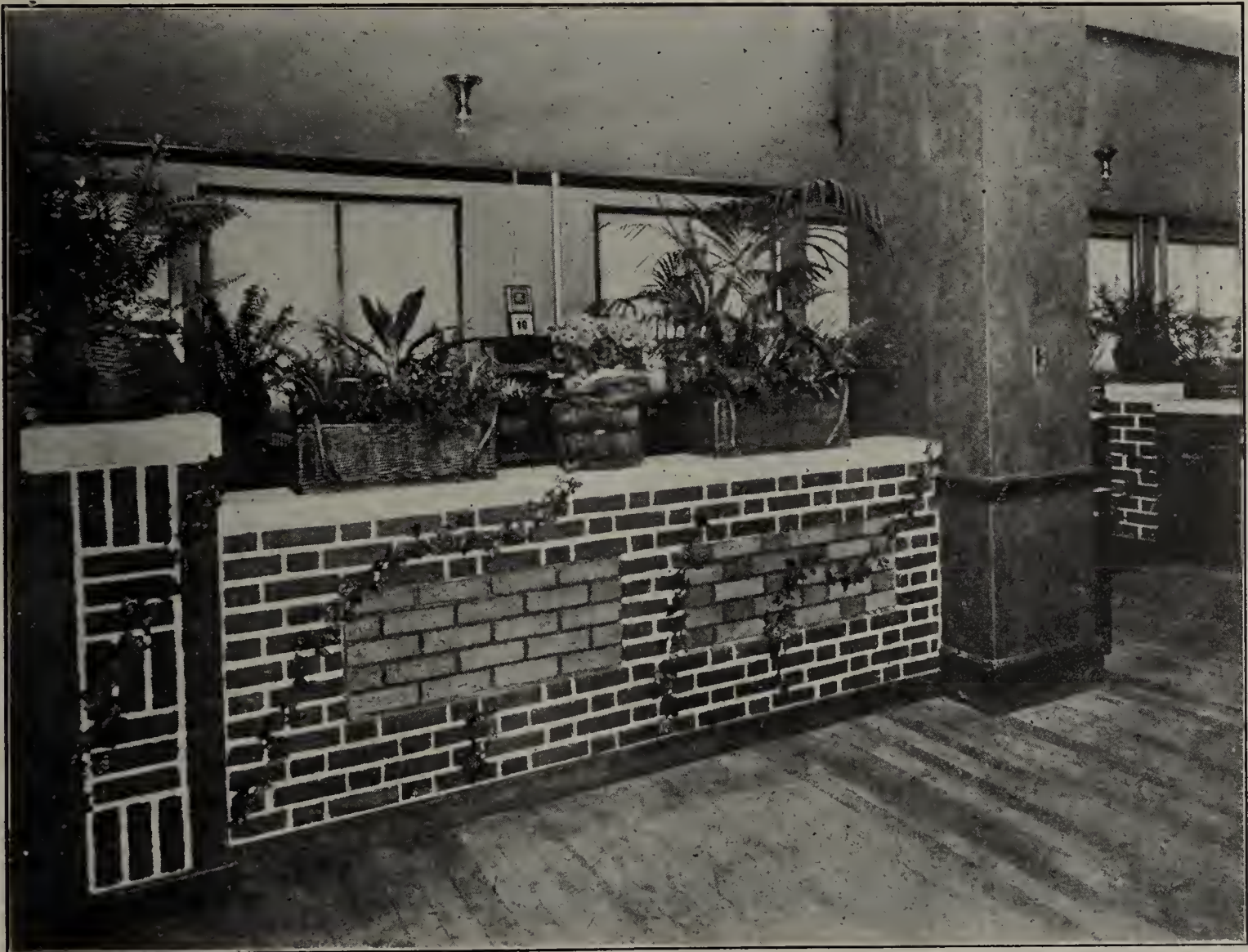
FACE BRICK.

Remarkable Display in the Office of Sunderland Brothers,
Omaha, Neb.

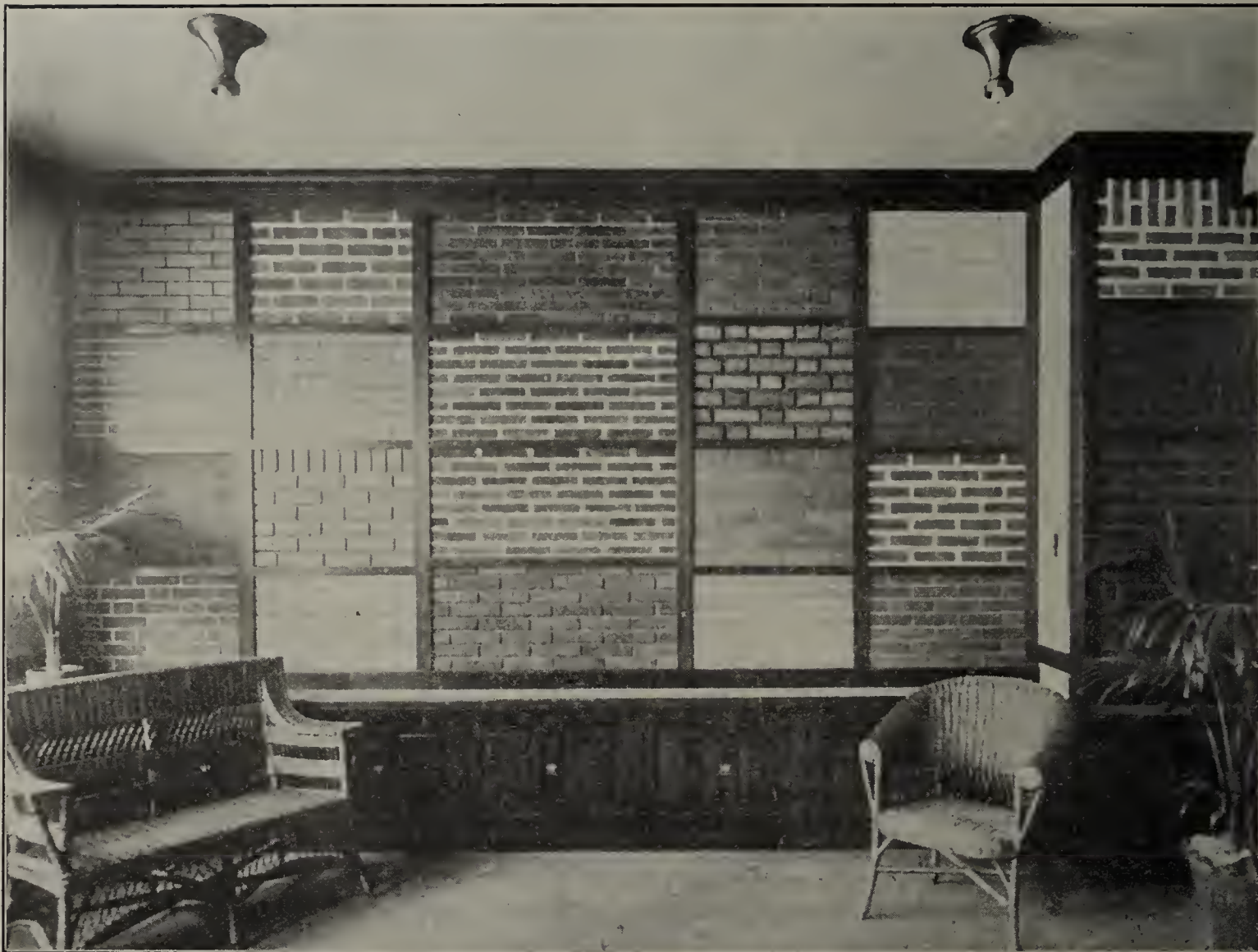
THE GROWTH of the face brick business in recent years has been astounding. Few appreciate the present magnitude of this branch of the clay industry. The popularity of rough texture brick continues, with no indication of abatement. What some thought was a passing fancy on the part of architects who sought something new and novel, has apparently become a permanent element in the better class of American architecture. This is due in no small degree to the skill of the face brick manufacturers

of the country in the production of a varied character of face brick that enables the architect to obtain color effects heretofore unthought of. As a result there is today an art in brick architecture that has never before been possible. This insures the extensive and constantly increasing use of face brick because of its artistic possibilities.

To appreciate what has been accomplished in this field of late years, one but needs to visit the display rooms in the offices of the brick manufacturers and dealers in any of our principal cities. These display rooms take on the appearance of an art studio in the color effects produced. Indeed the face brick salesman must be a connoisseur in color schemes and combinations as much as the artist who paints a landscape. The displays of face brick have certainly developed the artistic instincts of those engaged in



Entrance to General Office of Sunderland Brothers Company, Omaha, Neb.



A Portion of the North Wall of Exhibition Room.



Entrance to Brick Display Room.



Open Fireplaces and Mantels of Faience Tile



Sunderland's Sixty "Proud Teams," Sixty "Yellow Wagons."

the selling end of the brick business. As an ocular proof of this, we are pleased to present to the readers of THE CLAY-WORKER several views of the display rooms in the new office of the Sunderland Brothers Company, Omaha, Neb. That such displays are appreciated by the masses was proven by the immense crowds which thronged the Sunderland offices on the opening day, Saturday, November 16, when it is estimated that between 18,000 and 25,000 visitors accepted an invitation to attend the opening in honor of the firm's thirtieth anniversary, and almost every visitor expressed open admiration of the beautiful brick and tile mantels, ornamental panels, etc.

The occasion proved the biggest boost for the brick construction that it has ever had in that enterprising city. The offices were profusely decorated with growing flowers, ferns and palms, and suspended at different places within this green background were singing canaries, which created a most pleasing impression the moment the visitor stepped within the portals. The offices occupy the entire third floor of the new State Bank Building, and embrace something over 6,000 square feet of floor space, of which a goodly portion is devoted to the display of brick, marble and tile, the

products of the clay plants of the country, ranging from the gas belt of Kansas to far-away Boston. Cut flowers and other suitable souvenirs were distributed. Every architect and draftsman who called was given a copy of "One Hundred Bungalows." The reception occurred between the hours of 2 and 10 p. m., during which an orchestra played an accompaniment to the canaries. When the last of the visitors had departed, the office force added an impromptu dance to the celebration. Preceding the formal opening, the company gave a dinner to its office employes at the Hinshaw Hotel, at which fifty covers were laid. During the service Mr. Albert J. Klein, on behalf of the employes, presented Mr. Ralph Sunderland with a beautiful gold watch and chain, expressing the wish that it might prove a very pleasant reminder of his home associates during a protracted visit to California made necessary by the ill health of Mrs. Sunderland. Mr. J. A. Sunderland, the president and founder of the company, stated that he remembered distinctly the little 10x14-foot room in which he began business in 1882, and stated that the growth of the business was indicated in part by the fact that at that time one single-horse wagon was ample for their needs; now the firm requires sixty big double teams to handle their products in the city of Omaha.

PRACTICAL TILE DRAINAGE.

A paper by Daniel W. Stookey, Editor Drainage Department of the Clay-Worker read before the Ohio Brick and Tile Association December 10, 1912.



IT IS not the intention of this paper to explain the benefits to be derived from tile drainage, such as increasing the acreage, lengthening the working and growing season, and the protection of growing crops, both in wet and dry seasons. Those points have been published so often that they are generally well known. The important fact of the increased crop production, the greater ease and convenience in cultivation, the greater

acreage under cultivation, and, above all, the vastly greater financial benefits, are known and appreciated by the most illiterate and unthinking agriculturist. As this is the prime object of farming, we may say that the publicity work necessary to induce land owners to use tile has been largely accomplished. All that is left to be done is to urge him to do what he already knows that he should do and that he wants to do and wishes was done, but lacks executive ability and energy to accomplish. All that is left to do is to get him to "Do it now."

Neither is it the intention to treat of the practical details of digging the trenches and laying the tile. These are well known and have been worked out. In almost every section where tiling is needed or is being contemplated practical men may be found ready to do the work either by hand or with machines. Tile drainage is now to be considered synonymous with underdrainage. Round tile have superseded all other methods of the past, such as sole tile, horseshoe tile, brick, stone, gravel, boards, poles, brush, turf and mole drains, all of which have been utilized in the past in the evolution of the modern tile underdrain.

Practical tile drainage is that kind of tile drainage that is capable of being turned to use or is useful in distinction from that which is ideal or theoretical. Our present knowledge and methods of tile drainage have been developed during a long term of years by the union of theory and practice. With all of our experience, the conditions in each individual

case are so peculiar that no general method can be applied to all cases. Like the practice of medicine the practice of tile drainage is, in a measure, tentative and the special treatment best adapted to each case can often only be determined after trying one or more times. The varying amount of rainfall in different years and seasons, together with the unknown and often irregular condition of the subsoil makes a first diagnosis of the case somewhat conjectural.

Taking the definition of practical as that which is capable of being turned to use, it may safely be affirmed that the modern practice of tile drainage is famously practical.

As a proof that the people consider tile drainage practical or useful it may be stated that according to the governmental statistical report of the clay working industries of the United States the land owners of the single state of Ohio have paid during the last five years about \$9,000,000 for drain tile. In addition to this they have expended an equal amount in the construction of the tile drains.

In the state of Iowa, during the same period over \$2,500,000 annually, or a total of over \$13,000,000 has been paid for drain tile alone.

Has this money been wisely expended or have the farmers been buying "gold bricks" in the form of drain tile? In answer it may be truthfully said that few instances where tiling is done fail to pay the full first cost with the crop increase in the first three crops raised over the tile. Very often indeed two crops pay all cost. It is very common that the first crop alone pays the whole cost. Thus the investment brings an annual return of from 33 to 50 and often 100 per cent. and continues to do so without additional cost. Other farm investments, such as barns, fences, harness, implements and stock, require frequent expenditure for insurance, repairs or renewals, while tile drains work along for ages night and day, winter and summer, returning from 33 to 100% profit without a cent of expense or a moment's attention or thought. In the sense of being useful tile drainage is therefore unquestionably practical.

The Cost.

Land that is too wet to produce good crops under such imperfect cultivation as is possible on wet lands is not prof-

itable. If the owner works it himself he can only expect small returns. If rented it can only bring the minimum cash rental for it will not produce enough to permit the renter to pay much. If rented for a share the share will be so small as to be inconsiderable or as the old darkey said it produced enough for only one share. The best class of renters do not want wet, unproductive farm. Inferior farms will only get inferior tenants.

Many local conditions determine the cost of draining any particular tract. The outlet, if on or near the land, will cost but little. If tile must be laid through adjoining land below, or if a ditch tax of a drainage district is assessed against the land, this expense must be proportioned and added to the cost per acre. If the land is very level larger tile should be used than would be necessary if there was abundant fall. If the subsoil is close and retentive drains must be laid closer together and more lines will be required than if the subsoil were mellow and porous.

If there is so much gravel and loose stone in the soil that ditching machines will not work and the trenches must be worried out by hand the cost will be greater than where digging is easier. In general the cost per acre will fall between \$5 and \$25 and we incline to the belief that it will be oftener \$5 than \$25. Many land owners defer tile drainage because they look at the cost as a whole and not as so much per acre.

In many sections where farms are worth \$150 to \$200 per acre wet farms can be bought for \$100 per acre, because they are poor producers and because the owners and prospective buyers keep in mind the supposedly large amount of money required to drain the wet places.

Practically \$800 will do a large amount of tile drainage. That amount judiciously expended on an ordinarily wet farm of 160 acres would put the farm in a good productive condition in all but the wettest seasons, and that at a cost of only \$5 per acre. With that amount of tile drainage the farm would produce so much more and would show enough better to sell at an advance of \$25 per acre with no additional expense in improving.

When to Tile.

The best time to tile a wet place in a farm is just as soon as possible. "Do it now." The cost of doing a job of tiling is about the same one year as another, so there is nothing to be saved by waiting for cheaper tile and labor. The money invested is only worth five or six per cent. We have already shown that money invested in tile drains returns an annual income of from 33 to 100 per cent., so it is not wise for an owner of wet land to delay tiling for want of ready cash. He had better borrow money and mortgage his land, teams, cattle, implements, future crops and everything but his family to raise money to tile that wet field rather than delay one season. Much is being said now in the papers about the enormous charges made by chattel loan sharks and it is well to stay away from them, but if any investment is likely to bring enough to pay their rates I believe it is to be found in tile drainage.

Some farmers delay tiling because they do not have time to haul the tile or because of some similar trivial reason. The business man or manufacturer who tries to do all his work himself will not have time nor mental activity enough to increase the capacity of his plant nor to go out into the world and learn new and up-to-date methods. This is also true of the farmer. If he utilizes all his time and strength in manual labor he is worth little more than a laborer and must not expect much more in return for his efforts and time.

If his fields need tile and he has not time to haul them he should hire some one and get the tile to work before the season ends. Tile that are laid this year will work all fall

and winter and early next spring and have the ground ready for early plowing and seeding.

Lands That May Be Profitably Drained.

All lands of whatever texture that are too wet at any season of the year, except during and immediately after heavy rains, need tile drainage. Lands that are too wet at any time are liable to run together when wet and bake hard and crack when the dry season comes. Clayey soils and close, fine grained soils that seem almost impervious to water will be made mellow and porous by tile drainage. The tile takes the surplus water from between the particles of the soil. As the water level sinks the air follows down and the stiff soil slakes and in time becomes mellow.

Deep plowing can at best only loosen up the soil near the surface. This may be worn out and deprived of plant food by long continued chopping. Deep tile drainage helps to prepare the subsoil for the use of plants. There is plant food material to make it in all soils. It is only necessary to put it in available form. So called hard pan soils often are only hard compact clay under the surface. This stratum of tight clay may be a thin layer or it may be several feet deep. Any hard pan subsoil that will not respond to tile drainage may first be broken up to a depth of three or four feet by dynamite and then if tile drained will become profitably productive. It is a true saying that those land owners who have tiled most continue to tile most. At first it was thought that only the low, wet lands needed tiling, but experience has shown that many uplands are benefited thereby. It is a very common practice now for farmers to tile their fields thoroughly, both low lands and uplands. A few weeks ago while on a trip through south central Iowa we saw several places where lines of tile at regular intervals were laid in the high lands. With added years of experience land owners are tiling lands that a few years ago were not supposed to need draining and the time is fast coming when all good farm lands, both low and high, will be improved by drainage.

Sources of Water.

There are three sources of water in lands needing drainage:

First—From rain falling upon the field. This is beneficial, excepting when it falls in excess, and then only the surplus needs to be removed.

Second—Spring water or seep water which oozes out of the subsoil on rolling land. This is wholly injurious to crops and should be removed by lines of tile laid deep enough and far enough above and beyond the seepy places to intercept the water before it comes near the surface.

Third—Surface water running on from lands above. This should be caught and admitted into the tile by some system that will exclude all trash, sand and soil or silt.

Fall.

The fall required in well laid tile drains is very much less than would be supposed by an inexperienced person. In reality if a tile drain were laid on a perfect level with one end open for an outlet, water falling upon the soil would settle down to the drain and run out at the outlet. The Illinois river only has a fall of twenty-seven feet in a distance of 220 miles, or less than $1\frac{1}{2}$ inches per mile, or about .03 of an inch per 100 feet—maybe the thickness of a sheet of paper. Yet with this very slight fall the Illinois river—as a large open ditch with its accompanying obstruction of grass, trees and irregular shaped channel—runs and furnishes an outlet for the world wide known Chicago drainage canal.

As eminent an authority as Geo. E. Waring, Jr., who gave his life by yellow fever contracted in Cuba while studying to improve the sanitary conditions there in 1898, says in

his book, "The least rate of fall which it is prudent to give to a drain, in using ordinary tiles, is 2.5 in 1,000, or three inches in 100 feet."

Drainage for Profit and Health.

In practice the fall must necessarily be determined by the lay of the land, and must follow the surface. Attempts to establish drains with a fall different from that in the surface of the ground along the line will lead to laying the tile too deep in some places or too shallow in others. The fall in each line must be governed by the land and not by any theory.

Size of Tile.

The fall in the drain should be considered in deciding upon the size of tile to be laid. The amount of water that will pass through an orifice of any given size depends upon the velocity of the flow; conversely, the size of orifice necessary to carry a given amount of water in any given time will depend upon the velocity. The more fall in any line of tile the greater the velocity. Therefore, drains with great fall may be laid with smaller tile than lines having but little fall.

In laying main drains where the slough is wide enough that one line will not drain it thoroughly it is well to lay two or more lines at a reasonable distance apart. By doing this much smaller tile can be used and the slough will be more perfectly drained. In such cases it may be well to have all the lines converge to one outlet. Finally—tile are made and put on the market of all sizes from three to forty-two inches, and the size best adapted to each drain must be determined by intelligent consideration of special conditions.

In sections of the country where the fields are nearly level and the drains have but little fall, larger tile are needed than where the land is more rolling and where there is more fall in the lines and consequently greater velocity in the flow of water. In some regions as central Illinois and northern Iowa, where the land is very level there is no demand for, and no tile made, smaller than four inch, while in central or southern Iowa, where the fields are more rolling far up the slope and where a line is required on each side to catch the seep before it reaches the surface, many three-inch tile are used. In the level districts where long lines are required to reach an outlet many main drains are laid with large tile from twelve-inch up, while in the more rolling sections with good outlets on almost every farm, few tile larger than six and eight inch are used.

In determining the size of tile to be used, the cost and efficiency must be taken into consideration. First cost tends to the selection of small tile, but want of efficiency often shows that small tile are the most expensive in the end. Drains must be large enough and close enough together to remove surplus water from the field quickly enough to prevent the destruction of growing crops. This is especially essential when the plants are small and young. A system of small drains might be ample to remove any excess of water from the surface within a few days, but during that time a crop might be seriously injured or completely destroyed. The same system of drains constructed with larger tile would remove the water quickly, or at least lower the water level below the surface in time to prevent drowning of the crop.

Quality of Tile.

A practical drain tile is one that will do the work required of it, and that will continue to do so for ages. It must leave a passage way through it for water and it must not disintegrate or give way under the conditions of soil, water, pressure and frost under which it is placed. It must not disintegrate under the influence of the acids and chemical influences in the soil and water. The ingredients of which it is made must be so changed, both chemically and

mechanically, by the burning in the kiln that it will remain unchanged by moisture, frost or time.

As the water enters the drain through the joints at the ends of the tile, and not through the walls, the tile may or may not be porous. Glazing drain tile may make them look better, but does not make them worth more. Glazing is not a characteristic of first-class tile. Unless the body of tile is made durable in the kiln glazing will not save it. Reports from state experiment stations in regions where alkali is found show that cement will not stand when in contact with solutions of alkali. In some instances cement tile may do, but the safest and surest drain tile are made of clay and hardened by fire.

How to Make the Drains.

Make them with the fall towards the outlet at every point in the line. Make them with the tile carefully laid end to end so there will be a continuous opening all along the line for the water to flow through. Make them with each tile firmly laid in clay or soil so that no tile can ever move out of line, but will remain in place where it belongs. Make them with every tile covered with sufficient clay or soil to filter the water and prevent sand from getting to the tile.

Make them, in sandy places, by excavating the trench deeper and wider than is necessary, simply to admit the tile to place and then fill in with clay or soil up to the grade line for the tile. Lay the tile on this firm bed and fill around and over the tile with clay or soil to keep the sand away from and out of the tile. Do not be in a hurry to finish and do a poor job that will soon fill with sand. One sandy place will admit enough sand to fill and obstruct a long line of tile below.

Make them deep enough to drain the soil wanted for root pasture for growing crops. A tile drain will not drain soil below the bottom of the drain. Deep, rich soils are only valuable when free from saturation. Cultivated field crops will not grow in standing water. They will not send their roots down into saturated soils, no matter how rich those soils may be. Fields with rich, deep soils must have deep drainage, else they are sunken under water and lost.

Make them with no boards, straw, paper or any material that will ever decay next to the tile.

Make them large enough and close together enough to drain the field in which they are placed. That is what they are made for.

Make them of money and plenty of it for they will return the cost "some fifty and some one hundred fold." "What ever is worth doing is worth doing well." "Things done by halves are never done right." Drainage slighted produces crops blighted. It is poor economy to lay tile that are too small simply because they cost less than others large enough to do the work well.

It is a foolish waste of opportunity to neglect the abundance provided by nature in deep rich soils by laying shallow drains and lose the benefits that might be derived from the soil below the tile. Drains four feet deep only cost a few cents per rod more than three-foot drains, but they return at least one-third more in benefits. Put the drains close together so that the soil half way between the lines will be drained as well as that nearer.

Make them so that water will not stand at any point in the line, but will have a motion, slow or fast, towards the outlet. If there is a place in the line where water stands, sediment will settle there and obstruct the flow and reduce the final capacity to the amount of the standing water or deposited sediment.

It matter not how the trenches are dug, whether by hand, machines, dynamite, or any other way that may be designed. The vital, essential point is that the tile must be firmly and permanently laid in the proper place and in such a way that they will keep a channel open through which surplus water will flow away.

It matters not whether the levels be determined and the bottom of the trench be located by the eye, by an engineer, by water, or by a string stretched over the line, but it does matter that the position of each tile be properly located.

Written for THE CLAY-WORKER.

ONE OF INDIANA'S MOST SUCCESSFUL DRAIN TILE PLANTS.

ONE OF THE most prosperous and at the same time most unusual drain tile plants in the country today is that of the Indiana Drain Tile Company. The factory is located at Brooklyn, Ind., a small town twenty miles to the southwest of Indianapolis. It has unusually fine transportation facilities, situated as it is on the I. & V. division of the Vandalia line, a part of the great Pennsylvania system, which gives it a direct connection with the Vandalia, Pennsylvania, Big Four, L. E. & W., Monon, C., H. & D., Illinois Central, and their connections and fifteen lines of roads leading out of Indianapolis and radiating out in all directions throughout Indiana, Ohio, Illinois and Michigan, enabling them to reach every town and village in their wide territory at the lowest possible rates. Besides these steam roads, an electric line passes the very doors of the plant.

The plant proper covers over an acre of ground, all under roof and practically fireproof throughout. The factory is up to date in all respects, the equipment is of the highest type, and the operation can scarcely be improved upon, the



Kiln Yard of the Indiana Drain Tile Company.

raw material advancing from pit through plant on a direct line without any retracing of steps in the process.

The one feature of the plant that makes it distinctive and of unusual interest to all visitors is its planer or excavator, an ingenious machine invented by the president of the company, Mr. J. M. Powell. It can only be found on this yard, and is of immeasurable value to the company in digging their shale, which is of an unusual nature and very difficult to handle by any of the old methods.

A visit to the shale bank will be the first point reached in our excursion through this remarkable plant. The shale pit, which is located 1,500 feet from the plant proper, is on the edge of 35 acres of a rich shale deposit. The shale pit is necessarily located this far from the works because of no suitable ground for location of plant at any other point.

The shale pit contains a fifty-foot face with no subsoil whatever. The upper twenty-five feet burns at 1,800 degrees Fahr. and the lower twenty-five feet at 2,000 degrees Fahr., so the two are mixed together advantageously. The lower twenty-five feet is a hard burning shale which must be mixed with the upper shale for use in the plant. Formerly the company blasted the shale and loaded it in dump cars by hand. This was expensive and did not give the desired results, for the material was not properly mixed or averaged. The

use of the steam shovel method was carefully considered, but the face of the bank made the ordinary shovel impossible. The use of two shovels at different levels would also prove undesirable in the work, on account of not averaging the material. Necessity, therefore, was again the mother of invention, and the problem was solved through Mr. Powell in the invention of a machine which has opened the eyes of a number of machinery men.

This machine might be called a planer or excavator and is operated by electric power furnished by the traction company. One of the illustrations shows the machine at work in the shale pit.

The main part of this excavator consists of a tower or derrick fifty feet high, over which travels a continuous chain in two strands, with head blocks placed at intervals of 16 feet each which carry a steel knife. Between the knives are placed scrapers which push the loose shale at the bottom of pit up onto a conveyor belt. The knives cut into the bank about one inch in depth, each knife passing down through the bank from top to bottom, being eighteen inches away from the vertical when it reaches the bottom; the car on which the derrick is built moving forward gradually so that each knife enters the bank four inches from the previous cutting. The excavator moves ahead three feet per minute. The mark-



Setters Resting After Filling Chamber of Youngren Kiln.

ings being slightly on the slant help materially in the next cutting, for when the machine reaches the end of the bank, the base of the machine is automatically moved one inch towards the bank and the excavator again started, this time going in the opposite direction and cutting across the slants at the same rate and distance as before. The derrick and housing of this machine is on a 16-foot bed running on tracks of 12½ foot gauge. These tracks are built strong, though light, to permit of ready moving towards the bank as needed. The face of the bank is 300 feet long, so it requires two weeks for the machine to cut a depth of two feet, after which the tracks are moved to within three feet of the bank.

In the operation the machine runs to one end of the track or bank and shifts one inch to bank by means of a shifting screw, so that the machine will be ready for the immediate return along the bank in the opposite direction. The chain holding knives and scrapers is enclosed in a three-sided chute, as seen in one of the illustrations. The shale as it is loosened drops down this chute to an inclined boarding that allows the raw material to drop by gravity onto a conveying belt. What little shale falls between the boarding and the bank to the bottom is pushed by the scrapers, as mentioned before, up an inclined boarding to the conveyor belt. In this way all the loosened or cut shale is gathered, leaving the track and pit clear of any loose material.

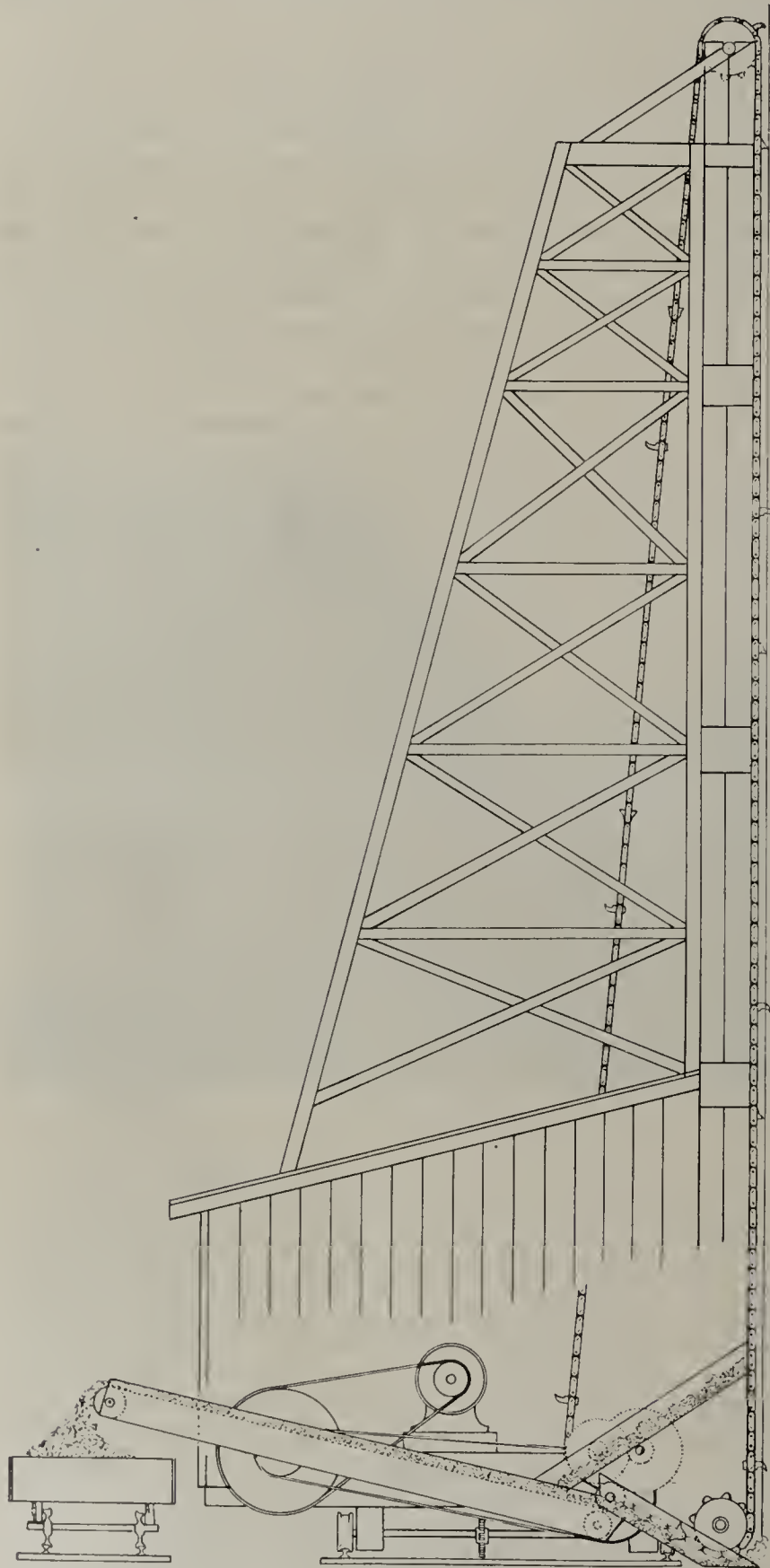
Only two men work in the shale pit, one operates the ma-

chine and the second attends to the transferring, while formerly there were ten men needed. Below the present workings is a hard shale known as the knob stone shale or deep sea sand, which has a depth of probably 400 feet. It is very hard for a number of feet, then becomes sandy.

The conveying belt on the machine is 18 feet long and carries the shale to a point above the dump cars stationed on a track on the other side of the machine from the bank. The dump cars hold three yards of shale when filled, and

easier worked, being broken up as it is than it was when the blasted shale was used. The ground shale is elevated to a Bonnot piano wire screen. Passing through this screen, the material drops into another bin, this one having a capacity of 300 tons.

From the bin the prepared material is taken in cup elevators to the top floor and dropped into a Fate Premier pug mill of an especially large size. The pugged clay goes down



Outline Sketch of Shale Excavator.



View of Excavator Showing Chain with Knives and Scrapers.



Excavating Shale at Indiana Drain Tile Company's Plant.

is hauled by horse to the main track and another car left to the filling. The car is taken up an incline to the plant, 1,000 feet of cable being used. The car is left on a platform over the shale bin, where it is dumped when the platform is inclined two feet by means of a worm gear.

The shale bin holds 100 tons. In the bottom is an eighteen inch wide belt which carries the raw material to the Bonnot nine-foot dry pan as needed. Here the value of the excavator is again emphasized, for the material is much

a chute to a steam press, where all the larger size (from eight to thirty inches) tile are made or can be carried by change of guide to a Fate "A" machine, on which all the small size tile and fireproofing is made adjacent to press. Hand cutting tables are used.

The usual run is about four carloads of finished product per day. A special dryer car four feet long and eight feet wide made especially to hold large tile as well as small is

used. All the products made are dried in a large tunnel dryer of their own make.

This has nine tracks and utilizes steam from engine and boilers and also hot air. Each track is one hundred and twenty-five feet long and holds thirty cars. It takes 48 hours for the drying. The dried ware is set in a twelve-chamber Youngren continuous kiln, built by the C. W. Raymond Company. All chambers are being constantly used, being filled or emptied every twelve days. A kiln of ware is set every day. Mr. Powell is proud of the record of his Youngren kiln which has not been without a red heat a single day since the fires were started. The track from the dryer to the kiln chambers is set on the level with the bottom of the kiln, so that the car can be shoved to the doors of the

loading of cars an easy matter. Wheelbarrows are used in the loading. The chief territory of the company is in Indiana, Illinois, Ohio and Michigan, while quite a quantity of ware is shipped south of the Ohio river. Most of their fireproofing is shipped to Canada and Texas.

The power of the plant is furnished by means of a 200 horsepower Corliss engine and two 100 horsepower Atlas high pressure boilers. The electric power for the plant, including the operation of the excavator, is furnished by the traction company, but the company owns its own electric light plant.

The plant is operated the year round, 1,200 cars being their annual output. The work on this plant is done on the piecework system. All the setting and emptying is done in the morning, the setters and loaders getting through with their work by noon, after that time they can go fishing or



Face of the Shale Bank.



Car Ready for Dumping.



Fate "A" Tile Machine.



Chamber Youngren Kiln Filled with Tile and Fireproofing.

chamber, where trucks eight inches high with four wheels are placed under each end of the car, the car being lifted by the working of levers or handles on the cars. In this position the cars of ware are carried into the chamber, thus doing away with the submerged tracks and transfer cars.

The ware is burned in eight or nine days with producer gas fuel. Green county coal, a very soft coal, is used in the producer, and has proven entirely satisfactory. Mr. Powell states that they get better burns from this method of burning than they could get from any other, the chief economy coming more from the continuous kiln than the gas producer. No trouble has been experienced with the gas producer in any manner. Depressed railroad tracks run on either side of the kiln, making the emptying of the kiln and

hunting, as they choose, getting good wages for the work and accomplishing as much in that short time as the setters and loaders on any other plant could do in a whole day. The hackers and machine men necessarily have longer hours, but are generally through before three o'clock and sometimes by noon. They must make a kiln of product before stopping.

The officers of the company are: J. M. Powell, president; Mortimer Miller, vice president; V. C. Morrison, secretary-treasurer.

The company has published a very interesting pamphlet used to advertise their products. The pamphlet or booklet is pocket size with a red border of drain tile appearing on every page. Pictures of their product and plant are shown

together with brief descriptions of same and table of prices. Under the head of "Underdrainage a Good Investment," they have the following interesting facts to say:

"Drainage frees the soil of excess moisture. The water will enter a drained soil where it falls, thus preventing surface washing, which is so harmful to the soil. A drained soil readily absorbs fertilizers which may be applied to it. It is more easily prepared, requiring less labor to put in condition for seed, which will germinate more quickly and the plant will grow more rapidly.

"A drained soil will be ready for the plow much earlier in the spring and may be planted several days earlier, and is from eight to ten degrees warmer than undrained soil. A drained soil will hold moisture and stand the drouth much better in dry seasons than soil not drained; crops may be harvested in better condition and with an increased production of from 25 per cent to 50 per cent.

"Tile drainage will pay a larger interest on the money invested and will last longer than any other improvement that you can put on your farm. Try it."

On one of the cover pages appears a 4½ inch cut of a drain tile printed in red, on which appears the following clever verse:

"I am only a drain tile
Made of shale clay;
I am burned very hard
And will never decay;
So give me a chance
Your farm to enhance,
By draining the water away."

GLEANINGS FROM THE PITTSBURG DISTRICT.

POTTERY MEN of East Liverpool, Ohio, say that they believe 1913 will be one of the greatest years the trade has ever known, and are preparing accordingly. Improvements are planned which will cost more than \$1,000,000, which will mean an output in general pottery production amounting to about \$20,000,000. Some of the construction of the work planned is already under way, while all of it will have been begun by spring.

Work on the erection of the two fifteen-kiln plants in Newell, W. Va., for the Edwin M. Knowles Company and the Homer Laughlin China Company, is now under way. These firms are spending about \$750,000 in these improvements.

The National China Company, whose plant is in Salineville, Ohio, is building three additional kilns, a warehouse and decorating kilns, all of which will cost about \$30,000.

J. F. Mays, of Wheeling, W. Va., is forming a new pottery company with \$50,000 capital, which will manufacture sanitary ware. The old plant of the General Electric Porcelain Company will be used.

The Edwin Knowles Company, at Chester, W. Va., is constructing a new battery of decorating kilns, which will make about a one-third increase in this department.

New potteries also are planned at Washingtonville and Scio, Ohio, plans for these being announced for the first of the year.

The Cambria Clay Products Company, of Portsmouth, Ohio, was incorporated recently with a capital of \$75,000. The property of the Black Fork Coal Company was taken over. This plant has a capacity of 50,000 bricks a day. Several improvements are planned.

The Hazel-Atlas Glass Company, with factories in Washington, Pa., and Clarksburg, W. Va., recently declared a 20 per cent. dividend. The company's sales for the year amounted to \$5,000,000, and there was \$600,000 in the treasury.

The Colonial Pottery, of East Liverpool, Ohio, will soon begin the making of sanitary pottery ware. This firm will be the first in that district to take up this class of work.

Written for THE CLAY-WORKER.

DRYING CLAY WARES.

By ELLIS LOVEJOY.

Paper No. 3.

The Relation of Air to Drying.

WE HAVE USED the expression, "the air absorbs moisture," and yet stated that the air plays no part in absorption. We wish to set ourselves right in this matter and have a clear understanding of it.

Air does not absorb moisture. Absorption means taken up by, or held by, and air neither takes up nor holds moisture. If we could inclose a cubic foot of air saturated with moisture and then could remove the air, the moisture would remain suspended in the space as vapor, and moreover, the space would not be fully saturated as it was when the air was present.

If we fill a long tube closed at one end, with mercury, and invert it in a mercury bath, the mercury in the tube will drop to about 29" or barometric pressure. The space above the mercury in the tube is a vacuum. Now suppose we introduce a drop of water in the tube; the mercury will quickly drop, and this fall is not due to the weight of the water, which is insignificant, but to the vapor from the water which fills the upper part of the tube and which exerts a pressure upon the mercury and depresses it, or in other words, partially overcomes atmospheric pressure, which supports the column of mercury. If all the water passes into vapor, the saturation of the vacuum may not be complete, and the introduction of more water will cause further depression of the mercury, but finally a point will be reached when saturation is complete and no more water will evaporate, and no further change will take place in the mercury level. Suppose we introduce now some other liquid. The space is saturated with water vapor, but not with the vapor of this other liquid, and it evaporates and the mercury level is still further depressed, but the space does not take up more water vapor. The pressure exerted by these vapors is called vapor tension. If we cool the tube, some of the vapor condenses and the mercury rises, but if we raise the temperature, we increase the vapor tension (volume of liquid vaporized), and the mercury falls. If we introduce air, the mercury still further falls, but no additional vapor is taken up in consequence of the greater space, nor in consequence of the introduction of the air. Suppose we have the water vapor in the vacuum space above the mercury, and that the space is fully saturated, then close the lower end of the tube so the mercury remains stationary, whatever the pressure may be. Now if we could introduce another liquid or air, some of the water vapor will condense and be replaced by the vapor of the other liquid or the air.

Suppose we could take a cubic foot of air from a dryer at 60 degrees, and remove the moisture by desiccators, by cooling, or in any way, we would have a cubic foot of rarefied air, but less than a cubic foot at atmospheric pressure. Repeat the experiment at 120 degrees, and our remaining air will occupy a much smaller volume, and at 212 degrees there may be no air whatever.

From this it will be seen that air has nothing to do with evaporation, and, in fact, prevents space from taking up as much vapor as it otherwise would. Evaporation is a function of vapor tension, and vapor tension is influenced by temperature.

The part air plays is mechanical, and very important. Referring again to the mercury tube, suppose we have a stopcock in the top of the tube opening into a larger vacuum. When the mercury has reached its lowest level, due to the vapor tension, if we open the stopcock the mercury will rise and force out the vapor. Closing the stopcock repro-

duces the former conditions and the water will evaporate as before and force down the mercury. With air we can create a draft and sweep away the vapor as fast as it is taken up by space. If it were not removed, drying would cease when the maximum vapor pressure or tension was attained. As the temperature rises, the vapor pressure increases, and at 212 degrees equals the pressure of the atmosphere. We now no longer need any air because the steam will overcome atmospheric pressure and forces itself out, not because of the air, but in spite of it. Steam will rush out of a boiler with great force, pushing the air away.

If we are working at a low temperature, we must introduce a large volume of air because each cubic foot has space for only so much vapor and must be removed when saturated if the drying is to continue. As we increase the temperature, the capacity to take up moisture increases, and we need less volume to carry it away. Above 212 degrees we theoretically need no air whatever, but in practice it serves as a convenient medium to conduct the heat from the source to the ware. We say convenient—not essential.

The question may arise, does not the volume of air increase with temperature in equal ratio with the vapor tension, and if so, will not require the same volume of air for all temperatures?

Let us glance at this.

The following table from Seger's formula for vapor capacities has been especially calculated for this paper. Seger's formula is:

$$V = 1.293 \times \frac{p}{760} \times \frac{1}{1 + at} = \text{wt. of vapor in kilos per cu. meter of air}$$

1.293 = wt. of 1 cu. meter of dry air at temperature t.

p = tension of vapor at temperature t.

a = 0.00366 = co-efficient of expansion of gas.

t = temperature.

0.623 = specific weight of water vapor where dry air equals 1.

We have changed the formula to pounds, Fahrenheit, etc., and we have assumed an altitude of 800' or 29" of mercury instead of 760 millimeters.

Our formula becomes:

$$V = 1.293 \times 0.062 \times \frac{p'}{29} \times \frac{1}{1 + 0.002t} \times 100 = \text{wt. of vapor in lbs. per 100 cu. ft. of air}$$

The column on the left gives the value of p' for the several temperatures. In the table itself, the first column gives the temperatures; the second column is for 100 per cent or complete saturation; the third column is 90 per cent saturation, etc.

Percentage of Saturation.

p'	Deg. Fahr.	100	90	80	70	60	50
0.356	50	0.054	0.048	0.043	0.037	0.032	0.027
0.502	60	0.075	0.067	0.060	0.052	0.045	0.037
0.722	70	0.108	0.098	0.087	0.076	0.065	0.054
1.024	80	0.149	0.134	0.119	0.104	0.089	0.074
1.383	90	0.196	0.176	0.157	0.137	0.118	0.098
1.913	100	0.272	0.244	0.217	0.190	0.163	0.136
2.521	110	0.352	0.317	0.282	0.246	0.211	0.176
3.412	120	0.472	0.424	0.377	0.330	0.283	0.236
4.465	130	0.605	0.544	0.484	0.423	0.363	0.302
5.805	140	0.734	0.661	0.587	0.514	0.440	0.367
7.616	150	0.992	0.892	0.793	0.694	0.595	0.496
9.530	160	1.240	1.116	0.992	0.868	0.744	0.620
10.815	165	1.390	1.251	1.112	0.973	0.834	0.695
12.297	170	1.568	1.412	1.255	1.098	0.941	0.784
13.385	175	1.696	1.526	1.357	1.187	1.018	0.848
15.095	180	1.889	1.700	1.510	1.320	1.130	0.940
16.894	185	2.108	1.897	1.686	1.476	1.265	1.054
19.000	190	2.360	2.124	1.888	1.652	1.416	1.180
20.599	195	2.533	2.278	2.025	1.772	1.519	1.266
23.05	200	2.790	2.511	2.232	1.953	1.674	1.395

Now as seen in the second column, in advancing from 100 degrees to 200 degrees, the capacity for moisture in-

creases more than ten times—namely, from 0.272 pounds to 2.790 pounds.

The volume of air increases according to the formula $1 + .002 t = 1 + .002 \times 100 = 1.2$.

This is an increase of 20 per cent in the volume of air, or rather the air is rarefied to this extent while the carrying capacity of equal volumes has increased over 1,000 per cent. About one-eighth of the air volume is required at the higher temperature to do the same work.

We will have occasion to refer to the above table in the discussion of some of the types of dryers.

Having explained the relation of air to vaporization, we shall continue to use the term "moisture absorbed by the air," rather than "moisture in space," or "vapor tension."

Effect of Lamination on Drying.

Lamination, as we know, is due to the slipping of the clay on itself, forming planes or "slickensides" in the clay mass.

We can hardly conceive a porous plastic mass being slipped on itself without closing up the pores. Where such closing up takes place the effect in drying is serious.

We have said that safe drying can only take place when the water in the mass is brought to the surface as fast as evaporation on the surface takes place.

Now if the clay mass is made up of a series of plates as would be the case when laminated, the passages for the water are broken and closed along the planes of the laminations. In order to dry such masses safely, the rate of evaporation should only be the same as the rate of the passage of the water across the laminated planes. Suppose the evaporation rate should be faster than this, let us say at a rate which would be safe if the clay were not laminated, the water in the outer shell is drawn to the surface at a faster rate than the water can get into this shell from the inner core.

The outer shell becomes leather hard and finally bone dry. In becoming so, it must shrink or crack, and it naturally cracks. The tendency to shrink and the cracking causes the shell to creep more or less on the core and breaks whatever bond there may have been.

The air enters the cracks and begins work upon the second shell and the result is duplicated and a second ring or shell is dried, cracked and loosened from the core. The final dried mass is a series of cracked and loosened concentric shells, or, as we say, badly shattered. In order to make such a clay safe drying, or to get a solid product from it, the first step is to overcome lamination.

Grog.

Lamination is often discussed and we will not enter into it except as it relates to drying.

The usual remedies for lamination are lubrication, grog, lamination bars, etc. Grog plays quite a part in drying as well as in lamination. It reduces lamination simply because of its granular character. It acts as a binder, as a lot of teeth, as a drag to prevent the clay slipping on itself. To serve this purpose it must be relatively coarse and angular. Its effect on drying is first to increase the pore space so the water will flow faster to the surface; second, to reduce shrinkage, thus reducing the degree of strains; third, it increases the strength of the clay because of its binding action and enables the clay to withstand the strains. The coarser and more angular the grog, the better it serves as a binder, and the larger the pore spaces.

Sand, which is most commonly used as grog because it is most available, is far from the best material. It is deposited from the water, and in consequence it is made up of rounded instead of angular grains, through the rolling and tumbling it gets from its source to the final deposit. The density and smoothness of the surface of the grains does not permit the plastic clay to cling as closely to it as to a rougher

and more porous material. Finally in the burning there can be no bond between the clay and the sand except at high temperature, but this does not concern us in the drying problem.

Crushed quartz or quartzite is a better material than sand because of its angular character, but this is available in very few yards.

The best grog is crushed burned clay, and often there is enough waste about the plant to make sufficient grog. Another good material is crushed clinkers from the kiln and boiler furnaces, but it can only be used in common wares.

Such materials have the advantage of being rough and angular, and in drying have the further advantage of being porous. If we have lamination planes bound together with a lot of porous grog, the water can get across through the binding material if it cannot find its way through the interstitial spaces.

The porous grog, because of its pores acting as a lot of suckers, draws the plastic clay into close contact and forms a much better bond than could exist between clay and sand.

Where sand suffices nothing further need be said, but where sand fails, as it often does, it is well to know that there is a much better material.

Preheating Clay.

Professor Bleininger deserves great credit for his work on preheating clays as a means of overcoming drying troubles. Preheating a clay makes it more porous and permits the moisture to escape to the surface.

The peculiar condition of many clays which makes them difficult to dry is the subject of much study and discussion at the present time and brings us to the borderland of our knowledge. The colloid theory is now generally accepted by clay technicians. Briefly, we assume that the clay contains a great number of cells or sacs which absorb water through their walls, swell and close up the interstitial pore spaces. This puts a stop to any flow of water to the surface, and when the surface dries, it must crack to relieve the strain. The air gets into the cracks and continues the drying process which at the same time deepens the cracks. The drying cracks in a colloidal clay are irregularly hexagonal in shape and are characteristic.

The preheating bursts the sacs and sets free the included water, driving it off, and at the same time so destroys the structure of the sac that it cannot take up water and hold it except by surface tension which applies in any case, nor can the colloids now swell and close up the pores in the clay mass.

Clayworkers have been slow to take up preheating, and there may arise a number of practical difficulties.

The temperature must be carried considerably above the drying degree, and it remains to be proven whether we have a practical preheating range, otherwise it becomes of questionable value. Clays differ in the degree of preheating required, and the variation ranges from 250 degrees C. (450 degrees F.) to 450 degrees C. (810 degrees F.) Suppose a clay is not sufficiently heated at 500 degrees Fahrenheit and too much plasticity is lost at 600 degrees Fahrenheit, then we must keep within this range, else we will get some cracked ware in drying on one extreme and some loss through weak bonding on the other extreme. Herein lies the uncertainty of preheating—the range may be less than we can work within.

In testing out one material, we found that the addition of burned clay grog to the raw clay served the same purpose as preheating, and, if it applies in all cases, will greatly simplify the problem.

It is analogous to the trouble with the Bessemer converter in making steel. Originally, it was intended to stop the process when the impurities in the metal had been burned out to a required degree, but it was impossible to stop at the right point, and successive blows differed widely in the character of the metal. The process became successful when the overburning was resorted to and the over-

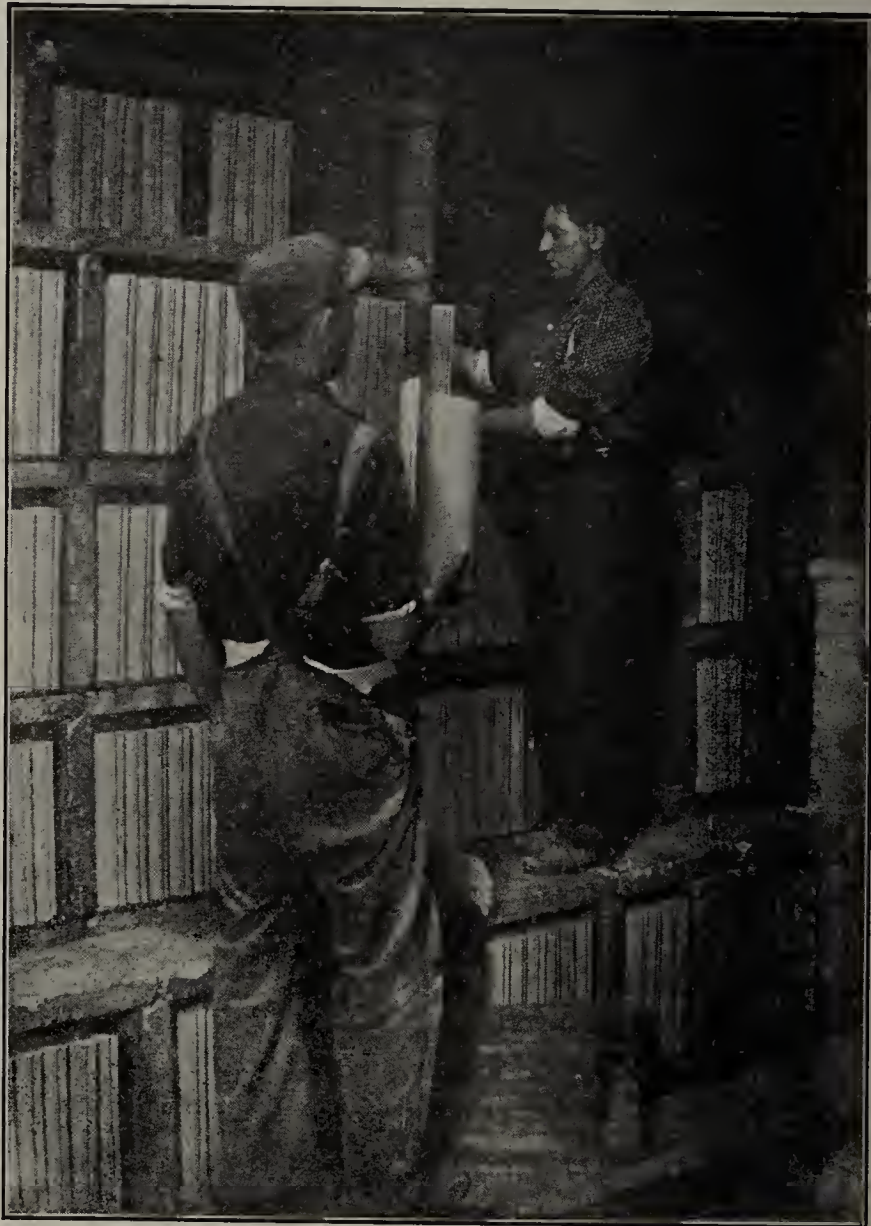
burned metal corrected by the addition of a reducing element which could be added in definite proportions.

We may not be able to preheat clay to the proper degree of uniformity, but if grog will serve the same purpose, we can add it in any determined amount. We think that the part that burned clay grog plays is not only that of opening up the structure mechanically, but, by the absorptive power of its pores, it will draw the water from the colloids, and collapse the cells which clog the pores of the mass.

(To be continued.)

TO DRAIN MEANDERED LAKE.

In Iowa and Minnesota there are many shallow lakes that in the original government surveys were meandered and left under the control and ownership of the state. Some of these lakes have been found to be so shallow that they almost



Method of Setting Spanish Tile with Blocks or Supports.

go dry in dry seasons and should be classed as swamps rather than lakes. They are not deep and permanent enough to be valuable as lakes. By being drained they become valuable agricultural lands.

The boards of supervisors of Emmet and Palo Alto counties in Iowa established Ditch No. 17. The purpose of this big ditch will be to drain East Swan lake, but it will afford drainage for about 20,000 acres of land also. It is estimated that it will cost \$135,000, the greater part of same will have to be paid by the state of Iowa, as it will drain about 1,400 acres of meandered lake which belongs to the state and after drainage will be sold to the highest bidder and the money taken to pay the ditch tax. If after the tax is paid there is any money left it will be used for the road fund of the county.

In this case not only the 1,400 acres of the lake will become available for cultivation, but 20,000 acres of low swamp land adjoining.

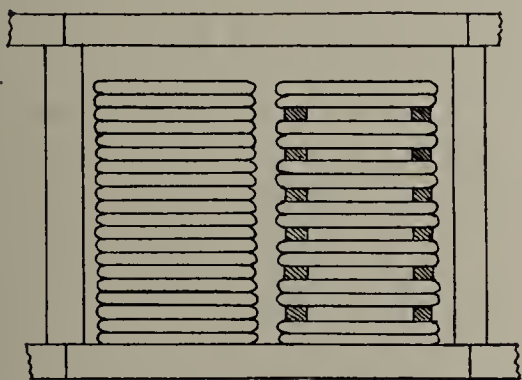
ROOFING TILES.

BY W. G. WORCESTER.

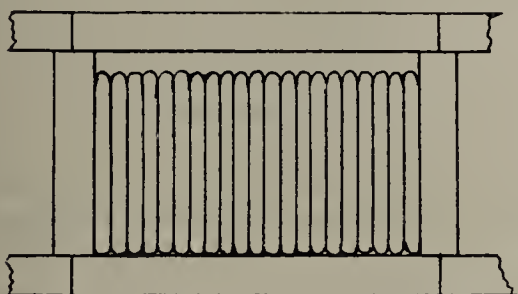
The Setting of Roofing Tiles.

THE FIRST problem in the burning of roofing tiles is to devise a method of placing or setting them in the kilns so that they will not only receive the proper heat treatment, but will become as little damaged as possible. So particular and important is the setting of roofing tiles that it may mean success or failure on the same clay and patterns.

The setting of roofing tiles is quite different from that of crude ware like bricks or blocks that will quite easily hold



Two Methods of Setting Shingle Tiles.



Ordinary Method of Setting Shingle Tile.

their shape; tiles require more care and attention, like the setting of terra cotta or pottery ware, on account of their extreme thin cross section and large areas. Especially is this true in cases where vitrified tiles are made, though with porous tiles it is found that they may be set one upon another, even up to nine courses high. Thus there has been developed two methods of setting tiles. First, with kiln blocks, or supports, for vitrified ware; second, without supports for porous ware.

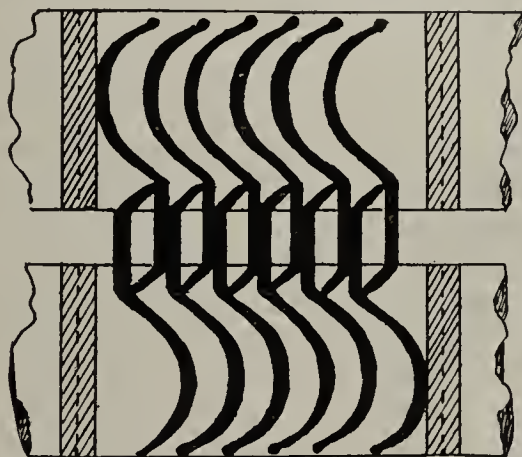
Taking up first, the support or block method. In this case it becomes necessary to provide rectangular blocks or slabs of varying sizes to suit the tiles. These blocks for the most part, are made of low grade fire clay, in order that they may become hard and withstand repeated usage. It should be understood that these blocks are set up and taken down with each burn, so that it is important that they be true to size, have sharp corners and withstand handling; it is not the effect of the heat that destroys them, but their continued usage resulting in breakage. In size, a block suitable for Spanish tiles, for instance, would be approximately 2x11x15 inches for both rises and stretchers (see illustration).

The ordinary shingle tile will be found one of the most, if not the most, difficult pattern of tiles to set in order that

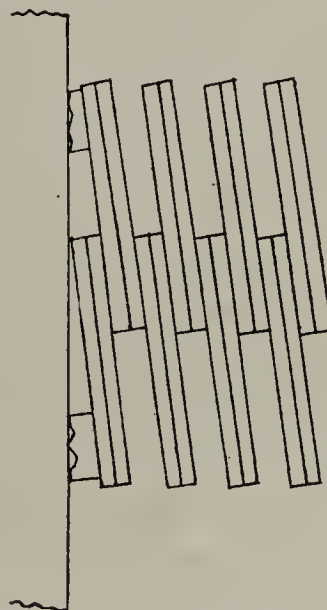
it may be properly burned and come from the kiln true and perfect. The most natural way, and the one usually followed by roofing tile beginners, is to pack the tiles in the boxes tightly on edge, thinking that there is no possible way that the tiles could become warped or twisted. In most cases it will be found, unless the burning has been carried slowly, that the centers of all the tiles will be black or badly discolored, or even blistered. Should the tiles pass through this trouble safely it will frequently be found, no matter how tight the tiles were set, that they have shrunk sufficiently to allow them to lean over and become warped or crooked. A better way to set shingle tiles is to stack them up flat in the boxes, like a deck of cards. When set in this manner they are usually placed about 15 to 20 deep and two stacks to a box.

It is essential that the bottom blocks upon which the tiles are set should be straight, otherwise the tiles will deform to the lines of the block.

The greatest objection to this method of setting is the



Method of Setting Spanish Tile to Prevent Center Marks.



Method of Setting Shingle Tiles Without Supports.

necessity of slow burning to avoid discolorations, and in addition, side checks in the tiles, due to the outside shrinking faster than the center. A third manner of setting shingle tiles is to set them with waste strips; that is, two tiles are placed face to face and set flat in the box, a newly made shingle is then cut into strips about 1 inch wide, two of these strips are taken and placed on the two tiles near the edges, upon these are placed two more tiles, then strips again, and so on until the box is filled. By this plan the center of the tiles are so exposed to the heat that discoloration is rarely met with. The strips which have been used are lost, as well as considerable time in placing them, though by this method it is frequently possible to burn shingles successfully where other methods have failed.

Setting of Interlocking Tiles.

In the past there has been but one general system of setting this pattern of tile, which has been to take two

tiles, reverse them, that is, place them together with the lower end of one opposite the upper end of the other, then set the pair on edge in the kiln box, continuing so until each box is tightly filled. With a clay of low warpage this system is no doubt the best, though with clays or high warpage it will be found more advisable to set the tiles in the boxes flat, card fashion. It is, of course, as with shingle tiles, necessary to have a straight block and also to have the tile so designed that they bed evenly one upon another, otherwise they will break or deform; small cross-ribs on the underside will usually accomplish the purpose.

Setting of Spanish Tiles.

There is really but one method of setting Spanish tiles, and that is to set them on end, as shown in the illustration. While at first thought this may seem a simple proposition; it will be found necessary to resort to some of the tricks of the trade to produce straight tiles. The auger-made Spanish tile has a comparatively rough wire-cut end, upon which it is difficult to make the tile stand true and plumb, which is the only position which will prove satisfactory. Should it be possible to stand the tiles perfectly upright, they will not shrink evenly on the kiln box, the corners will be held back by resistance and thus produce a flattened roll. To overcome the above difficulties it has been found necessary to use a blank of stiff mud about $\frac{5}{8}$ -inch thick and the size of the kiln box floor. This blank is made of the same clay as the tiles and is separated shortly before needed, and in order that it may be pliable, a blank is placed in the box; the tiles are then taken in pairs by the setter and set squarely down upon the blank, enough pressure being applied to bed them slightly into the soft clay, a second pair of tiles are then taken and firmly set about $\frac{1}{2}$ inch from the first ones. When the box is filled, a second blank is cut into strips about 1 inch wide. Three of these strips are placed along the top of the tiles just set, and are then spat down with a trowel until they bed well between the tiles. In this manner the upper ends of the tiles are held in position, thereby preventing them from leaning over and twisting. The slab used under the tiles shrinks at the same rate as the tiles and thus prevents any spread corners or flattened rolls.

In one instance Spanish tiles have been run in a block form of two tiles, with connecting waste strips. The tiles were set and burned upon end and then broken apart. The objection to this plan is the lost space in the kiln and a considerable loss through breakage.

Setting of Tiles Without Supports.

As stated before, in cases where porous tiles are made it is possible to set them without kiln blocks for supports. This is due, of course, to the low shrinkage and deformation of the clay at the temperature burned to.

While this method is used in a few plants in the United States, the opposite is true in the old world, where nearly all tiles are set in the open kilns much after the manner of bricks.

As before, the shingle tile proves troublesome to set, in fact, even more difficult than with supports, because it is quite impossible to set them in small units without supports. For the greater part they are set on edge, one row above another, though it is quite impossible to set them more than four or five courses high on account of their weight.

While it is possible to set the tiles in this manner, it is quite a different problem to burn them safely. That is, free from center discolorations and blisters; to overcome this, the scheme shown below has been used successfully. The tiles are taken in pairs, faces out, and stood upon edge, a second pair is then set so that their upper ends overlap

the ends only of the pair first set. In this manner the greater portion of each tile is exposed to the action of the heat and can be safely burned.

When setting tile in this way it is customary to start each course at the back wall and set about one-third of the distance across the kiln, and then put in a blind or brace of bricks placed on the flat. The setting is then carried on for a like distance and a second brace put in; from this point the setting is carried on to the opposite bag wall, where it is made tight by wedging with bricks or broken tiles. Burned shingle tiles are next taken and placed along the top of the first course. Upon these burned tiles the second course is proceeded with in the same manner as the first. To furnish additional bracing the tiles are so set that those of one course are diagonal to the ones below.

Spanish tiles are set in the open by standing on end as shown in the sketch. After one course has been set across the kiln, burned shingle tiles are placed on them and a second course of Spanish tiles are then set on top. With interlocking tiles the setting is much the same as by the block method, that is, the tiles are taken in pairs and placed on their edge. After 10 to 20 pairs have been set, a brace is put in. This brace is made up of several pairs of tiles set endwise in the course; from the ends of these the setting proceeds until a second brace is needed. As with the shingle tiles, the tiles in one course are set diagonally opposite to those below. It is, however, not customary to use shingle tiles between the courses, each course being set directly upon the one below.

As to the merits of the two general systems of setting tiles, supports vs. non-supports, little if any comparison should be made, for the simple reason that with vitrified ware it would be next to if not impossible to set without supports, while with porous ware it would be useless and expensive to use the supports when the other method could be used.

(To be continued).

INTERNATIONAL BUILDING EXHIBITION, LEIPZIG, GERMANY.

The following is a summary of the classification plan of the International Building Exhibition, Leipzig, Germany, in 1913:

Section 1—Architecture; 8 groups with 33 subsections.

Section 2—The Literature of Architecture and Building, Technical Educational Institutions, Office Requisites for Architects and Engineers; 3 groups.

Section 3—Building Materials, their Manufacture or Preparation and Use; 20 groups with 24 subsections.

Section 4—Machines, Tools and Apparatus used in Building; 5 groups and 2 subsections.

Section 5—Sale and Purchase of Building Land, Building Finance, Estate Agencies, Insurance in connection with Dwelling Houses, Bookkeeping for Builders and Architects; 5 groups.

Section 6—Building Sanitation for Dwellings, Factories and Streets, Protection of Workers from Injury, First Aid and Other Provisions for Their Health and Comfort, Precaution against Fire, Old Age and Invalid Insurance; 6 groups.

Section 7—Gymnastics, Games and Sports.

Section 8—Testing of Building Materials, Technical Demonstrations.

Detailed information, application blanks, etc., can be obtained from T. W. Garve, Schultz Building, Columbus, Ohio.

That brick for porch work can be successfully boosted is evidenced by the fact that it is already finding wide favor throughout the country. It's a good thing—push it along.

Written for THE CLAY-WORKER.

BRICK NEWS FROM THE TWIN CITIES AND THE NORTHWEST.



THE BRICK TRADE has had a better showing for 1912 than seemed possible from the way the season started and was for the first few months. Since the crop became assured, there has been a nice increase in the demand for drain tile, silo blocks, and brick as well. But the demand from the farming communities is not what it will be in the spring, for it has been a busy fall with agriculturists, and many of them have had to defer some of the improvements which they had in mind, because of the delays which have occurred this fall.

The result is that a number of yards which made but a limited output this season, because of the dullness of the spring trade, are going into the winter with less on hand than usual, and less than they would prefer to have. If the spring demand is as good as it seems likely to be, the only thing which will save a good many yards from lost business is an early opening of spring which will allow starting their kilns several weeks sooner than common. In this northern climate, where severe frosts have been known to occur in April and well into May, it is hard to get yards operating and producing until a good deal of the early spring trade is over. Hence a sharp demand will leave stocks carried over completely wiped out in short order.

The demand for brick for construction purposes has been growing, although common brick has had to share the trade with the sand-lime brick trade. The latter, under stress of sharp competition, has gotten in on the basis of low prices, which in turn forced a poorer market for clay brick. Neither class has been bringing the price they were entitled to bring nor what they might have commanded had it not been for the sharp competition which each offered to the other. Each side complains of the unfair competition of the other. The sand-lime brick men declare that their wages were unjustly assaulted by the clay men, as having low crushing strength, and the clay men claim that the sand-lime brick men have pushed their wares solely on the score of low price, rather than on the merits of the goods. It seems that there will be a better status between the two hereafter, which will doubtless result in a better range of prices for each.

The annual election of officers of the St. Paul Builders' Exchange resulted in the election of F. H. Romer, of the Romer Construction Company, as president; John H. Hoffman as vice-president, and A. V. Williams, secretary, re-elected. The exchange is in a flourishing condition.

A. P. Cameron, a veteran general contractor and builder of St. Paul, was recently honored by the Canadian government for his participation in Indian warfare under the Canadian flag. The government recently voted to all survivors \$100 in money and a grant of 160 acres of land. Mr. Cameron was in the Fenian raid in eastern Canada in 1866, and again in the Riel rebellion twenty years later.

City Engineer Claussen, of St. Paul, has made a suggestion which would work to the advantage of the conditions of streets and would remove from paving materials much of the undeserved blame that they have. The suggestion is to require all lots to have connections made for gas, water and sewer before paving is allowed to be laid. These improvements are to be ordered by the Board of Public Works, and charged to the property, the same as paving itself.

John H. Rich, for years president of the Red Wing Sewer Pipe Company, of Red Wing, Minn., has retired from the office, desiring to escape the detail work of the position. He retains his holdings in the company, and expects to take a deep interest in its continued success. He anticipates traveling and otherwise enjoying life.

S. L. Davidson, A. R. Robertson and C. E. Hickman, all of

St. Paul, propose to establish an elaborate brick and tile plant at Valley City, N. D., as the Valley City Brick and Tile Company. A tract of some thirty-five acres has been secured, and a continuous kiln system is to be installed. There will be several kilns, about 125 feet long and 16 feet wide. The plant will produce hollow blocks and brick and also drain tile if there shall appear to be a demand for it.

William M. Kenyon, a well known architect of Minneapolis, has admitted Maurice F. Maine, his head draftsman, to partnership. The firm style becomes Kenyon & Maine.

Walter Burley Griffin, the Chicago architect whose design won first place in the competition for a complete capital city for the federation of Australia, recently made several addresses in Minneapolis and St. Paul, illustrated with slides, which attracted a great deal of attention.

Dercher & Wolff, Grand Forks, N. D., will erect a modern pressed brick apartment building to contain ten apartments at a cost of \$30,000. F. W. Kinney, of Minneapolis, is the architect.

Enoch Broberg will erect a modern brick apartment building at 2860 Hennepin avenue, Minneapolis. It will be 37x115, three stories high. Cost, \$16,000.

The Waldorf Box Board Company, of the Midway district, St. Paul, Pillsbury and Myrtle streets, will erect a one-story brick building, 80x330 feet in size, mill construction, equipped with box making machinery, to cost \$200,000 complete.

The Merchants' National Bank of St. Paul, which has just absorbed another bank and becomes a \$2,000,000 capital institution, will erect a handsome fourteen-story banking and office building at the corner of Fourth and Robert streets, 100x120. Cost, \$1,600,000.

Morton M. Fenstad received the general contract for the erection of an elaborate residence for E. T. Buxton, of St. Paul, on Summit, near Portland, to cost about \$22,000. It will be of brick, steel and stone construction. Plans are by Marshall & Fox, architects, Chicago.

M. J. Osborne has let contracts to the Hoy & Elzy Co., of St. Paul, for the erection of a brick and cement garage building, at College and Third streets, to cost \$30,000. The site is located so that the two stories will each be on a street level.

Amlee & Oace received the general contract for the erection of the Listoe & Wold undertaking building at Fourth and Franklin streets, St. Paul. It will be of brick and terra cotta.

The Sixth Church of Christ, Scientist, Minneapolis, plans proceeding with the erection of a modern church building in the spring. The foundation has been in for some time. The superstructure will be of brick or stone. Cost \$100,000. H. N. Leighton Company, general contractors.

Guy A. Thomas will erect a modern brick office building at Fourth street and Fourth avenue, South, 93x126, two stories and basement, fireproof construction, to cost \$70,000.

Alban & Hausler, architects, of St. Paul, are completing plans for a modern brick grade school to be erected by the board of education of Stevens Point, Wis.

John H. Hoffman, of St. Paul, has the general contract for the St. Joseph Academy, Nelson and Western avenues, to cost \$125,000. It will be a four-story brick and stone college building.

Saxe Brothers, of Milwaukee, will erect a ten-story brick office building on Seventh street, between Nicollet avenue and Hennepin, Minneapolis, to serve for physicians' offices. It will be 50x150. James A. Burner, architect, Minneapolis.

Janney, Semple, Hill & Co., wholesale hardware, Minneapolis, will erect a six-story brick warehouse building at Third avenue South and First street, 147x198 feet in size. Cost \$135,000.

Plans have been completed for the erection of the contagious hospital building at the Minneapolis city hospital, to cost \$200,000. This structure will be of the most sanitary construction throughout.

T. WIN.



12-618-12 H

CLAY WORKER

THE SPLENDID DISPLAY OF THE NORTHWESTERN TERRA COTTA COMPANY
AT THE FIRST INTERNATIONAL CLAY PRODUCTS EXPOSITION,
CHICAGO, MARCH, 1912.

THE SECOND CLAY PRODUCTS EXPOSITION

Will Far Surpass That of Last Year. Every Line of Clay Products Will be Represented. Those Who Have Neglected to Reserve Space Should Do So at Once.

DAILY DEVELOPMENTS indicate that the Clay Products Exposition of 1913 will far surpass the really wonderful show of 1912. Information received from the offices of the Exposition Company is to the effect that twice as much floor space has been sold already for the next show as was disposed of up to the end of December last year.

Not only this, but the exhibits will be more general and will represent a more complete line of clay products. Particularly in two notable departments is this true. These departments are bathroom equipment and encaustic tiling. These two branches of the industry represent a class of clay products which are of universal interest, not alone to architects and contractors, but to the home owner and those interested in a modern dwelling. The branches of the clay industry producing these products failed to recognize the importance of the 1912 exposition, but when the wonderful showing was open to the public, and after it was seen how many architects, contractors, builders and home owners visited the show with a desire to be posted and with a view to being purchasers, it became apparent that the exposition was worthy of the most hearty support, and the fact that 150,000 people visited the show proved the interest of the general public in the exposition and in every branch of the clay industry.

Few opportunities are ever offered to any manufacturer to show his products to 150,000 people, and the Clay Products Exposition has given an opportunity to a trade sadly needing a stimulating effect, a most wonderfully creditable showing before the world. It is little wonder then that the clay industry, in all its branches, should show a better appreciation of the Clay Show for 1913 than it did for the 1912 exposition. The exposition management has abundantly shown what it can do for the benefit of the industry, and the industry would be sadly indifferent to the efforts and accomplishments of the exposition management if the manufacturers did not get back of the 1913 show with a determination to make it a record breaker.

Eighty of the two hundred available spaces have already been sold to manufacturers representing every prominent branch of the industry except tableware. It is evident, therefore, that the exposition could be opened without further sales of space and an excellent showing be made, which would be far more general in scope than the first Clay Show. It is hoped, however, that all other branches of the clay industry, no matter of how little magnitude, will come into the show and make the exposition really complete.

The fame of the last Clay Show has spread, and because of the show a lot of national publicity has been given to the industry. Magazines, trade papers and newspapers in every part of the country have been more favorably impressed with the importance of the industry. Articles without number have been written about the various branches of the trade and the consumer, the man who buys and the person who uses clay products, have seen the superiority of burned clay. Now that the country has been aroused, it is of the greatest importance that the 1913 showing be made such a worthy follow-up of the first show as to still further advance the interest and conviction of the public.

Every branch of the clay industry can more than double the present volume of business and there is no possible way in which this worthy object can be attained at so small a cost as through the use of the opportunity offered by the Clay Products Exposition. At the last show many of the exhibitors made more than enough sales to repay any trouble

or expense to which they were put in making a display. The matter of distance from Chicago was more imaginary than real, because exhibitors from Iowa received orders for material to be sent to New York, and Ohio exhibitors secured orders for delivery in almost every remote State as well as the nearer ones. Even though the returns were greater to those nearer Chicago there is still enough good to be done to justify a manufacturer in any part of the country coming into the show. Any exhibit which will call forth national interest and national publicity must of necessity benefit every manufacturer sufficiently to merit most hearty co-operation.

With a national advertising and promotion campaign being waged by the cypress interests, another by the white pine interests, still another by the cement interests, and another by the stucco interests, there is certainly need for the closest harmony between all branches of the clay industry, and an enterprise so worthy as the Clay Show ought to find every clay products manufacturer ready and anxious to boost, especially when the exposition has so thoroughly demonstrated what it can do for the industry and has shown the excellence of its aims and the honesty of its intentions.

Those of our readers who have not already done so should get posted on the exposition. Write to the Exposition Company, 815 Chamber of Commerce building, Chicago, or write us and we will be pleased to give impartial advice.

There is no time to be lost in arranging for an exhibit, both on account of the time necessary to plan and arrange your exhibit and because there may be such a demand for space as to disappoint you in the location or amount of space available.

It has been arranged to have ample time for installing exhibits, so that no overtime work will be necessary in putting up a display. There will be three full weeks of ordinary eight-hour days for installing for those needing that amount of time, and for others there will be a full week with no overtime necessary. It has cost the exposition company a great deal of money to secure this extra installing time, but it was done in the interest of economy to the exhibitors. The show will be open to the public for ten days, which is twice the exhibiting time of the 1912 show. Because of the excellent record of the last exposition and the added days for exhibiting, it is confidently expected that over 200,000 people will attend the exposition. Surely here in an opportunity worthy taking advantage of.

BOOSTING THE BRICK BUSINESS.

Local advertising, as well as general advertising and association work, will do a lot to help increase the use of brick. Indeed, in many instances it is local advertising that will do more than any other one thing to help the cause along. So to boost the brick game we need to keep enthusiasm alive for the local advertising. There has never been enough of it, except in a very few localities. Now and then we come across instances of what might be termed the full measure of local advertising, and these are decidedly encouraging. But there are not enough of them; we should keep at this thing till the community where there is not enough local advertising is the exception, instead of as now, with only the exceptional community that really shows enough of it.

An exchange bureau for ideas and ammunition should be

a good thing to both inspire enthusiasm and help give it definite shape. This thought comes in mind in connection with the idea that it would be a good thing for those doing local advertising in different parts of the country to exchange cuts with each other now and then. To make this idea more specific, let us assume that one man in a given locality keeps his eyes open and is enterprising in an advertising way. When a new, attractive brick house goes up in his community he is mighty likely to get a picture of it to help boost brick before prospective builders. Picture and plans of specific, attractive houses are the best kind of advertising material. So the man would be following a good lead in this case.

By and by, though, he must change his house picture and his copy, and this is where the exchange idea comes in. Why not, in addition to getting fresh pictures and making cuts from houses in his own community, get to exchanging those that he has used with some one else in another part of the country. That would give each something new to show with no expense other than the cost of exchanging, and it would give a wider range of houses for each to select from. And the wider the exchange circle the greater this variety. In fact there are so many good points about it all that the only room for worry in connection with putting the scheme into active operation is as to how it may best be carried out to do the most good for the greatest number, and help inspire the local advertising spirit as well as furnish ideas and copy for it.

Cut proofs might be exchanged between different individuals located here and there, from which each could select those cuts that appeal most for exchange; some sort of a central bureau might be established from which any one could secure such things on request, and to which all might send copies of their ads., or a central cut-making point might be established to which all such pictures could be sent, and from which any cuts wanted might be secured at any time. These are details that there should be a getting together on to see how they can best be worked out, for it is only a matter of details, the main idea is good as it stands—the idea of getting more house pictures and plans into the local advertising through some exchange system. This showing of pictures and plans by those interested in the lumber trade has done more than any other thing to help promote building and generate a desire for better homes, and it is now time for the brick people to get into the game with more of it.

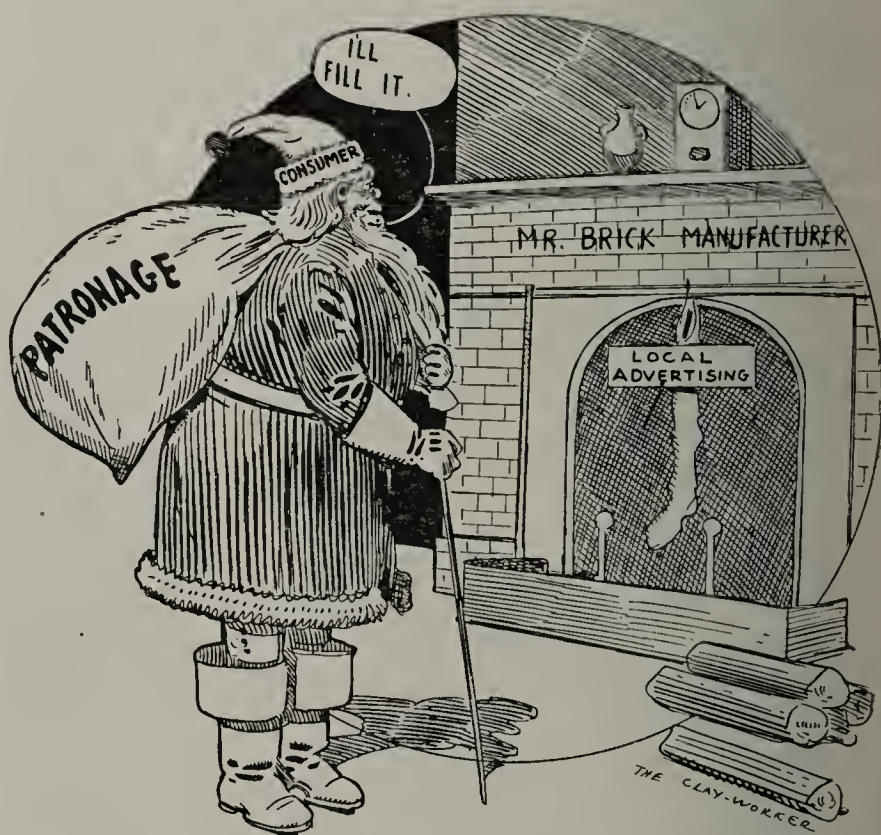
In this brick boosting game some people, perhaps unconsciously, get into the attitude of assuming that brick is on the defensive, that the clayworking industry has been asleep for ages and needs waking up. That is a mistake. Brick and other clay products should be boosted with progressive, not defensive, argument and attitude. The latter sounds too much like apologizing for being on earth, and it has no place in the right promoting of the greatest of all building material. Nor are the clay workers asleep, not by a long shot. The progress of the past quarter of a century has exceeded that of several thousand years before, and men who make that kind of progress surely cannot be accused of being either sleepy or slow. Quite a lot of attention and energy in the past has been centered on the study of clay and the methods and machines for working it, and not enough to educating the public and promoting the use of brick. But the industry has not been asleep there, not by any manner of means, as witness the progress in street paving and toward future roadway paving.

And, as evidence that effective work has been done for building brick, the lumber people are pointing to some of it in the hope of arousing more enthusiasm in the lumber trade for still more extensive exploiting of timber products in self defense.

And speaking of that, here is a peculiar line of argu-

ment being offered in a western lumber paper. It offers in rebuttal of the argument for more permanent building material than wood that it is a mistake to build with too much permanency, and cites the tearing down of city buildings less than twenty-five years old as a case in point. The writer might have gotten better data by going east to New York where many big buildings are torn down within ten or fifteen years to make room for still bigger ones of more modern type. But he would not find therein any encouragement for lumber, because in the sections where this kind of thing goes on it is not permitted to use lumber for structural purposes. And there is nothing in it against the permanent fireproof building material. That is merely an incidental outcome of the desire to build yet bigger and better, and belongs peculiarly to the congested city, not to the home building proper, where the lumber people are contending for a share of the trade. It but goes to show how they are put to it for argument to use in boosting their material in competition with clay products.

No, the clayworkers are not asleep, and there is no need to drop into the hackneyed sleepy kind of argument. This is a wideawake industry that is doing good and effective



The Kind of Stocking to Hang Up to Insure Its Filling.

work. We need to do more of it, and to keep the enthusiasm alive, and it is that which makes the whyfore of the persistent argument in favor of boosting brick. That the trade falls off some one year as compared to a former banner year is nought to be discouraged about, either, for such things happen in all industries. As for the present year, it has been good, and, whether or not it has broken any records, reports indicate that practically the whole trade has had all it could do and has prospered. So let's boost, not plaintively, nor by pretending that we have been asleep, but confidently and enthusiastically for a bigger and better future for clay products.

DEATH OF FREDERICK BERNER.

Frederick Berner, vice president of the Hetherington & Berner Company, Indianapolis, Ind., manufacturers of the Standard rattler, died at his home in Indianapolis December 13, following a two months' illness. Mr. Berner was fifty-two years old and was a grandson of one of the original founders of the business, which had been handed down from father to son since 1867. A widow, four sons and two daughters survive.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



BUILDING OPERATIONS in this city are in full operation. It has been a fine fall for work, as one fine day has followed another right along to the present time, with but few interruptions, and contractors are taking advantage of the fine weather to get their jobs enclosed so work can go on right through the winter. All building labor is well employed, and the indications are that they will be employed the greater part of the winter. A good many new jobs are being let right now, and investors seem in a hurry for buildings, so the possibility of a little heavier cost in construction, which usually comes with cold weather, is not stopping them from going ahead.

The demand for brick is insistent, and the local plants, which are in steady operation, are finding a good market for every brick they can produce. Jobbers who handle outside brick are still greatly handicapped by a lack of cars. It is not a question of orders with them, but a question of finding the brick and getting the delivery on track here.

Prices continue at about the same point as a month ago, the gas-belt brick costing, at wholesale, \$6.75 per thousand for common, on track here.

Among the new buildings now being planned, and for which the ground is being cleared is the Plaza Grand hotel, which will be a nine-story structure on the corner of Twenty-fourth and Main streets, 250 feet south of the new Union depot, and it is to be built and ready for opening before the depot is completed. Another new building in the new depot neighborhood is a four-story warehouse at 2014 McGee street, which will be built by J. R. Sydnor.

The Fidelity Material Company, of which T. C. Jacoby was owner, has gone into bankruptcy, with total liabilities of \$9,852.16 and total assets of \$3,408.17, and exemptions asked of \$402.56. This business has only been operated about nine months, and must have either handled a large volume of business to secure such a credit or credit was extremely easy. It has never had a rating in the mercantile books. The following is a partial list of creditors:

State Bank of Kansas City, secured by Kansas City

Construction Company and W. B. Davis.....	\$ 627.50
Independence Brick Company	223.20
Pittsburgh Brick Company	374.65
Standard Vitrified Brick Company	123.10
J. E. Welsh, note	100.00
Brazil Clay Company	259.02
Chanute Brick and Tile Company	40.12
Coffeyville Shale Brick Company	461.86
Excelsior Brick Company	263.24
Fort Scott Brick Company	253.03
Goodwin Tile and Brick Company, Des Moines, Ia....	120.00
Ricketson Mineral Paint Company.....	148.75
Buffalo Sales Agency.....	76.80
Wm. Harte, note	150.00
Tyro Vitrified Brick Company, note and account....	1,821.75
Guy Rondebush, note	250.00
Cleveland Vitrified Brick Company	1,078.70
Mr. and Mrs. J. W. Jacoby, St. Louis, Mo., note....	2,000.00
Gloyd Lumber Company, rent	300.00
Dell Wedge	20.00
Fred M. Clark, Savannah, Mo.	230.71
M. K. & T. Ry. Co., freight	91.24

The W. S. Dickey Clay Mfg. Company had a very attractive display at the Kansas City Home Products Show, which was held this month in Convention Hall. Besides the regular display of sewer pipe, etc., a good showing was made of their chimney lining, a chimney being shown with their lining inside and some brick out of the chimney itself, plainly

indicating that there could be no fire leak even though a few brick may fall out. Along side of it was an old style flue with a brick out just above the floor, showing how easy it is for such a thing to happen and a spark to then ignite the woodwork. Manufacturers who made displays were much pleased with the results and there will be two weeks of the show next year.

Walter S. Dickey, president of the W. S. Dickey Clay Manufacturing Company, has taken out a building permit for a \$130,000 home he is about to build at Holmes and Fifty-first streets. C. C. Smith is the builder.

The plant of the Altoona Vitrified Brick Company, in Altoona, Kas., has been sold under the hammer for \$6,600, the purchaser being the United Iron Works Company.

Only six plants are now making common brick in the Kansas gas belt, and it is likely that the number will not be increased before next spring, in fact it may be lessened before that time.

Frank S. Nicholson, of the Union Brick Company, of Iola, Kas., was a visitor to this city last week.

The Eadie Building Supply Company reports that business has doubled up in the last month, and that the inquiries are fully twice as good as they were at this time last year.

John J. Robaczewski, of Detroit, Mich., is reported planning the establishment of a brick plant in Joplin, Mo.

The Chicago Fire Brick Company, of Chicago, Ill., of which W. J. Gilbert is manager, is figuring on establishing a large plant in Fulton, Mo.

The Brazos Tile and Brick Company has been incorporated in Rosenberg, Tex., with a capital stock of \$50,000. It will continue the operation of the Brazos Brick and Tile Drain Works, spending \$20,000 in increasing the capacity of the plant and will specialize on hollow tile, fire proofing and drain tile.

G. C. Brown contemplates the establishment of a mud brick plant in Dallas, Tex. KAW.

CLAY FIGURINES 20,000 YEARS OLD.

ACCORDING to information received from France, clay figurines have recently been unearthed in a cave in the district of Montesquieu, Ariege, which are 20,000 years old. Count Begonen, a world famous authority on prehistoric remains, made the discovery.

Most of the figures were apparently intended to represent bisons. Two separate figures, respectively twenty and thirty inches long, evidently represented male and female. The figures were intact, but were slightly marred by cracks in the clay probably caused by too quick drying.

The interest in this discovery is that it represents what is probably the oldest prehistoric clay modeling yet recorded. The statement that it is the first discovery of prehistoric clay modeling is erroneous, since a good many such remains have been found in Mexico and Central America, though by no means so old.

The interest to the modern worker in clay lies in the fact that these discoveries prove beyond question the absolute indestructibility of clay. If figurines retain their form for 20,000 years, the question of permanency would appear to be definitely settled. Few structures or models of the present time will be allowed to stand so long.

MORE DUNN WIRE-CUT LUG BRICK.

The demand for Dunn wire-cut lug brick continues unabated. The Dunn Wire-Cut Lug Brick Company advises us that the Dunn system has recently been adopted by the Murphysboro Paving Brick Company, Murphysboro, Ill.; the Binghamton Paving Brick Company, Binghamton, N. Y., and the Peebles Paving Brick Company, Portsmouth, O., all of whom are enthusiastic in support of the merits of the lug brick. Those interested are referred to ad on page 721 of this issue.

CONVENTION OF OHIO BRICK AND TILE MANUFACTURERS.

NEARLY FIFTY Buckeye clayworkers gathered at Columbus, O., Tuesday, December 10, to participate in the resurrection of the Ohio Tile and Clayworkers' Association. The organization has been in a state of innocuous desuetude for a decade or more, no meeting having been held in that time. The convention sessions were held in the class room of the Ceramic Department of the Ohio State University. Professor Orton, the founder of the department, who has directed its course ever since it was started in 1897, addressed the first session informally, and reminded the delegates that the credit for establishing the first clay school in America was due in a large measure to the influence of the Ohio Brick and Tile Association. He spoke of the early history of the Ceramic School, mentioning some of its many valuable accomplishments, and expressed the hope that the work so well begun would be continued for many years to come.

The delegates were welcomed officially by Dr. W. O. Thompson, president of the University, in a charming, though informal, address during which he expressed the hope that the visitors would familiarize themselves with the various important departments of the University. He urged them to make it a point to visit the University whenever opportunity offered; and assured them that a cordial welcome awaited them always.

President J. D. Rumsey thanked Dr. Thompson for his cordial welcome and Professor Orton for his words of good cheer, and then delivered the following address:

President Rumsey's Address.

Clayworkers and Friends:

At some time in the life of most men there takes place an event which gives to him a wonderful amount of pleasure and gratification. To-day, as I stand before you as president of the Ohio Tile and Clayworkers' Association, and bid you welcome to our first meeting, it is with a great deal of pleasure that I note the presence of so many brother clayworkers, and it is indeed gratifying to know that so many worthy and able men are here to discuss, for and with us, the important problems which it is the aim of this association to solve. It shows that you are interested in our new association and fully alive to the benefits you are bound to receive from the papers to be read, and from their discussion, from the talks with each other about factory troubles, and about business success.

It is my earnest hope that every one present may receive such real benefit from his attendance at this meeting that he will be glad to come again, and will encourage his friends to attend. This is only the beginning of many good meetings which we are going to have, and the subsequent ones depend upon you for their support.

Get in the habit of boosting. Urge your friends to come. Then our success is already assured.

We represent no little industry. Ohio, of which this association is the representative, ranks first in the United States in all clay products, and third in drain tile.

The increase of population in the country is the certain manifestation of natural progress in social and economic law. In studying the effects of population and value in this country we can start with one fact in mind, namely, that in all districts in which normal conditions prevail, due to a reasonable diversity of industrial and agricultural opportunity, the population is steadily increasing.

It is reasonable to suppose that the most striking growth of population will take place in those sections of the country which have the greatest undeveloped agricultural resources, and at the same time the most favorable opportunities for developing them.

When we look at this part of the United States, and con-

sider the development due to tiling, and the development of manufacturing due to the increase in agriculture, we cannot but realize that it will not take long to materially increase the number of inhabitants (and this increase would naturally necessitate a further increase of agriculture to sustain them.) We are doing more to bring about this condition to-day than any other manufacturers.

Buckeye Boys' Corn Special.

For the purpose of sending one boy from said township on a free trip to Washington, as arranged for by the Ohio Department of Agriculture, I promise to pay into the hands of the treasurer of the township organization, on or before (a certain date), the sum set opposite my name. Any money subscribed in excess of this amount, which is needed to pay for said trip (not to exceed \$50.00) shall be used to pay 2 and 3, to be divided in the ratio of 2 to 1.

Those who have entered this contest have at the start thoroughly tiled their land, and by this great advantage in crop growing have proved to the average agriculturist that he cannot successfully grow any good crop without first thoroughly tiling his land. This alone is bringing about better conditions of tiling, and should be encouraged.

In behalf of this association I want to thank those who have taken the time and trouble to prepare convenient quarters and papers for the association, in order to make this a pleasant, interesting and profitable meeting.

Again I thank you for your presence, and bid you a hearty welcome.

Ellis Lovejoy entertained the delegates for an hour or more with an instructive lecture on "The Preparation and Mixing of Clays," explaining in his forceful way why the character of clay products depends on the proper mixture of the raw material and how the best results might be accomplished most effectively. He contrasted foreign and American machinery and showed views of each, mentioning the latest device for gathering clay, the Powell excavator, which is fully described and illustrated on page 636 of this issue.

Mr. C. B. Harrop, who is associated with Professor Orton in the clay school, closed the first session with an instructive talk on the designing of a tile factory, which he illustrated with pen and ink sketches. The noon hour having arrived, the convention adjourned for lunch, which was served in the College Club, after which a sight-seeing trip was made through the Dairy, Agricultural and Engineering Departments, each of which is equipped with every modern convenience and facility for carrying on the work of the department.

During the afternoon session, Mr. I. M. Justice, of Dayton, read a paper on "Practical Drying of Clay Products," which will be published in full in a subsequent issue of THE CLAY-WORKER. Mr. Theo A. Randall next read a paper on "Practical Farm Drainage," written for the occasion by Daniel W. Stookey, editor of the Land Drainage Department of THE CLAY-WORKER, which will be found on page 632 of this number.

The convention was called to order the second day at 10:00 a. m., and papers were read by J. Leo Childs, of Findlay, "Factory Costs"; W. C. Denison, Cleveland, "The Use of Hollow Clay Ware as a Building Material"; Prof. E. E. Sommermeier, Columbus, "The Relative Value of Fuels"; and Professor Orton concluded the formal program by a lecture on "The Standardization of Drain Tile Tests." The reports of officers were heard and approved. The following officers were elected to serve the ensuing year: President, J. Leo Child, Findlay; vice president, Prof. Edward Orton, Columbus; secretary, Geo. Drennan, Plymouth; treasurer, A. M. Neff, Bryan, Ohio.

MEETING OF AMERICAN SOCIETY OF MUNICIPAL IMPROVEMENTS.

THE ANNUAL meeting of the American Society of Municipal Improvements was recently held in Dallas, Texas. This society for many years has been the leading one covering the subject of municipal improvements in this country.

The National Paving Brick Manufacturers' Association, alive to its own interests, has enjoyed a certain kinship with this society, especially in relation to its work in so far as brick pavements are concerned. The National Paving Brick Manufacturers' Association stands for brick pavements, as this society does for all that is best for the citizens and taxpayer. The papers and discussions of this municipal society are of the highest order. Its efforts to promulgate specifications for various improvements are generally approved, and it is believed that as improved upon from time to time they will finally become well nigh perfect.

The meeting was the largest in its history, engineers being in attendance from all parts of the country. The National Association was represented by its secretary, Will P. Blair, Cleveland, Ohio; A. P. Maurer, of the Metropolitan Paving Brick Company, and F. L. Manning, of the Peebles Paving Brick Company, Portsmouth, Ohio. There were also present of the manufacturers, Messrs. Buckles and Fuller, of Kansas, and Mr. Arthur Goetz, of the Thurber Brick Company, whose offices are located in Fort Worth, the nearby and rival city of Dallas. Mr. Goetz takes great pride in showing the brick pavements of Fort Worth, the construction of which is of the first order and give great credit to vitrified brick as a paving material. Many miles of brick pavement are found in Fort Worth.

While many brick pavements are found in Dallas, Texas, the overreaching prominence of the brick industry is found in the great Adolphus Hotel at Dallas. It emphasizes the possibility of a wide market for a superior face brick, as the brick used in this hotel were made by the Poston Paving Brick Company, of Crawfordsville, Ind., and are of their famous "Oriental" brand.

Practically the whole convention took advantage of their presence in Texas to extend their visit from Dallas to other points, studying various municipal problems. Dams and reservoirs for water supply are a feature of Texas cities.

Houston, Texas, is greatly inclined to brick pavements, but the artistic use of brick paving is found along the line of the great sea wall at Galveston.

The mesquite wood block pavement on Houston street, San Antonio, was found to have been replaced with brick pavement very much resembling the high class work that was noted in Fort Worth.

SAND-LIME BRICK MANUFACTURERS HOLD ANNUAL CONVENTION.

The ninth annual meeting of the American Association of Sand-Lime Products was held in King Edward Hotel, Toronto, Ontario, Tuesday and Wednesday, December 3rd and 4th. There were twenty-three firms represented, including the machinery manufacturers. A number of able papers were presented, notably one by P. L. Simpson, of the American Clay Machinery Company, Bucyrus, O., which was ordered printed for public distribution. W. H. Crume, of Dayton, also read an interesting paper on "The Present Condition of the Sand-Lime Industry," which will be given to the trade press. Mr. Warren E. Emley, a representative of the United States Bureau of Standards, was in attendance, and delivered a lecture on the technical side of the industry. The president of the association, S. O. Goho, departed from the usual order by declining to make a formal address. Instead,

he called the meeting to order and proceeded at once with the work as outlined in the program.

A banquet was tendered the visitors by the Toronto and Harbor Brick Companies, which proved a very enjoyable function. Wednesday a trip was made to the brick plants and to the shops of the Berg Brick Machine Manufacturing Company. The Bergs were complimented on their fine equipment. At the final session, the following officers were elected for the ensuing year: President, S. O. Goho, Harrisburg, Pa.; vice president, F. B. Allen, Toronto, Ontario; secretary, W. E. Plummer, Jr., Buffalo, N. Y.; treasurer, John L. Jackson, Saginaw, Mich.

A formal resolution changing the name of the association to The Sand-Lime Brick Association was adopted unanimously. It was agreed to hold the next convention at Harrisburg, Pa., December 9 and 10, 1913.

C. W. RAYMOND COMPANY GETS BIG ORDER.

ONE of the largest contracts for clayworking machinery and equipment for a single plant ever placed in the history of the trade was secured by the C. W. Raymond Company, of Dayton, O., October 31. The contract comprises the equipment and installation for a complete brick plant to be erected at Toronto, Can., by the Ontario National Brick Company, which is headed by William Lyall, of the Peter Lyall & Sons Construction Company, of Montreal, the contractors. This plant will be larger than any of its kind in the United States, the equipment for same requiring twenty of the Raymond's largest machines, together with other apparatus, including drying and burning processes.

The amount of power required on this plant, it is said, will be 1,000 horse power. The stiff-mud process will be used, the ware to be dried in a 56-tunnel Raymond metallic radiator dryer, and burned in a Raymond producer gas fired continuous kiln.

The contract amounted to close to \$1,500,000. It is estimated that it will require 1,500 railroad cars to transport the materials used in the construction of this plant, 100 of which will be required for the shipments from the Raymond factory in Dayton, O. Ten million brick will be used in the erection of the plant and buildings. The duty on the equipment will enrich the Canadian government about \$40,000, while the railroads will secure nearly \$8,000. The daily output of the plant will be 300,000 brick, which will build ten ordinary eight-room houses, or in sixty-five days will make enough brick to pave a ten-foot country roadway from Dayton to Cincinnati.

The producer gas fired process, which will require fifteen gas producers, has a daily total operating capacity of 9,750,000 cubic feet of gas, a quantity sufficient to supply the entire city of Dayton with artificial gas from ten to twelve days, under average conditions.

The contract was secured for the C. W. Raymond Company by G. M. Raymond, the general manager of the C. W. Raymond Company, together with J. C. Brannock, secretary; Chas. W. Raymond, Jr., the vice president, and F. A. Elliott, their Canadian representatives.

We congratulate the C. W. Raymond Company on this fine order.

FIRE DESTROYS BRICK BARGE.

A fire on a barge owned by the Edward Brockway Brick Company, of Brockway, N. Y., lying at the head of Porter avenue and Newtown Creek, Williamsburg, not long since, imperilled considerable shipping before the craft were hauled into safer quarters. The barge was the Edward Brockway, of which the skipper is Captain Peter Clark. An overheated stove in the cabin caused the blaze and while he was trying to extinguish it he severely burned his hands and face. By the time the firemen arrived the brick barge was one mass of flames, but the firemen kept the blaze confined to it. The boat was burned almost to the water's edge.

INDIANA BETTER ROADS CONVENTION

THE CAUSE OF GOOD ROADS in Indiana has been advanced in a most gratifying manner by a Good Roads convention held at Indianapolis December 11 to 13. The meetings were held in the German House, where many of the exhibits at the Cincinnati Good Roads show were repeated. We are pleased to reproduce photographically the exhibit of the National Paving Brick Manufacturers' Association and that of the Dunn Wire-Cut Lug Brick Company. An attractive feature of each was a series of very large photographs of splendid brick streets and roadways. Those interested in good roads cannot view such pictures without realizing the splendid quality of first-class brick pavements. Road builders generally are coming to realize that for durability and sanitary perfection there is no pavement equal to good vitrified brick.

A splendid exhibit was made by Government Representatives Paul D. Sargent and M. O. Eldridge of the National

lime, so it is thought that a good sand-line brick plant will prove very successful there. Those desiring further information will please address the Everglade Land Sales Company, Dorn Building, Miami, Fla.

AMERICAN ROAD BUILDERS' CONVENTION.

THE THIRD AMERICAN Good Roads Congress, under the auspices of the American Road Builders' Association, was held in Music Hall, Cincinnati, December 3 to 6. There was a large attendance, a fine program, and the usual displays of road building machinery, model roads, etc. Among the most attractive of the latter were adjoining exhibits made by the National Paving Brick Manufacturers' Association and the Dunn Wire-Cut Lug Brick Company, of Conneaut, O. The latter showed a miniature model brick street in section and was an effective object lesson in the superiority of a good brick street.

The attractions of the exhibition room cut down the at-



Display of Paving Brick at Indiana Better Roads Convention, Mr. W. P. Blair at Desk.

Good Roads Bureau of the Department of Agriculture, Washington, D. C.

The convention was entertained by the various commercial bodies of the city, including the Hoosier Motor Club. The latter gained fame by giving an evening's entertainment, a minstrel show with an all-star cast picked exclusively from the membership of the club.

The meeting was declared a gratifying success in every respect. It is hoped that one good result will be the passage of a modern good roads act by the next State Legislature.

F. B. Dunn maintained his reputation by presenting a carnation to every visitor, a stunt which he originated at the Clay Show at Chicago a year ago, and has repeated with great success at many Good Roads shows since then.

BRICK PLANT WANTED AT MIAMI.

There is a good opening at or near Miami, the metropolis of Florida, for a good building brick plant. There is not much clay in that section, but there is plenty of sand and

tendence at the convention sessions, but the latter were conducted on schedule time and according to program. The social feature of the convention was a smoker tendered by the Business Men's Club of Cincinnati, Wednesday evening. The following evening a series of illustrated lectures was delivered, including one by Will P. Blair, secretary of the National Paving Brick Manufacturers' Association. He showed a number of very fine views of brick streets and brick paved country roadways, and was roundly applauded at the conclusion of his address.

There were a number of notables present, among them Major W. W. Crosby, chief engineer of the Maryland Road Commission. He declared that in his state property was trebled and quadrupled in value where the roads had been improved. There is a state appropriation under which aid is given in Maryland to counties improving the roads, the state and county each paying half, the county having the right to choose the road to be improved. Maryland has appropriated \$5,000,000 for improving its main roads, and

it is anticipated that an equal sum will be appropriated the following year.

Another conspicuous figure was General Coxey, of Ohio, the same redoubtable Coxey who marched on Washington during President Cleveland's administration. General Coxey is an ardent good roads advocate and has a plan for a bond issue by the Ohio state officials, which will provide many millions for the purpose of building permanent roads. Included in his plan is a scheme for the building of brick and cement plants by the state, in which convict labor shall be employed. By this means, he hopes to produce brick and cement much cheaper than they can be purchased from individual manufacturers.

It was predicted that Cincinnati would profit immensely by the Good Roads convention, in that it would incite public opinion to require better and more permanent roadways.

A full-sized brick rattler was shown by Hetherington & Berner, of Indianapolis. This machine has been adopted as

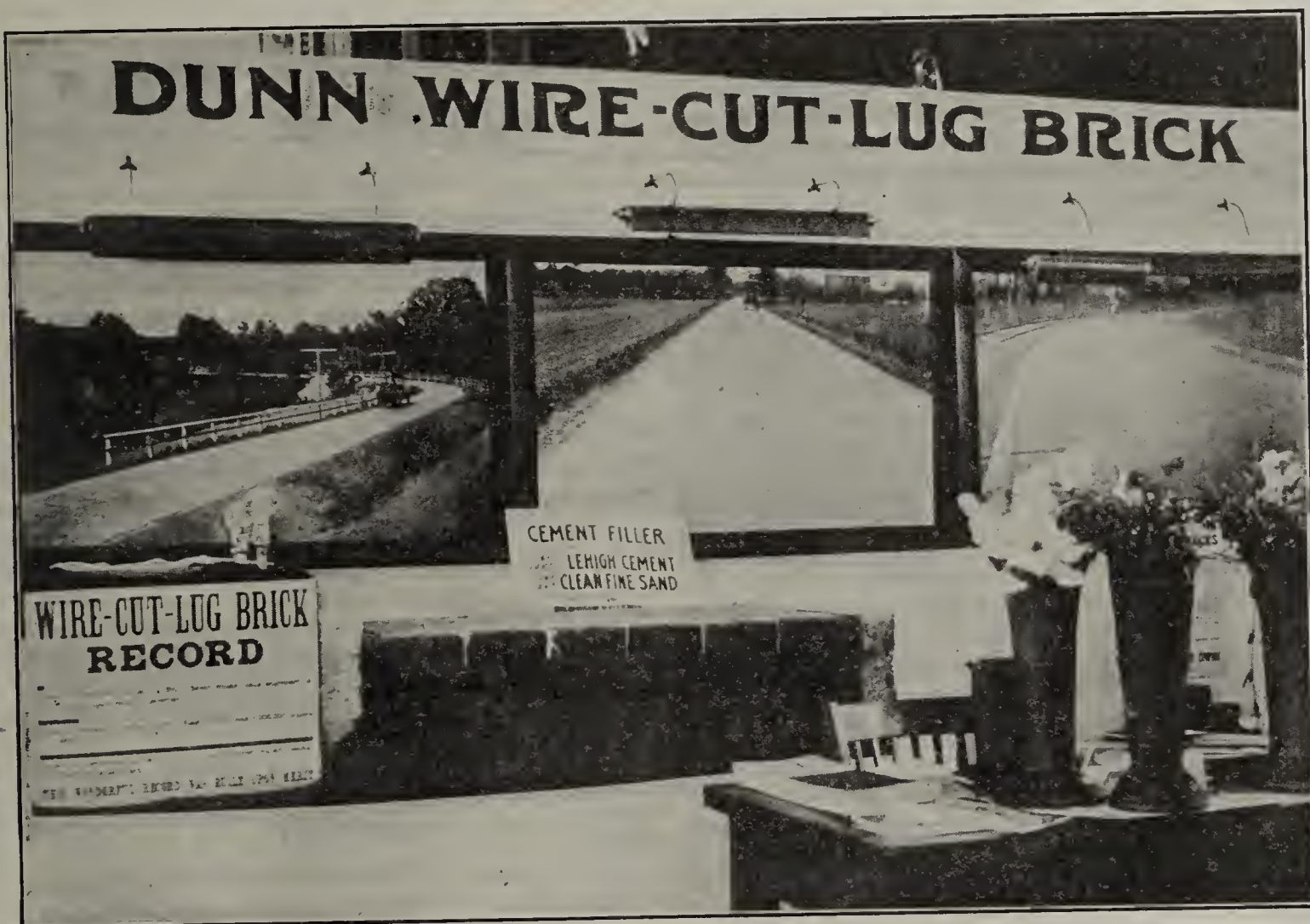
prepared, which will be sent on request. Address R. T. Stull, Ceramic Department, Urbana, Ill. Manufacturers desiring to interest their superintendents, foremen, burners and others, are requested to send for application blanks at once.

A NEW BELTING COMPANY IN THE FIELD.

THE R. & S. Belting Company is an Ohio corporation, the active forces in control of which are W. Reece, of Cleveland, O., and L. P. Shafer, of Canton, O.

W. Reece is a graduate engineer, with many years' practical experience in power transmission, elevating and conveying. To this work he has devoted his entire effort, and made himself, without question, one of the leading experts in these lines, and there are to-day many clayworking plants that have a reduced production cost, due to his solving their problems in handling material.

L. P. Shafer has had practical experience, and for twenty



Immense Photographs of Brick Paved Roadway and Miniature Pavement. F. B. Dunn's Carnations at Right.

the standard for testing paving brick by many city engineers throughout the country.

ILLINOIS CLAY SCHOOL SPECIAL WINTER COURSE.

With a view of affording the clayworkers of Illinois and adjoining states an opportunity of acquiring special technical knowledge relative to the manufacture of clay products, the Ceramic Department of the University of Illinois, at Champaign, has provided a special winter course, beginning January 13th and ending the 25th, which will be under the direction of Prof. A. V. Bleininger, of the Bureau of Standards, Pittsburgh, Pa. The work of the course will consist of lectures, laboratory work, practice in firing kilns, informal discussions, etc. Ample apparatus, such as pyrometers, draft gauges, anemometers, shrinkage calipers, volumometers, gas analysis apparatus, balances, etc., will be provided. Instruction will be offered in elementary chemistry, physics, and all phases of clay work. A detailed program has been

years has been connected with the largest clayworking plants of the country. His practical knowledge as a brick manufacturer must certainly be a large factor in the success of the R. & S. Company.

It would appear to the layman that the use of the term "engineer" in connection with belting is to belittle the profession, but, after a careful study of all points involved, we are certain that belt users will do well to listen to the "whys and wherefores" as put before them by this company.

We are sorry that we cannot in this issue publish a technical paper on the subject of specialized belting, but Mr. Reece has promised to write one for an early issue, and we shall most certainly hold him to his promise, as we know it will be of interest to our readers.

The R. & S. Belting Company will, no doubt, antagonize all manufacturers of belting, because they insist that one or two styles of belt will not consistently meet the many conditions that arise, as they maintain that successful service for the user can only be attained by putting up belts of special

construction and treatment for the work they are going to do. Their various constructions and treatments, and the combinations made possible, must certainly make their competitors, as well as the user, sit up and take notice.

Aside from all else, we, and so must you, regard W. Reece as a friend of the clayworker, for we have knowledge where he is constantly, in a quiet and efficient way, not only boosting clay products, but has produced direct results in many parts of the country through his influence with construction engineers.

Give Reece and Shafer, through the R. & S. Belting Company, a chance to make good in their revolutionary methods. We wish them and their company all success. See their advertisement on page 699 of this issue.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.



UNUSUALLY WARM weather into December has enabled brick plants to continue in operation a full month longer than usual. While the yards have not been running to a capacity during the extra four weeks, enough has been done to keep a considerable proportion of all forces busy. Probably every yard has made one more burning than usual. A good many have made two and not a few have made three. Some are just now finishing up the last for the year.

It is too early to tell with any degree of accuracy what the output for the season has been compared with previous years, but it seems to be reasonably well established that the total will closely approach average capacity because of the architectural burnings which most of them have been able to make. Some have exceeded their average, but not all. And a few, notwithstanding the extra, have been falling below.

Prices have held up well through the season, thanks to the success of New York manufacturers in maintaining a price level, which has not only helped them but has benefitted New Jersey makers as well. The added cost of manufacture has not troubled New Jersey makers so much as it has some, but they have felt it and can now trace some of their reduced profits to increases in all departments of making.

New Jersey yards have not suffered so severely from scarcity of labor. Most of them had sufficient labor to keep their works in operation, but some could have used more men profitably. A few have been more or less handicapped. Those who have suffered the worst are considering methods of overcoming the difficulty next year. Apparently the old type of brickmaker is no longer available as he used to be, and perhaps this is well. With a better quality of product demanded by buyers, a different type of workman is required, and not all have discovered the change in conditions.

Demand has about equaled the supply in most New Jersey localities all summer, and now at the close few makers have more than enough to fill their urgent orders. The sheds will be burned after deliveries are made. The early spring sales will have to be taken care of from elsewhere. New Jersey has a few to offer.

The Homestead Brick yard has employed forty-five men all the season. The first of the month they had their kilns laid for the last burning. The yards have been full ever since the season opened, and the month extension, as unexpected as it was welcome, has enabled the firm to largely increase its output. The Homestead Yards are located on the meadows at the foot of a hill on which a portion of Jersey City stands, and what amounts to a home market is sufficient to utilize every brick the company makes. The clay is dug from the meadows which here, near the surface, contain an inexhaustible supply.

A considerable number of New Jersey towns have sufficient deposits of brick clay to warrant the establishment of plants. A few towns would assist financially any industry located there. Others would encourage in other ways. Among those towns having available supplies of brick clay are: Cecil, Fords, Forest Grove, Herbertsville, Mays Landing, Perth Amboy, Petersburg Port Murray, Port Republic, Rancocas, Sayreville, Woodbridge, Woodmansie and Yardville.

R. T. Greenlee, Belleplain, has been doing a good business all the season. While his plant is small, employing but a dozen men, he has found a profitable market for his product and may consider some expansion in the future. Cape May County is building up a good deal these later years, and such plants as Mr. Greenlee's are showing in the improvement.

The Garrabrunt Brick Company, Berkley Heights, has closed a profitable season operating its plant to capacity throughout the summer. The plant is not a large one, and most of its product goes into structural work near home, yet there is a good return for the owners.

The J. Walter Miller Company, Bordentown, has run its plant to capacity this season, employing fifty men, and finding a market near home for its entire output. The growth of the villages and cities in that vicinity has developed a good demand for all the brick the firm can make.

The Phoenix Pottery Company, Bordentown, has increased its force to one hundred men, making sanitary ware, which finds a ready acceptance everywhere because of its general quality. The business has forged ahead considerably during the past few years, and the company is now busy continuously filling profitable orders.

The Bridgeton Brick Works has employed thirty to forty-five people all summer and has produced as many brick as ever in its history. Bridgeton itself is increasing in population very rapidly, and the establishment of additional industries calling for the erection of more houses has been a factor of importance in the development of the firm's business.

Hugh Hatch, of Camden, has increased his working force to fifty or over this summer, and has received sufficient orders to keep them at work all the time. A considerable preparation of his output was used at home, though some orders were received from Philadelphia.

August Reeves reports a good season. His force has been thirty-five to forty employes all the season, and he has found sufficient demand in Camden to consume about all he could make.

At Climinton, in Camden County, the International Lythoic Company has established a small plant for the manufacture of sand-lime brick, employing ten or a dozen men in the work. Most of the produce goes to Camden.

Cliffwood, in Monmouth County, has a population of 650 persons. Of that number 525 are employed in the local brick yards. The Clifford Brick Company is the largest, working 300 persons. The Lenox Brick Company halves that and employs 150 persons, while the Oschwald Brick Company halves that number again and employs 76. The deposits of suitable clays for making brick and terra cotta are by no means all utilized. Other plants might be established on at present unoccupied sites. Freight rates are low because water transportation is available. Public sentiment is favorable to industrial expansion, no matter what the business, but anything which would develop the vast clay deposits would receive exceptional attention.

J. G. Braislin, Crosswicks, employs twenty or more people in his brick yards. The bulk of his product is consumed in the growing towns of Burlington County.

The Standard Sanitary Pottery Company at Elizabeth has increased its force of late and is now doing a greatly increased business as compared with previous years. It makes sanitary earthenware specialties, putting out some goods unobtainable elsewhere. The quantity of the goods appeals to the consumer and sales steadily increase.

B. H. A.

Written for THE CLAY-WORKER.

The Little Clay Man's Dream of Xmas Day

Once on a time, on a summer day,
The little Clay Man had left his play;
He had made a score of dainty pies
And cakes well worthy a State Fair prize;
And of puddings and tarts a good round ten,
As good as the best of the baker men;
With buns and bread of the choicest clay,
And then lay down in the timothy hay.

"I'm just as sleepy as sleepy can be,"
Said the little Clay Man 'neath the mulberry
tree;
And yawned and yawned, did this weary
youth,

Till one might see his last back tooth.
"Oh, Ho! don't I wish each tart and cake
Might be sure enough, and when I wake,
That I'd find it again was Christmas-day
And I gave a feast to a party gay!

"Oh, Ho! there's a great big bumblebee
A-buzzing around too near to me.
I'll just lie still, do never a thing,
Nor give him the leastest chance to sting.
His bag-pipe drone blurs in my ear,
But, after all, there's naught to fear;
I can't keep awake a minute more—"
And the little Clay Man began to snore.

The Little Clay Man had a lovely dream:
A table was there with a cloth like cream,
And high golden chairs were all a-row
Along the table from top to toe:
That is to say, from head to foot—
And fine as silk will none dispute,
Were the napkins spread beside each plate,
While the silverware was up-to-date.

"Where are the guests?" the Clay Man said,
"To eat my cakes and pies and bread?"
Scarce were the words from his red lips
loose
There was Kriss Kringle and Mother Goose!

There was the fairy, Pari-Banou,
Who over all waved a witch-elm bough,
With magical words we can't relate—
And a boy or a girl was at every plate!

Each with a napkin under the chin.
What a jolly feast did they begin!
For it was the blessed Christmas-time,
And laughter mingled with old church chime.
Now to name the guests—not ev'ry one—
There was Little Tom, the Piper's son,
Who brought to the feast a wee bit pig,
In its mouth a pippin round and big.

Little Miss Moffett and Little Boy Blue
Were there with others we once well knew;
And Marjory Daw and Horner Jack,
Whose pudding of plums had indeed no lack;
And what an enormous blackbird pie,
With birds a-singing as they would die—
But nobody dared to cut the crust,
Fearing some sort of musical trust.

Old Mother Hubbard was there with her dog
To sit up and eat of the generous prog.
And there, of course, was that famous three,
There in the shade of the mulberry tree,
Who sat alone, with nothing to say,
And stuffed and stuffed on that Christmas
Day;
And all of you know before it is said—
These were Greedy, and Slow, and Sleepy-
Head.

O'er meadow and field, far, far away—
A winding horn, 'twas the close of day—
The Clay Man opened wide, wide his eyes,
And rubbed them hard in his first surprise,
For ev'ry guest, ev'ry one, was gone—
His clay cakes and pies were there alone.
"I'm sorry," he said, "they have gone away.
P'raps they'll come again on New Year's Day.

—Chas. Dennis.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Texas Man Wants Prices on Brick Machinery.

Editor THE CLAY-WORKER:

I am figuring on installing a mud brick plant here and would be pleased if you would send me a sample copy of your paper giving addresses of the manufacturers of such machinery.

Very truly yours,
1301 Main St., Dallas, Texas. G. C. BROWN.

New Louisiana Company Chartered.

Editor THE CLAY-WORKER:

Please send me a copy of THE CLAY-WORKER, together with advice as to subscription price. I have two hundred acres of clay land with excellent railroad facilities, and we have chartered a company, to be known as the Southern Clay Products Company. A plant will at once be erected near Shreveport, La., where we will manufacture building brick and blocks, fireproofing, drain tile, and terra cotta.

Yours truly,
MRS. WILLOW HUGHES.

Building and Brick News From Detroit.

Editor THE CLAY-WORKER:

Building operations for the past month exceed the same month for the year of 1911; as shown by the building permits issued by the department of buildings, 598 building permits were issued aggregating the sum of \$1,548,095. For the first time this year more permits were issued for wooden buildings than other classes of construction.

Of the permits granted, 232 were for residences; 135 for four-family flat buildings; 23 for terraces; 18 for stores; 27 for auto garages; 6 for warehouses; 9 for storage sheds; 1 for a church; 8 for factories; 1 theatre and 1 school.

Building construction for this year will far exceed the past year, and as shown by the records Detroit will enjoy its largest building year for the first eleven months, the total operations reaching very near \$24,000,000.

A very notable feature of this amount is that three-fourths or about \$18,000,000 comprise fireproof buildings, and the larger percentage being of brick construction.

The brick situation in Detroit at this time has not been much relieved and manufacturers are selling as fast as brick are made and a large number of the yards are working overtime.

WOLVERINE.

Clay-Worker Necessary to His Well-Being.

Publishers THE CLAY-WORKER:

Several times we have been disappointed when looking at our collection of THE CLAY-WORKER seeing that there is not the December, 1910, issue, and every time we have written you or our honorable secretary and grand-dad, have forgotten to mention it and to kindly ask you the favor to send the said copy of December, 1910.

According to our records, that copy has never reached this office, and it is not rare, being the copy delivered on the congestive days for the postoffice people on account of the enormous accumulation of printed matter in the mails incidental to the New Year.

Consider, dear sirs, that we cannot live without this copy of December, 1910, because we want to know what that copy tells and because a chain with a link missing is not a chain at all. So that we want to have that missing link of December, 1910.

Wishing you prosperity and good health, success and happiness,

Barcelona, Spain.

Yours truly,

J. F. VILLALTA, C. E.

The Clay-Worker Unequaled.

Publishers THE CLAY-WORKER:

Your favor of the 18th inst. to hand. We did receive the copy of THE CLAY-WORKER, mailed to us recently, and enjoyed it immensely. Our thanks shall be better substantiated when we will send shortly the enclosed blank containing our subscription order, probably before the first of January, 1913.

The writer has known this excellent industrial and technical journalistic production for nineteen years, appreciated its great merits and always admired the wonderful perfection reached by the CLAY-WORKER during this time.

There is not a journal in any part of the world where workers of clay pursue ceramic industries (the writer knows this personally from sojourning at one time in Europe, and also at the Antipodes in Australia and Africa) that can render such real, practical, interesting and enjoyable aid in their line of business at THE CLAY-WORKER, of Indianapolis.

Our headquarters are not yet positively settled as regards to Little Rock, Ark., but as soon as this is done and our operations in the ceramic industry are fully initiated and developed, we will send our subscription notice.

Meanwhile, wishing continued success and the deserved reward for the indisputable and great exertions to maintain THE CLAY-WORKER at so high and useful a journalistic position, we are,

Yours very truly,

ARKANSAS SOAPSTONE & REFRACTORIES MFG. CO.

Advantages and Disadvantages of the Continuous Kiln.

Editor THE CLAY-WORKER.

I notice in the September number of the Clay-Worker a letter from the pen of Richard B. Hoehne on the continuous kiln, in which he sets forth the same opinions that I hold, and also one from Mr. F. W. Dennis, that it does not need a kiln engineer to build a continuous kiln, unless he is a practical brick man as well. Now, if a man can build a kiln and start same profitably to the people he is building for, he is a kiln engineer, according to Mr. Hoehne. Mr. Hoehne mentions Germany in his letter. Now, we are not all Germans and do not have the advantages the German brickmakers get, or everybody in the trade would be an expert or technical brickmaker. Then what use would there be for the technical engineer? What chance would he have of making a living? None.

Regarding the advantages of the continuous kiln over the down draft kiln; the continuous kiln is all right for common and inferior goods. It can be burned cheap, but will lose as much, if not more, in setting and drawing as the down draft kiln. Then the quality is always 50 per cent. inferior to the goods burned in the down draft kiln. If the continuous kiln on present principles could be guaranteed to burn the same quality as the up-to-date down draft kiln, then I should be for it altogether, but it cannot. Now, why not go in for building the continuous kiln on the down draft principle. It can be built to work on the same plan as the continuous kiln. It can be built to work down draft or semi muffle; thus insuring quality with cheapness. Then, too, it could be built to suit a small yard as well as a large one. A continuous down draft kiln could be built to hold not more than 100,000 brick, and it could be burned without the coal getting among the goods to be burned,

thus doing away with the discolored ware. Another advantage would be that it would burn any class of ware, such as enamel, terra cotta, pressed building brick, all shapes and patterns, fluting quarries, roofing tile, ridges, hips and valleys, salt glazed pipe, sanitary ware, encaustic tile, pottery, etc., etc. In fact, any class of goods made in the clay trade, and would use the heat from one kiln chamber to another so that there would be a saving in coal of more than one-half. The building of the kiln would cost very little more than a down draft kiln. Therefore, combining cheapness with quality.

I hope my American brothers will be able to gain something from this that will be of benefit to them.

H. W. HARDY,

NEW YORK AND VICINITY.



NEW YORK'S representative of the Harbison-Walker Refractories Company, of Pittsburgh, C. J. Henderson, is acquiring a reputation which puts him up among the leaders. Through his efforts the products of his company have been included in sub-

stantially all the important public buildings erected in and near New York in the past four or five years. He is always on the job, is popular with those with whom he comes in contact, and his people can rely upon his continued efforts.

The American Enameled Brick and Tile Company, whose main office is at 1182 Broadway, supplied the white and red-brown enameled brick used for the Disabled Volunteer Soldiers' Home, Hampton, Va. It took 250,000 to do the work and when completed it would be difficult to improve upon it. The business of the company is steadily increasing, the excellence of its product going far to demonstrate the usefulness of such material in construction.

The question of fire prevention through the use of fire-proof structural materials is coming to be a matter of steadily increasing importance. For example, the fire loss in the United States aggregates \$911,000,000 yearly for the past four years, and no great fire loss occurred during that time to raise the average. The net earnings of all the railroads in the country approximate \$550,000,000, or about one-half the annual fire loss. If the fire loss for one year could be saved it would pay all pensions, the interest on the national debt and still leave a surplus of about one dollar for each individual in the country. Brick and clay men have a remedy, and the more they emphasize the fact, the less will the loss be. There was to be an exhibition in the early fall, but lack of support compelled postponement. It is to be hoped that it will be carefully studied when it does occur. Its information should be of value.

The recent completion of a hundred room addition to the Ritz-Carlton hotel records the fact that Carter, Black & Ayers, 1182 Broadway, furnished all the front brick used in the building. It will be admitted that the building presents a very attractive appearance. The addition is so exactly like the main building it is almost impossible to distinguish where they come together. The same firm supplies Harvard and velour brick, hollow tile for stucco and brick veneer houses and vitrified and hard burned blocks.

At 110-112 West Fortieth street a building called the World's Tower is approaching completion. E. W. Browning is the owner and Buckman & Fox the architects. Situated on a narrow plot on the south side of the street the building goes up twenty-six stories with an ornamented tower above that. Perhaps the most striking feature about it is the fact that it is being erected on all four sides of architectural terra cotta with full glaze finish, furnished by the Federal Terra Cotta Company, 111 Broadway. The building is white, and under proper light conditions presents a wonderfully

striking appearance. It will be one of the landmarks in that section of New York.

Gustav Stickney, 41 West Thirty-fourth street, has invented a craftsman fireplace which combines the features of a heating and ventilating system which has also the additional merit of being suitable for reproduction in artistic brick work. The attractiveness of a fireplace is greatly enhanced if brick can be employed in its construction and in this instance that is possible.

December brought the first cold snap of the season and all brickmaking and allied operations came to a sudden stop. Few could complain, however, since the season has been a month longer than usual, allowing makers sufficient time to clear up any odds and ends upon which they were employed at the time the season usually does. Navigation is not closed as this is written, but if the present temperature holds it won't remain open much longer.

Prices on the Hudson river common are quoted as high as \$7.25, though it is said that some have been sold at \$7.00. It is a fact that the price has remained up, regardless of the conditions which have been reported to exist, and now, at the close of the season, the tendency is still upward. Supplies in New York are not over plentiful and it looks now as though the high values would be maintained. In a general way the season has been remarkably good and most makers have had no difficulty in obtaining full value for their product.

Production has not been as heavy this year, owing to the fact that shortage of labor has kept many yards below their normal working force. Under these conditions it was impossible to make any considerable surplus and the result is shown now in the lack of accumulations as the season closes.

The distinct benefits derivable from the N. B. M. A. convention and the clay show last year encouraged manufacturers and this year there will be a larger attendance from the East. The situation is being discussed now and the delegation from New York which attends the next convention and show will carry the greetings of the prosperous East to the equally prosperous West.

BURTON.

THE BUILDERS AND TRADERS EXCHANGE ENTERTAIN MASTER MASONS.

The third annual convention of the Frontier Mason and Builders' Association came to a close Wednesday night, after a two days' session concluding with a banquet tendered in honor of the delegates by the Master Masons Association of Detroit.

Otto L. Misch, president of the local Master Masons Association, of Detroit, introduced Frederic B. Stevens as toastmaster for the evening, who called upon Chas. A. Bowen, Secretary of the Builders and Traders Exchange; Chas. H. Bryan, of the Lonyo Brick Company; Frank T. Lodge, attorney; Frank William Aldrich, President of the Frontier Mason Builders Association, for responses. Prof. A. H. Griffith of the Art Museum entertained with a stereopticon lecture of the beautiful buildings of the world.

The business sessions of the convention dealt largely with the matter of wages in the different trades and conditions in general. The election of officers for the ensuing year resulted as follows:

President, William Aldrich, of Toronto, succeeding Wm. H. Whittingham, of Detroit; first vice-president, William Fredericks, Rochester; second vice-president, William Craney, Milwaukee; secretary and treasurer, James M. Carter, Buffalo.

Delegates attended from the cities of Toronto, Buffalo, Milwaukee, Cleveland, Rochester, Detroit and Windsor.

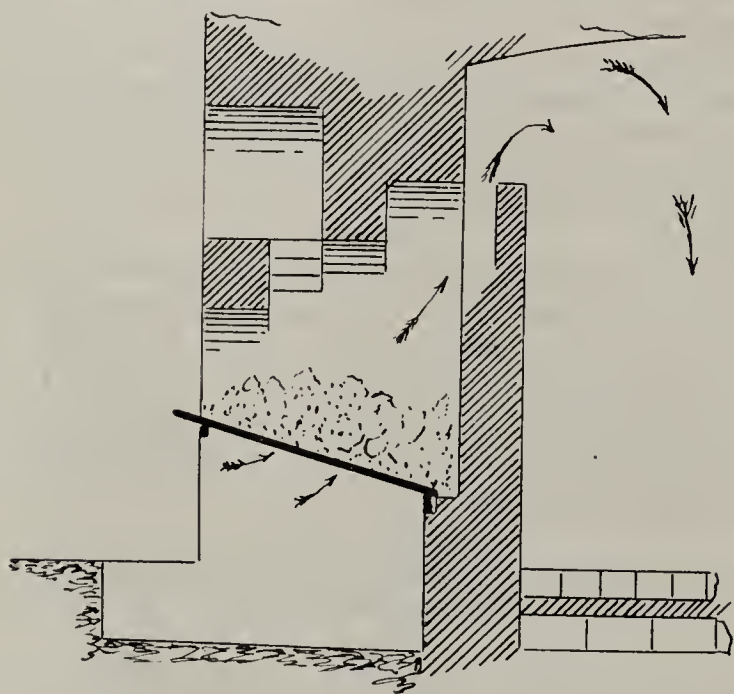
The convention will be held at Toronto in 1913.

New York is the greatest market for brick in the world, and it is a pretty great city for some other things, too.



Special Course for Superintendents and Foremen.—The Ceramic School at Laubau, which has held for the last few years a special course for superintendents and foremen, will again hold such course this year. The course lasts two weeks, and has proven quite a success in the past. The cost of the course is for Germans \$12, and for foreigners \$24. Special lectures will be held on various subjects of interest to the clayworker in general.—Deut. Topf. & Z. Z. No. 85, 1912.

Firebox for Stoneware Kilns.—In burning stoneware in Italy the main kilns are usually built on the square principle. Such kilns are about 23 feet long with a width of about 11 feet, and their height is about 5½ feet. They have four fireboxes on each side. The firebox is on the style of a gas producer and gives good results. The principle of the



Stoneware Kiln Firebox.

firebox is shown herewith. This firebox is also used on some stoneware kilns.—Revue Generale de Ceramique No. 10, 1912.

Hessian Crucibles.—The Hessian crucibles, which are so well known all over the world, are made of Groszalmerode clay. The industry was started in the sixteenth century, according to the records, but there are also some facts which show that some crucibles were made in 1503. The clay used for these crucibles is carefully selected. The crucibles are burnt in pottery kilns, and are not glazed. These crucibles when burnt will stand a heat between cones 33 and 34. The analysis of the clay is 554 per cent. silica, 41 per cent. alumina, 2 per cent. lime, 1 per cent. iron. The annual production is between 3,500 and 4,000 tons. Two-thirds of this production is exported, and there are seven factories manufacturing these crucibles.—Tonind. Z. No. 105, 1912.

Practical Points About Testing Clays.—The following practical points about clays should be well considered. First, tensile strength; second, shrinkage; third, the degrees of fusibility; fourth, absorption; fifth, the rate of drying; and sixth, the defects of the burnt pieces. Tensile strength will give an idea as to the ability of the clays to stand mixing

with other clays. Shrinkage tests should be made on the clay during the drying process, and also during the burning process, in order to determine the exact shrinkage from the open green to the burnt state. The degree of fusibility is usually tested by making small cones of the clays and testing in Deville furnaces. Absorption tests are made on the burnt pieces. Tests are complete in twenty-four hours. The weight of the saturated pieces multiplied by the weight of the dry piece multiplied by 100 and the total divided by the dry weight will give the per centage of absorption. The rate of drying can be determined by weighing the test pieces at various temperatures. The defects of the burning can be easily judged, and will give an excellent idea of what the clay will do.—Revue Generale de Ceramique No. 9, 1912.

Heat Radiation of Kilns.—The economy of firing a kiln is to obtain the greatest results with the less amount of fuel. Inasmuch as the radiation of the kiln walls is very great,

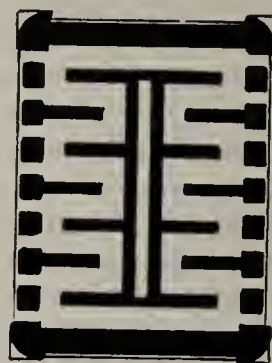


Fig 1



Fig 2

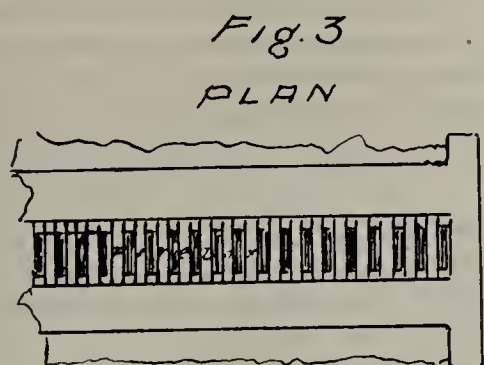
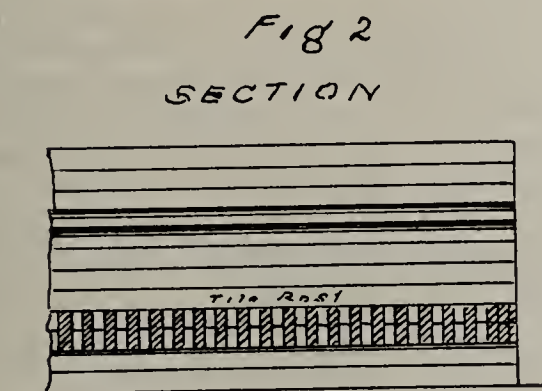
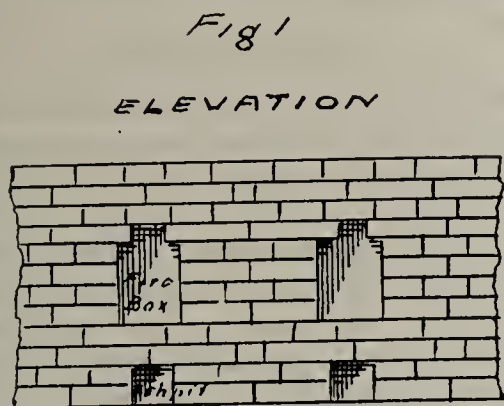


the two illustrations shown herewith will show that it is better to concentrate the kilns as shown in Fig. No. 1 than to have the old style tunnel kiln as shown in Fig. No. 2. The length of the actual kiln in both instances is the same, about 380 feet, the width is 6 feet, while the height is 6 feet 4-inch. The square of the exposed surface 2,910 square feet. Therefore the compact kiln has 1,110 square feet less exposed surface, and it is only natural that it will take lesser fuel to burn the compact kiln than the tunnel kiln. Not only has this kiln the advantage of using lesser fuel, but it burns quicker than the tunnel kiln. In kiln construction these points should be well taken into consideration, and especially in the designing of continuous kilns.—Tonwaarenfabrikant No. 16, 1912.

Brickyards in Adrianople.—In the vicinity of Adrianople there are many small brickyards, which are all of very primitive nature. Up-to-date brickyards have not been built

in this section, which fact is to be wondered at in as much as the clay is excellent, and the demand for brick is good. In Adrianople and vicinity there are used yearly over ten million brick, which are all manufactured locally. There are two size of the brick made, one measures $9 \times 4 \frac{3}{8} \times 2 \frac{3}{8}$ inches, while the smaller size is only 2 inches thick. The large size brick sells for 135 piasters (\$5.95) and the smaller size for 120 piasters (\$5.30) per 1,000. The roofing tile used in this section are mostly imported from France.—Deut. Topf. & Z. No. 81, 1912.

Dutch Kilns for Wood Fire.—When clamp or Dutch kilns are fired with wood, it should be borne in mind that the fire boxes should be built accordingly. A good method is to use a grate made of brick, and also an ash pit, in order to regulate the draft. The sketch shown herewith shows a



section of the fire box and the arrangement of the brick for the grate bar.—Tonind. Z. No. 115, 1912.

Clay Sewer Pipe or Stoneware Sewer Pipe.—There has been quite a large difference of opinion regarding the durability of sewer pipe made of clay and stoneware. The first is more porous than the latter. It had been found that while the vitrified stoneware pipe will absorb less water in tests, and which run in tests as high as 5 per cent., the clay pipe will run from 5 to 15 per cent. Extensive experiments have shown that the absorption tests of sewer pipe have no relation to their durability, and that it is impossible to decide on a test that will meet all requirements.—Tonind. Z. No. 111, 1912.

Stoneware Bodies.—In many instances the native stoneware clays do not furnish a body which will fully comply with the requirements of stoneware, and it becomes necessary to mix such clays with other ingredients in order to

get the desired results. It has been found that a mixture of from 10 to 25% of feldspar will produce excellent results. According to the experiments of Dr. Berdel with Westerwaelder clays, he has found that the following mixtures will give good results when burnt between cone 9 and 10.

Sandy Laemmersbach clay...50 parts or 50 parts ..
Plastic Laemmersbach clay...42 parts or 40 parts
Feldspar 8 parts or 10 parts

Another mixture was made as follows:

Plastic Goldhausener clay...55 parts or 55 parts
Flint30 parts or 25 parts
Feldspar15 parts or 20 parts

A mixture of the well-known Loethain clay, which is used exclusively for stoneware, was made as follows:

Loethain clay60 parts
Flint27 parts
Feldspar13 parts

The glazes used on such compound bodies are as follows:

Feldspar	112 parts	112 parts
Magnesium	 11 parts	.. parts
Barytes Carbonate	 parts	19 parts
Whiting	 68 parts	60 parts
Calcined kaolin	 22 parts	22 parts
Flint	114 parts	114 parts
Washed kaolin	 38 parts	26 parts

These glazes will mature between cones 8 and 10. It is a good idea to burn the better class of ware in saggars in place of burning it open in the kiln like common stoneware.—Sprechsaal No. 36, 1912.

Experimental Kiln for Brickyards.—A small experimental kiln, which can be fired with coal or coke, has been tested in order to determine how much fuel it will take to obtain certain heats. The muffle of the kiln is 24 inches long, 12 inches wide and 8 inches high. With different fuel it took more time with coke to obtain the same heat than with coal. The following table will show the comparison.

The Action of Fire on Silica Bricks.—The main trouble with the use of silica bricks has been that after they have been subjected to intense heat for some time they will start to crumble and fall to pieces. Mr. Crum-Grizmailo, of the Technical University of St. Petersburg, has made an exhaustive study of this cause and he has come to the following conclusions: The microscopic examination of these silica bricks has shown the presence of tridymite crystals or amorphous calcite, from which the brick take their density. If the heat is only small, and the temperature does not reach a high point, then these crystals do not lose their mechanical resistance, but if the heat is raised quickly, and is very high, then the change is very rapid and will break the silica brick all to pieces. According to the investigators it was also found that crushed quartz was not the best material for silica brick, but that silica sands, containing a small percentage of iron, will give much better brick, which will stand the rapid changes better.—Moniteur de la Ceramique, No. 3, 1912.

Opaque Leadless Glaze for Green Tile.—The following recipes have been used in practice for glazing green tile, and to be burnt at a temperature of cones 08-06. There are two glazes and two frits are used for the same:

Frits.	Glaze I.	Glaze II.
Potash	.....	34.5 parts
Saltpetre	50.5 parts	....
Whiting	15.0	50.0
Carbonate of barytes	49.0	....
Borax	95.5	95.5
Boracic acid	....	31.0
Flint	120.0	135.5

—Glaze Mixture.—

Frit	1000.0 parts	1000.0 parts
Kaolin or ball clay	50.0	60.0
Oxide of tin	100.	120.0

Another good glaze which needs no fritting, but which will produce crazing easily, is as follows: Feldspar, 105 parts; kaolin, 70 parts; borax, 200 parts, and oxide of zinc, 25 parts.—Sprechsaal No. 28, 1911.

Written for THE CLAY-WORKER.

HOW MUCH COAL TO BURN A THOUSAND?

BY RICHARD B. HOEHNE, BUCYRUS, OHIO.

Part II.

Immediately after the watersmoking the process of burning takes its course. Starting with the former's highest temperature, we gradually raise the heat in the kiln until it finally, on the ninth day, reaches the required intensity, which in the present case was assumed at 2,012 degrees F. Consequently the heat attained during the burning process will average:

$$\frac{2,012 + 250}{2} = 1,131 \text{ degrees F. (610 degrees C.)}$$

It is a well-known fact that oxygen represents an essential agent in the combustion; its quantity varying according to the chemical compound of the fuel burned. For this reason we admit air to the furnaces in order to utilize the oxygen contained in same. A complete combustion of the coal in consideration will necessitate theoretically per one kilogram (2.2 pounds) about 8 cubic meters (283 cu. ft.) of air. But only 21 per cent of the air admitted is oxygen. Naturally, the pyrometric effect of coal would be greater if less air with a larger percentage of oxygen could be supplied; for the air passing through the furnace must be heated to correspond with the temperature in the kiln. This very circumstance is largely responsible for the waste of many million dollars worth of coal annually.

In the present case, for instance, the enormity of 5,028,938 calories—equal to 1,580 pounds of coal—have been occupied by the combustion air. As I have already stated, a certain amount of air is necessary for the combustion; in this case, however, an excessive quantity has entered. The following example will show how many cubic meters of air were supplied for each kilogram of coal burned:

$$X = \frac{X \times 2,100 \times 0.3 \times (610 - 10)}{2.2 \times 5,028,938} = 29.3 \text{ cbm. per 1 kg. of coal}$$

According to my practical experience, minimizing the air supply to the exact theoretical needs is impossible. This would rather mean running a chance of supplying insufficient air identical with incomplete combustion, which will also occur when the fire is fed too heavy. The amount of air entering the furnace corresponds with and is regulated by the draft; but it is fully independent from the process of combustion. Consequently, the air enters the furnace continually in uniform quantities, while the demand varies according to the state of combustion. The extreme demand occurring at the time the fire is fed and gradually abating with the progress of the combustion.

These circumstances account for the need of more combustion air than called for theoretically. I have found on periodic kilns an average supply of one and one-half the theoretic amount warrants the greatest pyrometric effect obtainable. There are but few doing better; many, however far exceed the amount stated. This is evidently the case on the kiln consuming 2,100 pounds of coal per thousand; it uses 29.3 cbm. of air per 1 kg. of coal, while there is only a demand for

$$8 \times 1.5 = 12 \text{ cbm. of air per kg. of coal}$$

The balance is superfluity. I will indicate in the following what an amount of coal was burned unnecessarily, just for the purpose of heating excessive feeding air. The latter being

taken from the atmosphere, enters the fire at a temperature averaging 50 degrees F. (10 degrees C.). As explained previously, it must be brought to the average kiln temperature, which is 1,131 degrees F. (610 degrees C.). Hence, we have to increase the temperature from 10 to 610 degrees C. This will require per 100 cbm. of air:

$$\frac{(610 - 10) \times 0.3 \times 100 \times 2.2}{7,000} = 5.66 \text{ lbs. of coal}$$

therefrom resulting the actual loss due to impractical operation:

$$\frac{2,100 \times (29.3 - 12) \times 5.66}{2.2 \times 100} = 934 \text{ lbs. of coal per 1,000}$$

In other words, the same brick could be burned in a similar kiln with 1,166 pounds of the same coal, instead of using 2,100 pounds.

How to do it Better.

The concluding figure calling for 1,166 pounds of coal per 1,000 will by no means satisfy everybody; many a brick-maker has solved his burning problem to be superior—and so have I.

In our days continuous kilns have replaced those operated periodically. In the following chapter I will have the pleasure of introducing the character of continuous operation. Your attention is called especially to the advantages due to proper utilization of waste heat. On periodic kilns the heat once having served its purpose, goes to waste, while in continuous kilns it is re-used in the succession of the operation, namely, for watersmoking and preheating the combustion air. In the preceding reckoning I have proved that over three-quarters of the coal was evidently burned for heating the combustion air. Now, had waste heat been applied, a corresponding amount of fuel would have been saved.

This circumstance materially contributed to the origination of a kiln type adapted for continual use. With this device, various states of the process of burning are performed at once, although in different divisions. To this effect the latter are arrayed in series, through which the fire gases, by means of draft, advance. Farthest ahead we find the chambers of watersmoking adjoined by the section in course of preheating. Thereafter the fire zone follows, immediately adjoined by the cooling section. The latter being open at the extreme end—where the removal of the burned brick takes place—is appointed to enter and preheat the combustion air. Hence, the feeding air is hot when entering the fire, which fact represents the most characteristic feature of continuous operation.

After this interruption back to my selected topic, "Why others can burn a thousand with 242 pounds." I hope all agree that no other but a continuous kiln, or, better, will say, continuous operation, can accomplish this. Not necessarily every continuous kiln must burn as cheap, though it will, if operated in the right manner. I have found many a continuous kiln consuming three to four times as much, because the right method of operation had not been applied. The forthcoming demonstration will show this more seriously.

A characterization of the continuous method of operating kilns will necessitate the consideration of the following items:

- Utilization of heat contained in the smoke gases, for:
 - Preheating the ware, consecutive in the burning.
 - Restoring heat lost by leaks in the walls, etc.
 - Warming the structure of the kiln.
 - Preheating the kiln floor.
- Temperature of the smoke gases, and the losses resulting therefrom.
- The heat absorbed by the ware itself.
- The loss of heat by radiation.
- The heat expended for watersmoking.
- The heat required for warming the combustion air.
- The resources covering the requirements of heat, namely:
 - The coal burned.
 - The heat discharged from the cooling section.

(To be continued).

Written for THE CLAY-WORKER.

AMONG PHILADELPHIA BRICKYARDS.



THE BRICK MARKET of Philadelphia is in a very much healthier condition now than was anticipated in the early fall and winter. All the men in the trade report a marked increase over the preceding year with the prospects of an extremely busy spring season.

Plans are out for an office building to be erected in Penn Square to cost over \$2,000,000, the city has awarded contracts for seventy-eight branch sewers to cost \$185,000, for paving and repaving of \$175,000 and 885 tons of promenade tile to be laid on the City Hall at a cost of \$28,454. This contract for the City Hall calls for 312,000 pieces of tile and would make a sidewalk five-feet wide from the City Hall to League Island, a distance of about five miles. The Independent Brick Company has closed contracts during the past month for nearly 12,000,000 bricks and the Eastern Brick and Tile Company has contracts that will aggregate about the same.

The Sayre-Fisher Brick Company, Sayreville, N. J., has placed an order with the Ohio Ceramic Engineering Company, Cleveland, for 1,000 brick dryer cars to be shipped some time in February.

The Hydraulic Press-Brick Company's plant at Winslow, N. J., which has been operated shorthanded for a year, will shut down for a short period during which time extensive repairs will be made.

The fire which recently visited the plant of the Perfection Brick Company destroyed seven out of the ten large buildings at G street and Erie avenue. The spectacular blaze caused an estimated loss of \$30,000 and was marked by many escapes from death. Employees of the brickyard turned in to help the firemen, but the lack of an adequate supply of water made it impossible to do much toward checking the fire. Water had to be pumped from a pond nearly a quarter of a mile away. A large force of men was thrown out of employment by the serious damage to the plant.

The Perkiomen Brick Company, of Montgomery county, has instituted suit against the Montello Brick Company, of Reading, Pa., to collect on an alleged lease of the plaintiff's plant at Oaks, Pa. The amount involved exceeds \$27,000.

Frank Davidheiser, of Reading, has purchased a brick plant in Columbus, Ohio, which will be removed to Stowe, Pa., where he now has a plant which is very inadequate to fill the many orders he has for his product. His plant now has a daily output of 15,000 bricks and will be increased to approximately 40,000 with the acquisition of the new plant.

The receivers for the Schuylkill Valley Clay Manufacturing Company have filed their second and last account with the Prothonotary of the Common Pleas Court of Philadelphia for such action as the court may deem necessary.

The Referee in Bankruptcy of the Phoenix Pottery plant at Florence, N. J., has made another order to sell the plant. Twice before it was up for sale and each time a satisfactory bid was secured, but in neither instance was the deal closed. The creditors, as a result, have been enriched \$1,500 in forfeited option money.

Hiram Swank, pioneer brick and pottery manufacturer of Johnstown, Pa., was recently seized with a paralytic stroke and is confined to his home in a serious condition.

"Buy a brick" is the slogan of the finance committee of the Physicians and Surgeons Hospital Association, of Wilmington, Del., in their campaign to raise 300,000 bricks to build a charity ward to accommodate extra patients at the hospital. Each brick will cost one cent, and the forty-six physicians connected with the hospital will act as direct chairmen in their effort to enlist the help and support of

every citizen of that town. The estimate on the new structure is \$25,000.

The Board of Trade of Reading has received an inquiry as to what inducements could be offered in that city for the establishment of a pottery plant to employ about three hundred men. The manufacturer states that he desires to put about \$40,000 in the business. The Committee on Manufactures has taken the matter up and may be able to get the industry to locate there.

Mrs. Caroline Hatch, wife of Hugh Hatch the well known brick manufacturer of Camden, N. J., died recently at the age of seventy-two years.

If the plans are accepted for the \$2,000,000 hotel which is to be erected in the down town district of Philadelphia, are accepted, the contracts for brick and other building material will be awarded in the near future. It is proposed to make this one of the most elaborate hotels in the city.

Edward Stokes, No. 1207 Harrison building, recently returned from a trip to the south and declared that the fourth annual trade extension excursion which went into that territory last month made a great impression on the manufacturers and jobbers of the territory below the Mason and Dixon line and that a canvass among business friends revealed a marked increase in the volume of business over the preceding months. No samples were carried by the representatives of the trades and no solicitation for orders was made, but the possibilities of purchasing in Philadelphia was driven into the minds of the "live wires" of the South, which will inevitably show on the order book.

The Chambers Brick Machine Company, Fifty-second and Media streets, reports business to be in an exceedingly good condition with prospects that the coming year will be a banner one. This prosperity is, however, a direct result of the general wave of good business among the brick manufacturers throughout the country

A. QUAKER.

AGRICULTURAL ENGINEERS WILL DISCUSS TRACTOR CONTEST.

During the past summer there was considerable discussion in agricultural machinery circles of the advisability of holding in the United States a contest of gas tractors, similar to the contest held for several years past at Winnipeg, Manitoba, it being argued that a contest in this country would tend to develop a tractor suited to the needs of diversified farms just as the Canadian contest has developed a tractor suitable for work in the great northwest. This discussion soon developed the fact that the rules and regulations governing such a contest would have to be most carefully prepared if the test were to accomplish fully the desired result and it became evident also that opportunity would have to be afforded for a full and scientific discussion of the whole situation in order to insure the hearty support and co-operation of the manufacturers interested.

The American Society of Agricultural Engineers have planned the program of their annual meeting at the Great Northern Hotel, Chicago, so that Friday morning, Dec. 27th, will be largely given up to the discussion of whether or not such a contest is desirable, and, if so, what the plan of the contest should be. Manufacturers and all others interested are invited to attend and assist in planning a contest which shall be fair to all and which shall be a potent factor in the rapid development of the general purpose gas tractor.

This discussion, however, is only one of a number of important topics to be taken up at this meeting which will extend over three days from Dec. 27 to 29, inclusive, and cover subjects of special interest to those in attendance.

Persons desiring further information as to this meeting or as to other work of the American Society of Agricultural Engineers should address the secretary, Mr. I. M. Dickerson, Urbana, Ill.

Written for THE CLAY-WORKER.

MILWAUKEE AND WISCONSIN BRICK NEWS.

WHILE THE RUSH season is drawing to a close, Wisconsin brick plants are still busy turning out late orders. The unusually fine weather which has been experienced in Wisconsin this fall has resulted in much hold-over building being completed and reports from all sections of the state indicate that building operations will reach a record breaking point. In view of the fact that the use of brick has more than held its own during the past season, this has meant that brick manufacturers have little cause for complaint.

Conditions in Milwaukee may be taken as a criterion of the state as a whole. The total building figures in this city for the first eleven months of the year show a gain of more than \$3,000,000 over the same period in 1911. Actual figures are considerably over \$14,000,000 and Building Inspector Harper is confident that the year's total will be considerably above the \$15,000,000 mark. During the month of November, despite the lateness of the season, a total of 288 permits were issued, representing buildings valued at \$1,600,285, while during the corresponding month a year ago, a total of 340 permits were issued for structures valued at \$979,392. One of the largest permits recently issued was for the erection of an eleven-story hotel, which will be erected on Third street by the Richards Brothers.

Hopes are entertained by Milwaukee brick men that the coming year will witness a substantial increase in brick paving operations in this city. The use of brick has received a decided impetus because of the dissatisfaction created by the asphalt paving laid by the Socialists during the previous city administration. While much of the poor work resulted because of the efforts of the administration to effect a saving, yet brick men say that the use of brick as a paving material is meeting with unusual favor. Many of the smaller cities about the state, among them Janesville, have laid much brick paving during the season which has just closed. Practically all the downtown streets in Janesville are paved with brick and business men are more than pleased with results.

Brick and tile concerns will be interested to learn that experts connected with the University of Wisconsin, including Prof. Samuel Weidman, secretary of the Wisconsin Clay Manufacturers' Association, will co-operate to an unusual extent next year with farmers and interests who wish to reclaim low land. This ought to increase tile sales to a decided extent. Farmers of Winnebago county will do much draining of marsh and low lands next year, starting early in the spring, and the indications are that their example will be followed in many sections of the state. Extensive rains were received during the past season and dealers and manufacturers were quick to see the possibilities to be derived from pushing the sale of tile in various forms.

Business has been so good with the Acme Brick and Sand Company of West Bend, Wis., that plans are under way for erecting an addition, 80x70 feet in dimensions, to the plant located between West Bend and Barton. The structure, which will require at least 100,000 brick in its construction, will be completed and ready for occupancy by April 1. A complete equipment of new machinery will be installed, enabling the concern to turn out at least 60,000 brick daily. William Modus, manager, recently returned from Florida, where he successfully demonstrated the brick turned out by his company.

The Columbia Silica Company, located at Silicaville, near Portage, Wis., recently made an assignment for the benefit of its creditors with C. H. Hall, an attorney of Portage, as assignee. It is proposed by leading stockholders of the concern to reorganize the company, adjust the financial difficul-

ties, take over the plant from the assignee and start it out upon a hopeful career. Changes in management and methods will be made and it is believed that the business will be profitable in nature. The concern has access to an inexhaustible lot of exceptionally fine sand.

A BADGER.

PUGET SOUND CLAY NOTES.

THE LAST two months, October and November, have shown more activity among the smaller cities of the Pacific Coast than in the larger cities, with the exception of Vancouver, B. C., which stands at the head of the list as far as building operations is concerned. The building is steadily increasing in Seattle, and the prospects are very much brighter than for some time past. The much talked of L. C. Smith building, which it is said will be the tallest building in America outside of New York, is well under way. The steel is now up to the fifteenth story, and the erectors are making good headway. Of the smaller cities along the Puget Sound, Bellingham is very active in building operations. Everett is building several new large business blocks and the smaller inland towns, such as Wenatchee, Ellensburg, North Yakima, Kenewick and Pasco are all showing new building projects.

The Denny-Renton Clay and Coal Company are now paving a block in San Francisco with their paving block, and the contract is over half completed. If the results of this experimental block are satisfactory, many streets will be paved in San Francisco with the products of the Seattle firm.

In order to keep abreast of the times, and investigating what other cities are doing, T. P. Nielson, the local yard manager of the Denny-Renton Clay and Coal Company, has visited a number of the leading eastern cities investigating the types of paving and their wearing qualities. He found that brick found preference everywhere, and he is sure that before very long many more miles will be paved with brick in the Puget Sound country.

A party of San Francisco capitalists, headed by Cyrus Peirce, president of the Standard Clay Company, of Tacoma, were in Tacoma a few weeks ago and inspected the plants of this company. They first visited Little Falls in order to determine what they would do with the plant which recently burned down. They also visited their paving brick plant at Bayne. According to local reports, it will be sometime before the sewer pipe plant at Little Falls will be rebuilt.

The Far West Clay Company, of Tacoma, has been very busy shipping their partition tile products all over the Puget Sound section. Mr. F. W. Eastman, vice-president of the company, reports that he secured large contracts for his products in Victoria and Vancouver, B. C. This company is making a specialty of Dennison interlocking blocks.

The Washington Brick, Lime and Sewer Pipe Company, of Spokane, are building two new kilns at their plant near Opportunity. This will bring the total number of kilns at that plant up to ten. The company has shipped several large orders to Calgary and Medicine Hat, Canada.

The Potlatch Brick Company is furnishing all the brick for the new plant of the Potlatch Lumber Company at Tekeoa which was recently destroyed by fire. The property is within the fire limits of the city, and consequently it was best to rebuild it with brick in preference to concrete.

The Chehalis Clay Products Company has been incorporated with a capital of \$100,000. This new company will take over the business of the old Chehalis Brick and Tile Company. The members of the old firm, Mr. Bickford and Mr. Burrows, are still largely interested in the new company. They plan to enlarge their plant and add several improvements for the better drying of their brick.

The old plant of the Pitt River Brick Company has been

taken over by the B. C. T. Transport Company, of New Westminster, B. C. The plant will be put in shape to start operations next spring.

The Idaho Brick Company, of Lewistown, Idaho, is in financial difficulties and Mr. Wm. F. Stilz has been appointed receiver.

The new plant of the Heaps Brick Company, Ltd., at Ruskin, B. C., started operations a few weeks ago. This company will build a large continuous kiln as soon as they have enough brick burnt to start the brickmasons.

SIWASH.

Written for THE CLAY-WORKER.

QUESTIONS OF INTEREST TO CLAYWORKERS.

(By J. J. Koch.)

We commenced using coal in our down draft kilns recently, but have not met with much success. The bricks, which are dry press, turn out soft and brittle. While they are a good color and as nice a looking brick as we ever turned out. What caused this?

Is there any use trying to reburn them? Will it take as much fuel as originally?

The above query is replied to under the belief that the change in fuel was made from wood to coal. The indications are that the fires had, in a measure, been handled properly as is evidenced by the fact that the burnt product is of good color and not shaky. The trouble may lay in either of two directions: either the heat was not high enough or not kept up for a sufficient length of time. One way to get at a remedy is to study up the heat values of wood and coal respectively.

It is commonly accepted that in one pound of seasoned wood the heat value is the same; or in other words one pound of pine or fir will produce just as much heat as one pound of oak or hickory. Hence it is the usual practice of the writer to figure on the heat values of the various fuel woods by basing calculation heat values on the wood by weight per cubic foot in pounds and in which method the following table is made use of, naming only such timbers as he has used:

Table Weight of Woods Per Cubic Foot in Pounds.

Ash	45
Birch	46
Chestnut	35
Elm	38
Fir	37
Hickory	48
Locust	46
Maple	42
Oak, White	48
Oak, Red	46
Pine, White	28
Pine, Yellow	38
Poplar	30
Spruce	28
Sycamore	37
Walnut	36
Willow	34

The estimation generally used is as follows: A cord of wood such as is generally used on brick plants equals 4x4x8, equaling 128 cubic feet, and is assumed at 56 per cent. solid wood and 44 per cent. voids or air space.

It is also the practice of combustion engineers to assume the following arbitrary ruling: That 2½ pounds of dry wood of whatever kind has the same heat value as one pound of the average quality of soft bituminous coal. Of course it should be understood that the heat values of coals per pound are very variable factors. Whereas in wood the

main disturbing factor is the variable quantity of moisture that may be present, for the basis of all kinds of wood is a substance called cellulose and the main heat value of all wood lays in the approximate 50 per cent. of carbon it contains.

The rapidity of heat production of wood in combustion lies in the physical structure of the fibre, for the more open the grain or texture, the more rapid can the air required for burning find entrance and the more rapid will combustion take place. For this reason poplar and willow or cotton wood burn up more rapidly than oak or hickory. These peculiar combustion conditions must largely be governed by grate surface and draft conditions and no superficial rules or data can be laid down that will be absolutely safe and reliable under any and all conditions. The writer has seen kilns of fine bricks burnt in one locality with yellow pine slabs and at another place oak wood had to be used, for, as burners claimed, that is the fuel we had to use and we were compelled to work out our own salvation. So it is with the burner who has to suddenly switch from wood to coal. He has to work out his own salvation and be governed by the facts, that as a whole the chemical constitution of his coal is somewhat different from wood, the grate surface has to be in proper proportion and the draft must be taken care of for the rapidity of combustion and the adequate retention of the heat in the kiln to thus perform its proper duties and functions. The type and grade of fuel has a great deal to do with the selection of proper grate conditions as per two illustrations. In the Hocking Valley grateless furnaces are largely used, and the writer was instrumental in putting a peculiar type of grate and furnace on a plant in the southwest, where they were then enabled to use slack coal (otherwise a loss) and getting better and more economical results than had been obtained with a ton of the best lump coal from the same mines.

The rapidity of the coal combustion must be in accord with the heat value of the coal as against the heat necessary to burn the ware to the demanded temperature and at the same time must in a measure be also governed by the rate of heat absorption of the ware to be burnt. Again, the draft and burning conditions must also be governed by the fact, whether the ware demands oxidizing or reducing conditions. Right at this time it might be well to state that as the heat temperature increases, the specific heat of the burning ware also increases, and at the same time as the burning ware gets denser the ratio of heat absorption decreases owing to loss of porosity and denseness of structure.

These factors should be taken care of when reburning brick and that bricks can be and are reburnt is evidenced by the fact that millions of brick are reburned every year. However, it will take somewhat more fuel than when originally burned, for then we have the benefit of the heat already given to the kiln during the preliminary heating up, whereas in reburning everything is cold and this additional heat must be supplied, and as well because the specific heat of the burned product is also a little higher.

A HIGH STANDARD OF EXCELLENCE.

A visitor to the Windy City who is one of the most prominent clayworkers in the country and for years actively interested in the affairs of the N. B. M. A., in discussing clay-working machinery, and dry pans in particular, said that in his opinion the Frost Dry Pan, made by the Frost Manufacturing Company, Galesburg, Ill., was like the great Marshall Field & Company store, in a class all by itself. It was a high compliment, but well deserved, declares William Simpson, sales manager of the Frost Manufacturing Company, who further states that "there is a reason," which he will gladly make known to any CLAY-WORKER reader seeking information in regard to dry pans.

Written for THE CLAY-WORKER.

CLEVELAND BRICK NEWS.



THE VOLUME of business continues for the month of December in an equal ratio to the first eleven months of the year, all building records in Cleveland will be smashed. Despite the fact that the first three months of this year were practically non-productive of building projects because of the bitter, cold weather, the city made a wonderful spurt during the summer months and at the beginning of this month indications pointed to last year's record being eclipsed. Building Inspector Allen reports a total of 8,306 permits issued up to December as against 7,448 in 1911. The estimated cost of the buildings erected is \$15,662,648, a lead of \$998,771 over last year when the total for eleven months was \$14,663,877. There were 652 permits issued during November of this year, representing an expenditure of \$1,230,812.

Several unusually large permits were issued in the final month of 1911 on which work has been progressing during the year. Builders are quite hopeful, however, that the trick will be turned. The bids for the new city hall are to be received Dec. 20th. As this is a job estimated at a value of \$2,600,000, there will be no difficulty in breaking the record if it is included in this month's totals. Several other unusually large projects, including school buildings and office structures, will help to swell the total.

Despite the lateness of the season several projects have been announced during the past month. Brick manufacturers and dealers have been unusually busy. The dealers and jobbers have been handicapped by a shortage in brick which has been apparent in Cleveland all year. This was due largely to the fact that many of the brick yards were shut down during the excessively cold weather last winter and were unable to get in a supply of brick for the spring and summer rush. It has also been due to the fact that it has been an unusually active year in brick building and that brick has been the main material employed. Brick agencies here will wind up the year with all former records for sales ruthlessly smashed.

There has been great activity in real estate circles on Euclid avenue, near East Fifty-fifth street, during the past month. Announcement is made that several large warehouses are to be built as the result. Several large tracts of land have been sold to W. R. Hopkins and several associates who are to represent the new subway company. The land acquired adjoins the Pennsylvania railroad tracks and it is proposed to use it for large warehouses. Freight will be brought by railroad, transferred at the warehouses, and sent to its destination through the subway tubes when they are constructed. The property acquired has a Euclid avenue frontage of 271 feet, a depth of 619 feet through to Windsor avenue, where its frontage is 603 feet. Several large retail store buildings are being erected in the same locality during the year.

An announcement was made during the past month that the new fourteen-story office building being erected for the Cleveland Illuminating Company on the north side of the public square and adjoining the old Stone church is to have all four sides of a warm colored tapestry brick. The first two and the upper two stories are to be of tile and the intervening stories of brick similar to the construction of the new Hotel Statler here. The building is to cost about \$800,000. The architects are Hubbel & Bennes.

Another fine new cloak factory is to be erected in the Superior avenue factory district near East Twenty-second street. Announcement was made during the past week that work had been begun on a four-story building on the south side of Superior avenue, close to East Twenty-first street, to

be used by Emsheimer & Fishel and The McBarron-Carder-Folking Company. The new building will have a frontage of 100 feet and a depth of 158 feet, the four floors to contain 60,000 square feet. The building will be of brick and mill construction with a red tapestry brick front.

J. M. Ellsworth, patron saint of the village of Hudson, near Cleveland, has volunteered \$250,000 for a centralized school system in the town. The Atheneum, North College and the old chapel of the old Western Reserve university, which was used as the home of the university until twenty-five years ago, is to be revived for the use of the new project. A new \$80,000 college building is to be erected and several other structures put up for the use of the new school. J. M. Ellsworth formerly lived in Hudson, but made a fortune elsewhere, and is now spending considerable money in the rehabilitation of the village.

Cleveland has been experiencing the worst brick shortage in its history during the past season. It is estimated that the trade has been shy about 100,000 brick a day. C. G. Barkwill, of the Barkwill Brick Company, claims that the shortage was due in part to a fire last spring which damaged the plant of the Barr Bros. Brick Company and to another fire which destroyed one of the plants of the Barkwill Brick Company about two months ago, lessening its output about 60,000 brick a day.

Now again comes the report that the city may engage in brick making at its big 200-acre farm at Warrensville. Secretary Stillman, of the public safety department, which controls the farm, has received a letter from J. D. Fate & Co., brick manufacturers of Plymouth, O., stating that experiments with Warrensville clay show a good grade of clay for the manufacture of brick. Stillman says that he has been informed that the city can install a plant and a three-story shed with steam drying process for \$10,000. By using clay to a depth of one foot, 1,000,000 brick can be made from each acre. Figuring at the lowest possible price the officials say that they could save on the erection of one building alone at the farm the cost of the machinery. The labor at the farm costs nothing, and from the 2,000 acres the city could produce all the brick necessary for future paving and building on the farm.

R. A. Doan, president of the Nelsonville Brick Company, Nelsonville, Ohio, a leader of one of the largest men's Bible classes in the state, was the guest and the speaker at the supper at the Men's Club of the Hough Avenue Congregational church during the past month.

William Pate, former city chemist of Cleveland, pleaded guilty in Akron several days ago to presenting false bills to the Summit county commissioners in connection with the examination of paving brick on Summit county roads. The commissioners charged that Pate never analyzed the brick. They alleged that the county lost \$50,000 by accepting the poor material on Pate's recommendation. Pate pleaded guilty to accepting false bills amounting to \$1,400. He was fined \$200 and costs and sentenced to thirty days in the workhouse. He will not have to serve the workhouse sentence if he promises to reform.

One of the new companies incorporated during the past month was the Builders' Supply Company, of Akron, with a capital of \$10,000. The incorporators are W. Oliver Wise, E. V. Smith, A. J. Rowley, R. H. Nesbit and George T. Smith.

M. J. Marker, a state highway commissioner, is to recommend large road appropriations for Ohio next year. He will request that the legislature appropriate \$1,760,000 to be distributed \$20,000 to each county in the state. This money will be used for the improvements of highways, the state paying its portion and the county and townships each contributing. It is believed that there will be a big impetus given to the construction of brick roads throughout Ohio after this recommendation is adopted.

BUCKEYE.

FIRE PREVENTION.

FOR several days early in December the New York State Factory Commission discussed the always important question of fire prevention as distinguished from fire quenching. Experts in all the various departments which have to do with prevention, extinguishment or paying for the losses gave their views at considerable length, all more or less similar, depending upon the special division represented.

Fireproofing and sprinkler systems were freely discussed and sometimes sharply criticised. Probably a majority believed fireproofing should be more generally adopted, but there were many who still adhered to the belief that an adequate sprinkler system would save any building.

Perhaps the principal benefits of these meetings, hearings and discussions are those which arise indirectly from the dissemination of the knowledge of progress in fire prevention and quenching. Experts know that improved apparatus and the most skillful fire department in the world couldn't save New York if a fire should start anywhere below Thirty-third street and be swept southeasterly before a strong northwest wind. Because of this fireproofing has come to be considered a very important feature of all building operations, and the attempt to secure light upon this important subject is one of the most hopeful indications of the present crystallization of public opinion in the direction of prevention as differentiated from protection.

RECENT DISASTROUS FIRES.

The Walker plant of the American Sewer Pipe Company, near Wellsville, O., was destroyed by fire December 12.

The kiln sheds at the Taylor Brick Company's plant at Jackson, Miss., was destroyed by fire recently entailing a loss of \$400.

The plant of the Ferris Pressed Brick Company, at Ferris, Texas, which was recently destroyed by fire, will be rebuilt at once. The new plant will have a daily capacity of about 50,000 brick.

The plant of the Kentucky Vitriified Brick Company, at Louisville, Ky., was damaged by fire November 26. M. J. Bannon, president of the company, estimated the loss at \$20,000, part of which is on the stock. They are now busy rebuilding the burned portion of the plant.

The Atlantic Terra Cotta Company's plant No. 2 at Perth Amboy, N. J., was damaged to the extent of \$1,000 by fire the latter part of November which started in the dryer. It was the first time the company had ever had to call for the fire department since it first started operations forty years ago.

Fire of unknown origin completely destroyed the plant of the Standard Stone and Brick Company at McClainsville, west of Bellaire, Ohio, shortly before midnight Sunday night, entailing a loss of approximately \$50,000. The entire plant, with the exception of a few small buildings some distance from the main plant, was destroyed, and about 100 men were thrown out of employment. The fire had gained such headway when discovered in the engine and boiler rooms, and spread with such rapidity, that the big frame structure was consumed in an hour and a half and all the machinery was destroyed. Little could be done to fight the fire as there is no fire department in McClainsville. The plant was insured for \$35,000 and the work of rebuilding was delayed only until the insurance could be adjusted.

The brick plant of L. L. Stephenson, at Lovick, Ala., twelve

miles east of Birmingham, on the Southern railroad, was practically destroyed by fire November 12, entailing a loss of approximately \$50,000, there being no insurance whatever. The ruins had not cooled until Mr. Stephenson, with his characteristic energy, was planning for a new plant that would far surpass the old one in every particular, and be one of the best if not the best in that section. The new machinery will consist of a complete stiff and mud outfit of 75,000 daily capacity to be dried with waste heat from the kilns. Fortunately the kilns were not damaged and there was a large stock of brick on hand so Mr. Stephenson will be able to handle all orders on hand with little or no delay.

BRICK FIRE WALL STANDS SEVERE TEST.

IN August a grain elevator in Cedar Rapids, Iowa, was completely destroyed by fire. The elevator was right up against a brick building occupied by a wholesale grocery company. The accompanying photograph shows the roof line and the sheets of tin with which the roof of the elevator was joined to the brick wall.

The fire resisting qualities of the brick wall effectively saved the grocery stock from the least damage. The flames beat against the big wall and were thrown back by the brick and effectively failed in their attempted destruction.

On the outside of this wall the big elevator was a seeth-



Brick Wall Stops a Fierce Fire.

ing mass of flames and yet the heat could scarcely be felt inside the wholesale grocery building. The wall was heated almost red hot on the outside, while on the inside of the building the wall remained cool as if no fire was raging on the other side. The face of the brick that were heated scaled off in many places in thin scales from one-eighth to three-eighths or one-half of an inch thick, but the wall stands as straight as the day it was built. It stands as a monument to the wisdom of the builder, who feared and guarded against the day of the burning of the elevator.

The wall is thirty-six, twenty-four and eighteen inches thick and is built of common sand molded soft mud brick laid in lime mortar.

D. W. S.

Upon the complaint of the Evens & Howard Fire Brick Company and the Laclede-Christy Company, of St. Louis, Mo., against the St. Louis, Iron Mountain & Southern and other railroads, the Interstate Commerce Commission, at a meeting in Washington, D. C., held that the rates on paving, pressed, face and fire brick from St. Louis to Texas points should be the same. However, it was held that the rate of 27 cents on fire brick from St. Louis to Texas common points is not unreasonable. The commission ordered the present relationship of rates on brick from St. Louis and Versailles, Mo., to Texas to be maintained.

Even a correspondence course in salesmanship will give a man some new ideas about marketing brick, and diligent reading of trade papers should generate a lot, too.



OFFICIAL ANNOUNCEMENT.

The Twenty-Seventh Annual Convention of the National Brick Manufacturers' Association to be Held at Chicago, March 2nd to 8th, 1913.

In Conjunction with the Second International Clay Products Exposition, Which Opens February 26, and Continues Until March 8.

The National Paving Brick Manufacturers' Association Will Hold Its Sessions, March 3 and 4, in the Green Room of the Annex Hotel as Before.

The Building Brick Association of America, the American Face Brick Association and Other Auxiliary Organizations Will Hold Separate Sessions During the Week.

IN DEFERENCE TO the resolution adopted at the final session of our last convention, "That it was the sense of the meeting that the next convention be held in Chicago," and the further urgent appeal by the officers of the Building Brick Association of America, and other allied organizations, for a meeting there in conjunction with the second National Clay Show, it has been decided to hold the next convention in Chicago, March 2 to 8, 1913.

This is the first time the Association has ever met in the same city twice in succession. The occasion for breaking the rule of meeting in different sections of the country each year, which has prevailed since our first convention twenty-six years ago, is the desire on the part of many of our members to encourage and support in every way consistent the great publicity work undertaken by the promoters of the Clay Products Exposition. The importance attached to this movement is indicated in part by a resolution recently adopted by the directors of the Building Brick Association, which is as follows:

Resolution Adopted by the B. B. A.

"Whereas, It is the sense of this meeting that the general interests of the clayworking industries require that the meeting of all clayworking manufacturers be held in Chicago simultaneously with the proposed Clay Show. Now, therefore, it is

"Resolved, That it is the sense of this Board of Directors that the B. B. A. shall not in any way interfere with the present officials and policy of the N. B. M. A. at its next meeting, provided the next meeting and the annual convention of the N. B. M. A. be held at Chicago during the proposed Clay Show this spring, and furthermore, that the President of this Association is hereby requested to communicate with the Secretary of the N. B. M. A. and use his best efforts to have the next convention held in Chicago."

This sentiment favoring a policy of non-interference with the procedure of the N. B. M. A., has subsequently been concurred in by the officers of the American Face Brick Association, the Ohio Face Brick Manufacturers' Association, the Chicago Face Brick Association, the Chicago Clay Club, and most of the leading clayworkers of that city, including William P. Varney, Hydraulic Press Brick Company; H. L. Matz,

and L. D. Binyon, S. S. Kimbell Brick Company; Thomas C. Moulding, Moulding Brick Company; F. G. White, Jenkins & Reynolds Company; H. G. Bonestead, Meachim & Wright Company; Charles Bonner, Bonner & Marshall Company; E. W. Carmack, Wisconsin Lime and Cement Company; O. C. Bach, Bach Brick Company; William Schlake, Illinois Brick Company; and R. C. Penfield, President Clay Products Exposition Company.

Such an urgent appeal cannot be resisted, and while some of our members have protested against "playing a return engagement" at Chicago, stating that the convention is their annual holiday, and they want to continue the practice of visiting different cities from year to year, we are convinced that for this once this rule may well be broken, and that the interests of the clay craft generally will be advanced by another joint meeting in Chicago. Accordingly, we urge all the affiliating bodies to arrange for meeting there at the time named.

Annex Hotel Headquarters.

As before, the convention sessions will be held in the Annex Hotel, which will be official headquarters. The unexcelled facilities afforded during the last convention is a guarantee that every convenience possible will be provided, including convention halls for various associations, reception and entertainment rooms, etc. Those desiring rooms for exhibition purposes are requested to communicate with the Congress Hotel Company direct, stating character of accommodations desired, and the time for which they are wanted. In this connection, it should be borne in mind that the Clay Show opens February 26, and continues until March 8. The officials of the Clay Show announce that the second exhibition will far excel the first, both in extent and high character of displays, and while that may seem impossible to those who last spring marveled at the beautiful exhibits of clay products, the like of which had never been seen before, it is predicted that, profiting by last year's experience, a still greater and more charming exhibition will be staged in the Coliseum next March.

All allied organizations, whether of manufacturers or dealers in clay products of any sort or character, are cordially invited to hold meetings during the exposition period, and ample accommodations will be afforded each and all. The executive officers of other organizations are requested to communicate with Secretary Randall relative to time of meetings, etc., in order to avoid any conflict in dates or the interference of one organization with another.

Our members are invited to suggest topics for discussion and subjects for formal papers for the program, touching on various important phases of the business in which they are interested. Those desiring information as to requisite of membership in the N. B. M. A. or other particulars as to the convention or exhibition, are requested to address the Secretary at Indianapolis.

THE EXECUTIVE COMMITTEE,
CHARLES A. BLOOMFIELD, President.

THEO. A. RANDALL, Secretary.

CONVENTION DATES.

The thirty-fifth annual convention of the Illinois Clayworkers' Association will be held at Champaign, Ill., January 9, 10 and 11, 1913. A. E. Huckins, secretary, Champaign, Ill., will be pleased to furnish those desiring further information with program, etc., as soon as same has been completed.

The annual convention of the Canadian Clay Products Manufacturers' Association will be held at Toronto, Ontario, Canada, January 14 to 17, 1913. Headquarters will be at the Prince George Hotel. For particulars as to program, etc., address D. O. McKinnon, secretary, 32 Colborne St., Toronto.

The Wisconsin Clayworkers' Association will hold its thirteenth annual convention at Milwaukee, Wis., January 29, 30 and 31, 1913. Prof Samuel Weidman, secretary of the

association, is preparing an exceptional program, and will be glad to give particulars to any one interested in same.

The American Ceramic Society will hold its fifteenth annual convention at Washington, D. C., February 25 to 28, 1913. For information as to hotel headquarters, membership in the society, program, etc., address Prof. Edward Orton, secretary, Columbus, O.

The National Paving Brick Manufacturers' Association will hold its next meeting in Chicago, Ill., March 3 and 4, at the Annex Hotel. For further particulars, address Will P. Blair, 824 Brotherhood of Locomotive Engineers' Building, Cleveland, O.

The National Clay Machinery Association will hold its

Written for THE CLAY-WORKER.

CLAY NOTES FROM ILLINOIS.

BUSINESS at the Grant Park and Manteno yards of the Curtis Brick Company is above the average, the shipments averaging about 15 cars a day.

The Illinois State Highway Commission of Springfield decided that the construction of a tramway across the Illinois river bridge at Utica to lift the clay beds of the Utica Clay Company is not safe, as the bridge is not in a stayable condition.

A new company is to grow out of the old Decatur Brick Company at Decatur, which has been controlled by the Mattes interests and S. A. Tuttle.

T. J. Armstrong, of Bloomington, who recently purchased



The 1912 Christmas Tree.

annual meeting in Chicago, Ill., March 4 and 5, at the Annex Hotel. For further details, address W. N. Durbin, secretary, Anderson, Ind.

The Building Brick Association of America will hold its annual convention at Chicago, Ill., March 5 and 6, 1913, at the Annex Hotel. For details as to membership, program, etc., write J. Parker B. Fiske, secretary, Flatiron Building, New York.

The American Face Brick Association will hold its second annual convention in Chicago the week of March 3 to 7, 1913. The sessions will be held in the Annex Hotel. Further particulars can be had by addressing the secretary, W. H. Hoagland, Hartman Building, Columbus, O.

the controlling interest in the Springfield Paving Brick Company, was elected president at the reorganization meeting of the directors. He succeeds Dr. A. L. Converse. T. J. Henderson succeeds G. J. Little as vice-president. State Senator Logan Hay and Edward Keys remain on the board of directors. Mr. Keys is secretary-treasurer of the new firm. Dr. Converse, Mr. Little and Edward Schoettker retire as directors and are succeeded by T. J. Armstrong, Mrs. Sarah Armstrong and T. J. Henderson. John T. Pennington, auditor, and H. H. Staley, superintendent, will remain. New kilns are being constructed and the equipment of the plant will be increased sufficiently to double the output. New belt lines of interurban tracks will be added to the switching facilities.

Moving pictures of the plant of the Alton Brick Company were recently taken. They will form part of a reel, which

will be sent throughout the state, showing the leading industries of Alton and its advantages as a factory and a resident city.

Plant No. 3 of the Western Stoneware Company at Macomb, known as the old Blount pottery, was scheduled to open its doors December 9.

George Neber, an employe of the Carter brick yards in East Peoria, died November 25th from injuries received November 5, when a car used in transporting clay from the pit to the mills became disengaged from a cable and rolled back into the pit, striking Neber and breaking his back.

John Trunk, of Freeport, has an exhibit of brick at the Made-in-Freeport show which was held in that city the week of December 6.

The West Salem Hollow Brick and Tile Company, of West Salem, has received an order for 400,000 rough faced brick from Chicago, its largest order since it started.

A. N. Johnson has purchased the Mt. Vernon pressed brick plant at Mt. Vernon, from Grant T. Ham. He intends to remodel the plant and have it ready for operation next spring.

The Decatur Brick Company received the contract for furnishing 500,000 hard brick and 100,000 model face brick for the Decatur and Macon county hospital in that city.

The Continental Brick Company, at Aledo, received the contract to furnish 300,000 high quality faced brick for the new fifteen-story home of the Daily Register and Leader at Des Moines, Ia.

S. P. RING.

Written for THE CLAY-WORKER.

MAINE BRICK LETTER.



WORK HAS just commenced on the large factory building to be erected by the Portland Stoneware Company, Winslow & Co., proprietors, to replace the one burned last summer with a loss of \$75,000. The new structure will be thoroughly modern embodying all of the latest improvements in construction and will be fireproof throughout. It will be made of reinforced concrete, four stories high. The dimensions are to be 64 feet wide by 184 feet in length.

A most unusual feature in the erection of the new building was the difficulties that had to be overcome by reason of the unstable ground. Practically all of the ground upon which the present wooden buildings of the company are located is "made ground," not suitable for the support of a heavy structure. The obstacle was overcome by making a concrete apron of cement and steel, 13 inches thick over the entire surface of the ground to be covered by the factory. The apron is to be held in place by a plank piling. This mode of construction is in a way new, and has been in vogue but a short time. It is expected that the building will be completed in about two months.

Moses Quarter, of Saco, the oldest brickmaker in Maine, has just completed his sixty-fifth year in brickmaking. He is now in his eighty-third year, and has worked almost every day during the past season. He is declared by his fellow employees to be as square as a brick, and one of the most faithful and intelligent laborers ever employed in a local yard.

Mr. Quarter, who is as spry as a cricket, expects to make brick as long as he lives, and he expects to live to be 100. His father, S. E. Quarter, lived to be 99, and his uncle, Mitchell Quarter, was 99 years and nine months old when he fell and died of injuries.

Seen recently at work in the brickyard of the Saco Brick Company on King street, the old time brickworker was camped on a wheelbarrow waiting for the order to put more wood into the arches. He said that he felt as frisky now

as he ever did. He has smoked since he was a boy and had drunk intoxicating liquor until 17 years ago.

"There has been a vast change in the ways of making brick since I learned the trade. We used to make them by hand. It was a slow process, but we managed to turn out about 8,000 a day. Now they turn out many times that number and don't work nearly as long hours, or make half as much fuss about it. We went to work at 4 a. m. and quit at 8 p. m. in these days. The first year I made brick I drew \$8.00 a month and my board, which was reckoned at \$1.75 a week. That was 65 years ago, and it seems to me that \$8.00 a month then was as good as \$36.00 now. I guess there would be a strike right off if men had to work from 4 in the morning until 8 at night. Then everybody was satisfied. There were no strikes, the men were contented and happy, much more so it seems to me than the laboring men of today. We could not have bought much beefsteak at 45 cents a pound on the wages we received, but we could buy good meat then for a quarter of that price.

"Bricks made by hand were better than machine brick, because they were tougher. You could drop them quite a distance and they would not break."

Work has been started on the new brick block which will be erected by the Woolworth Company on the east side of Lisbon street, Lewiston. Although the structure will not be put up until spring, the contractor has already commenced to build the north wall, next to the Russell & Geary store.

The body of Aslin Therjoula, aged 35, an Albanian brickmaker employed by the Saco Brick Company, was found in a bit of woods just outside the city, in November. As told in THE CLAY-WORKER recently, Therjoula mysteriously disappeared in August and there were fears of foul play. The body was headless and it has been decided that the man was murdered. As yet, his slayer or slayers have not been apprehended.

Nazzareno Cacciagrana, who recently arrived in Portland from Rome, is a skillful Italian potter, who is delighting Portland people with his productions of antique and modern forms of pottery.

Bangor's largest block, the seven-story brick structure being erected by the Eastern Trust and Banking Company, is nearing completion. It occupies a fine position on the banks of the Kenduskeag stream, and has been the subject of much admiring comment. The mild weather of the past few weeks has been very conducive to rapid building operations here. Hon. J. P. Bass has completed the alterations to his brick block at the corner of Hammond and Center street, which makes the building one of the best lighted and most desirable in the city. Work is progressing favorably on the new high school, where the brickwork has been carried to the third floor. On the library building the roof is nearing completion. The six-story block to be erected by the Bangor Real Estate Company is to be started soon, as men are now engaged on the foundation.

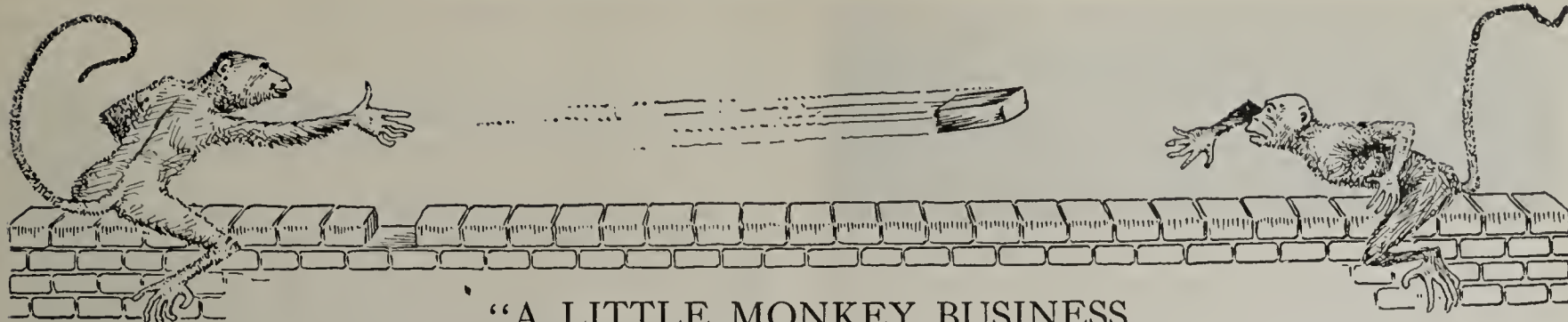
BRICKMAKER'S SON.

VALUABLE SHALE DEPOSITS.

Among the For Sale ads of this issue on page 705 will be found one of an exceptional shale deposit near Canton, O. Any of our readers looking for anything of the sort will do well to investigate.

THE CHRISTMAS BOOK OF SMILES.

This little brochure of "funny cracks" is brim full of clever rhymes and humorous sayings, and some bits of wisdom, as, for instance, "The best dressed men dress quietly, says an authority on male attire. But suppose they lose a collar button?" It also contains some valuable information on drying brick. A copy can be had for the asking from The Standard Dry Kiln Company, Indianapolis, Ind.



"A LITTLE MONKEY BUSINESS NOW AND THEN IS RELISHED BY THE BEST OF MEN."

EFFECTIVE.

Police Commissioner—If you were ordered to disperse a mob, what would you do?

Applicant—Pass around the hat, sir!

Police Commissioner—That'll do. You're engaged.

AUTO ARISTOCRACY.

"He has a grudge against the plain people."

"On what score?"

"Says they wear so many rubbers that it forces up the price of tires."—Louisville Courier-Journal.

LOOKED SUSPICIOUS.

The Stranger—Are you quite sure that was a marriage license you gave me last month?

The Official—Of course. What's the matter?

The Stranger—I've lived a dog's life ever since.

PROTECTING THE CHICKS.

A kind-hearted little slum girl, on a fresh air excursion to the country, saw, one evening, a mother hen about to gather her brood of chicks under her wings. The little girl rushed up to the hen and shouted:

"Shoc, you ugly thing! How dare you sit down on those beautiful little birds?"

A CONCRETE EXAMPLE.

Dodds—As one grows older, there are certain things in which it is difficult to keep up one's interest. Don't you find it so?

Hobbs—Er—yes; there's the mortgage on my house, for example.—Boston Transcript.

HIS PREFERENCE.

Winkleby gazed at the new triplets with fatherly pride, but not a little apprehension in his eye, nevertheless.

"What are you thinking, dear?" asked Mrs. Winkleby softly.

"Nothing, dear, nothing," he said falteringly; "only, don't you think that it would be wiser for us hereafter to build up our little family on the installment plan?"—Harper's Weekly.

BIG CROP YARNS.

Secretary Wilson, of the Department of Agriculture, was talking about the record crops of 1912.

"These wonderful crops," he said, "are almost enough to make you believe the cross-cut saw story.

"A farmer, you know, sent his hired man to a neighbor's with a note saying:

"'Friend Smith—Will you please lend me your cross-cut

saw, as I wish to cut a watermelon up so as to get it into my dray?"

"The neighbor wriote back:

"'Friend Jones— I would be glad to lend you my saw, but same has just got stuck in a canteloupe.'"—Washington Star.

THAT SMALL FEELING.

"When I visit the Grand Canon of the Yellowstone I realize the insignificance of man. Ever been there?"

"Never. You can get the same sensation by going to a suffragette meeting."

NOT NEW.

First Neighbor—Have you heard tell of them newfangled trial marriages?

Second Neighbor—I don't see nothin' newfangled about 'em. Mine's been a trial to me for the last twenty years!

LUCKY DOG.

"My girl used to think a lot of her pug dog, but I've managed to get the edge on him since we married."

"How did you work it?"

"Fido, wouldn't eat her cooking and I did."

WELLESLEY SCORES.

"Well, I'll tell you this," said the college man, "Wellesley is a match factory."

"That's quite true," assented the girl. "At Wellesley we make the heads, but we get the sticks from Harvard."—Lippincott's.

MONEY? OH, YES.

She—Just look at the trouble money can get you into.

He—Yes, but look at the trouble it can get you out of.—Boston Transcript.

CAME TOO HIGH.

A young negro walked into the office of a prominent lawyer, in Louisiana, and said:

"Boss, I kum to see you 'bout gettin' me a 'vorcement."

"What's the matter, John?" said the attorney. "Can't you get along with Mary, or have you found some other girl you like better?"

The negro, with a grin, admitted that he had found such a girl, and asked:

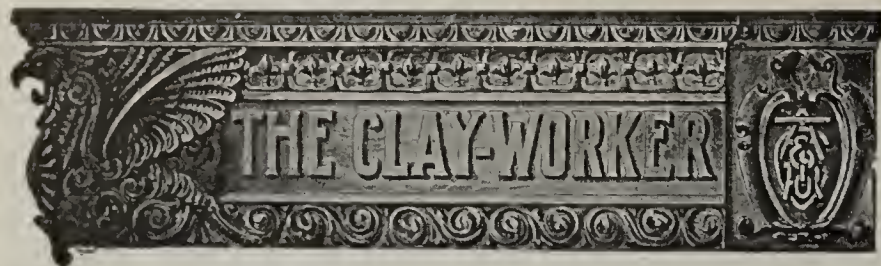
"What you goin'er charge me, Mr. Charley?"

"Fifty dollars, John," said the attorney.

The negro moved uneasily about the office, scratched his head, but did not speak. After a few minutes the lawyer asked.

"What is the trouble, John?"

"I jest tell you, Mr. Charley," said he, "there ain't no fifty dollars' difference in them gals."—National Monthly.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-NINTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

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Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis

Vol. LVIII. December, 1912. No. 6

CURRENT COMMENT.

A Merry Christmas and most prosperous New Year, is our sincere wish for all mankind and for you, Mr. Clayworker, in particular.

* * *

The annual index with this issue will prove helpful to those of our readers who use The Clay-Worker as a book of reference. There is scarcely any phase of the clay business that it does not touch.

* * *

Let us work not only for a big attendance at the annual meeting and the big Clay Show, but also a greater membership in the N. B. M. A., that it may do even bigger and better work in the future than it has in the past.

* * *

Members of the N. B. M. A. are requested to read the Official Announcement on page 664 of this issue and to write the secretary relative to any feature of the business which they would like to have considered during the convention.

* * *

There is really more of the fraternal spirit between the handler of lumber and the maker of brick than there is of the antagonism some profess to see. The average lumber dealer regards clay products as an important item in his stock, and seldom has anything but a good word for brick and other clay products.

* * *

With this issue The Clay-Worker completes its twenty-ninth year. We feel that the volume was just a little better than those that have gone before. Now 1913 looms large and we hope during its twelve months to give our readers a still larger measure of efficient, helpful service. The prompt renewal of subscriptions will aid us materially. Do not over-

look our clubbing offers. Thousands of our readers have profited by them in the past.

* * *

Do not go to your State meeting instead of the National—go to both the State meeting and the National.

* * *

The Federation of Retail Merchants has an official button that contains a mighty good motto for every man. It says, "Our Town. One for All and All for One."

* * *

Not only should brick be urged for porch foundations and pillars, but there is a clay tile that makes a better and nicer looking porch floor than any concrete which may be well pushed, too.

* * *

It has been an unusually good fall and winter so far, for building operations and for clayworking, and reports indicate that everybody has been making the best of it—making things hum.

* * *

The "Eastern Question" will now perhaps develop into a political or diplomatic sparring match instead of a war cloud, and about the only factor that nobody will sympathize with is the Turk, who is no longer so very terrible.

* * *

The well-informed retail merchant is in about the right humor now to give a helping hand to the upbuilding of the country town, which should make it a mighty good time for the brick man to do local advertising and boosting.

* * *

Since the brick industry recovered from a twenty-five-million-dollar crimp to it in 1908, it can pull through that seven-million-dollar crimp of 1911 without any special editorial dosing; in fact, we have a suspicion that it has already recovered and is today well and hearty.

THE N. P. B. M. A. HAS A GRAND-DAUGHTER.

Will P. Blair, the secretary of the National Paving Brick Manufacturers' Association, has recently taken on much added dignity, due to the arrival at the home of his son, Marion Blair, at Kushequa, Pa., of a little stranger, November 29, 1912. She was christened Clarice Virginia Blair. The mother, Grace Foulston Blair, for several years official stenographer of the N. P. B. M. A., expects Clarice Virginia to make her debut at the Chicago meeting in March.

THE SPIRIT OF CHRISTMAS.

The true spirit of Christmas is to give and forgive. The giving spirit was a part of this festal occasion 'way back in what we call the pagan days, the days before Christ and Christianity came to the world. There has always been something of a religious nature in mankind, and back in those dark days preceding the days of modern enlightenment this feeling took some practical shape in the form of expressing faith in the future by dividing with others that which had been garnered during the year. It was a form of giving an offering and expressing faith all in one. When Christianity came there was added a new interpretation and the spirit of forgiving, to the end that we may have peace and good will. We have today plenty, aye, too much, of the spirit of giving presents one to the other, of at times taxing the purse to make a showing and to do what we think is expected of us, or a little more. This spirit has been carried so far that there is a tendency to reaction right now, to retrenchment in this expenditure of money and time vying with each other for honors in giving Christmas presents. It is a good, healthy tendency, deserving of encouragement. What we need is not more of this kind of giving, but more

of the real spirit of Christmas, more giving of good cheer, good will and good fellowship—to forgive troubles, worries, vexations and differences one with the other, and extend the glad hand freely that we may kill of the spirit of antagonism and start into the new year all working together for better things.

THE YEAR IN BRICK.

Whether or not this has been the biggest year on record in the brick business remains to be seen after the final compiling of the figures, which will be several months hence, but that it has been one of the busiest years on record for the brick men there is not much question. In some sections this may have been due in part to the dropping out of some yards, while in others it was a plain case of the demand being greater even than the increased producing capacity. Here will be a report telling of a great scramble for common building brick, and there another one saying that it is hard to supply the demand for face brick, and all along the line there are reports of an extra busy year. Things didn't start off with a great rush in the early part of the year, but the call kept coming, growing larger and larger as the year advanced, till toward the close it is in many sections a wild scramble to supply the needs. In other words, the past fall has been about the busiest one on record in the brick business, and the indications are that the industry has prospered in proportion. It means a busy winter, too, for there will be enlargements and the adding of equipment, the making of alterations and repairs, and the getting ready of a stock for the spring season. It has been an all-around good year for the clayworker, a year in which there has been great mission work done for clay products as well as a big business, and the result of this mission work, if continued, should be to make next year a greater one yet.

THE LOCALS AND THE N. B. M. A.

In any and all kinds of organized effort, whether it be politics or industrial association, it is the good local organization that becomes the most efficient factor in the national effort. What is meant by local organization is not just a State organization, though these are great factors, but the purely local organizations, those made up of the few or the many who may be able to get together in the local community, those that are neighbors one with another. Wherever there is a local community of this kind that has the get-together spirit, that community is not only sure to be represented at the national gatherings, but it will be represented with enthusiastic and efficient workers. It has always been the policy of the N. B. M. A. to urge local organization, and usually wherever it meets in annual convention it leaves behind a pretty closely united local community of interests at the place of meeting. It also encourages this local community spirit among the members everywhere, because it is really these things that do a lot to smooth the path of the brickmakers as well as strengthen the efficiency of the N. B. M. A. This matter is touched on here and now because in the midwinter is an excellent time for this local getting together, either formally or informally. It is between the seasons, a time when the work of the past year can be discussed and plans outlined for the coming season matured and perfected before the busy rush of spring. It is desired to urge, therefore, that where there is a community with two or more makers of brick or other clay products that there be a getting together. No matter if you have tried it in the past, and been disappointed more or less, it is worth trying again. Get the habit of getting together, and then when the big week of the N. B. M. A. comes off

you will not only be in a greater notion to come, but you will come better equipped to take a part, and with the stimulating influence of the local association or club spirit at home.

BE AN EXHIBITOR.

There is plenty of time yet to think about and make plans for attending the great Clay Show that is to be held in Chicago, but that is not the only thing for the clayworkers to think about. Think about being an exhibitor, unless you have already gotten in line. It matters but little what line of clay products you make, there is a chance to show them off, to help make the Clay Show the greatest thing ever and to help boost clay products—and your own business. Do not wait too long, either, about taking this matter up. Make up your mind early that you are going to be an exhibitor, and then set about finding the best way to show your product. It takes time and deliberation to do justice to an undertaking of this kind and the sooner you set about it the more likely you are to be ready on time with just exactly the kind of an exhibit that you think will do justice to your ideas. Be an exhibitor, be an enthusiastic exhibitor, and be a timely and forehanded exhibitor by taking the matter up early and perfecting your plans in plenty of time, for surely here is a case where that which is worth doing is worth doing well.

SOME PLAIN TALK.

Under the above head the St. Louis "Lumberman" takes to task its Chicago contemporary for untruthful and misleading statements, and then proceeds to pay its respects to our Chicago contemporary for misrepresenting the real status of the lumbermen's and brick manufacturers' associations. With more force than elegance, "The Lumberman" likens our Chicago contemporary to a dog infested with fleas, and recommends the use of insect powder as the proper remedy. Referring to our contemporary's recent editorial antics, "The Lumberman" says: "It fairly bristles with poster type, editorializing about the brick business and a lot of things that never happened and are not likely to come to pass. It wants to organize another association, and gets into a bad state of mind because the lumbermen, or the brick manufacturers, don't enthuse and hold more meetings. * * * The manufacturers of lumber and brick in this country are, as a rule, alive to their interests. They are busy, progressive men, none of them troubled with the hook worm." We concur in the latter sentiment and predict that both the brick and the lumber men will be equal to their opportunities in the future, just as they have been in the past, and will neither be helped nor hurt much by the ranting of those whose ambition outruns their reason.

THE MACHINERY MEN.

The machinery man with his fresh ideas, his new machine and the many improvements in equipment, exerts a great force to help keep the wheels of progress moving. He is the man that keeps the manufacturer from slumbering in fancied security with the equipment he has till it wears out or gives down before attention is given to replacing with new. There are some things that are good till they wear out, and some even in the form of machinery, but not all, no, not by any means. One of the easy mistakes for a manufacturer to make is that of thinking that because he has been successful in the past with the machinery equipment he has that he can go on with the same equipment and be equally successful in the future. Machinery and manufacturing equipment is a thing that often goes out of style or date before it

wears out, and it is just about as bad to limp along with machinery that is behind the times in efficiency as it is to be halting now and then to repair machinery that has seen its best days through wear and tear. Efficiency is secured as much through replacing good machinery with better machinery as it is in replacing wornout machinery with new machinery. So hearken to the machinery man when he comes your way, for he brings new ideas and enthusiasm, and if he doesn't manage to sell you any thing, or have anything that just fits in with your needs, he will keep you awake, thinking and making progress. That's his mission in the world, progress, and the closer you keep in touch with him the more likely you are to keep at the head of the procession.

BRICK MOLDS AND YARD SUPPLIES.

Brick manufacturers who make brick by the soft mud process will find on page 708 of this issue an illustration of what is claimed to be "the world's best brick molds." Messrs. Mentz & Co., the manufacturers, have had many years of experience in making molds and other brickyard supplies, having furnished same to Hudson River brickmakers, for whom the best is none too good. For further particulars, address the G. B. Mentz Company, Wallkill, N. Y.

THE BONNOT COMPANY TO BUILD CONTINUOUS AND DOWN DRAFT KILNS.

The Gas Machinery Company, Cleveland, O., announce that they have arranged with The Bonnot Company, Canton, O., to represent them in the principal western states. Mr. R. G. Smith will have charge of that territory, with office at 909 New York Life Building, Kansas City, Mo. Those of our readers in that section desiring information as to producer gas equipment are requested to communicate with Mr. Smith. Eastern manufacturers are requested to address the Gas Machinery Company, Citizens Building, Cleveland, O., whose ad will be found on page 717 of this number.

A MATTER OF INTEREST TO CLAYWORKERS.

Every manufacturer desires to achieve the greatest success possible. To do this, every detail of the business must be considered. One very important element that cannot be overlooked without danger is the expense account. Modern scientific methods must be adopted to keep tab on and reduce cost to a minimum. One serious expense item is that of fire insurance. The Clay Manufacturers' Insurance Bureau offers at a greatly reduced cost as good fire indemnity as can be purchased at any price. It is the modern and sensible method of providing against loss by fire. Manufacturers who would profit thereby are requested to correspond with Campbell & Randall, Ltd., Pierce Building, St. Louis, Mo. See adv. on page 744 of this issue.

SEVERAL MINERAL PRODUCT RECORDS BROKEN.

There were a good many records broken in the mineral products field during 1911, according to a series of bulletins of the U. S. Geological Survey. One of these was in stone, the output from the quarries of the country amounting to nearly \$77,000,000 for the year. This was really only about half a million above the previous year, and does not show as big a stride as some that have been taken in the past, but it makes the largest output on record. Other products that have broken the record are copper, lead and zinc. The copper production for 1911 was 1,097,232,749 pounds, which amounted to 56 per cent. of the world's production, and was the biggest output on record. The lead production for the year was 486,976 short tons, and the total zinc production was 286,526 short tons.

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"GETTING THE MOST FOR A DOLLAR"
has been given as a definition of good engineering such as is done by

**The Richardson-Lovejoy
Engineering Company.**

[See page 712.]

FOR SALE, WANTED, ETC.

FOR SALE.

At a bargain, one steam press, two dry pans and one wet pan.

THE OHIO CLAY COMPANY,
10 1 d Cleveland, Ohio.

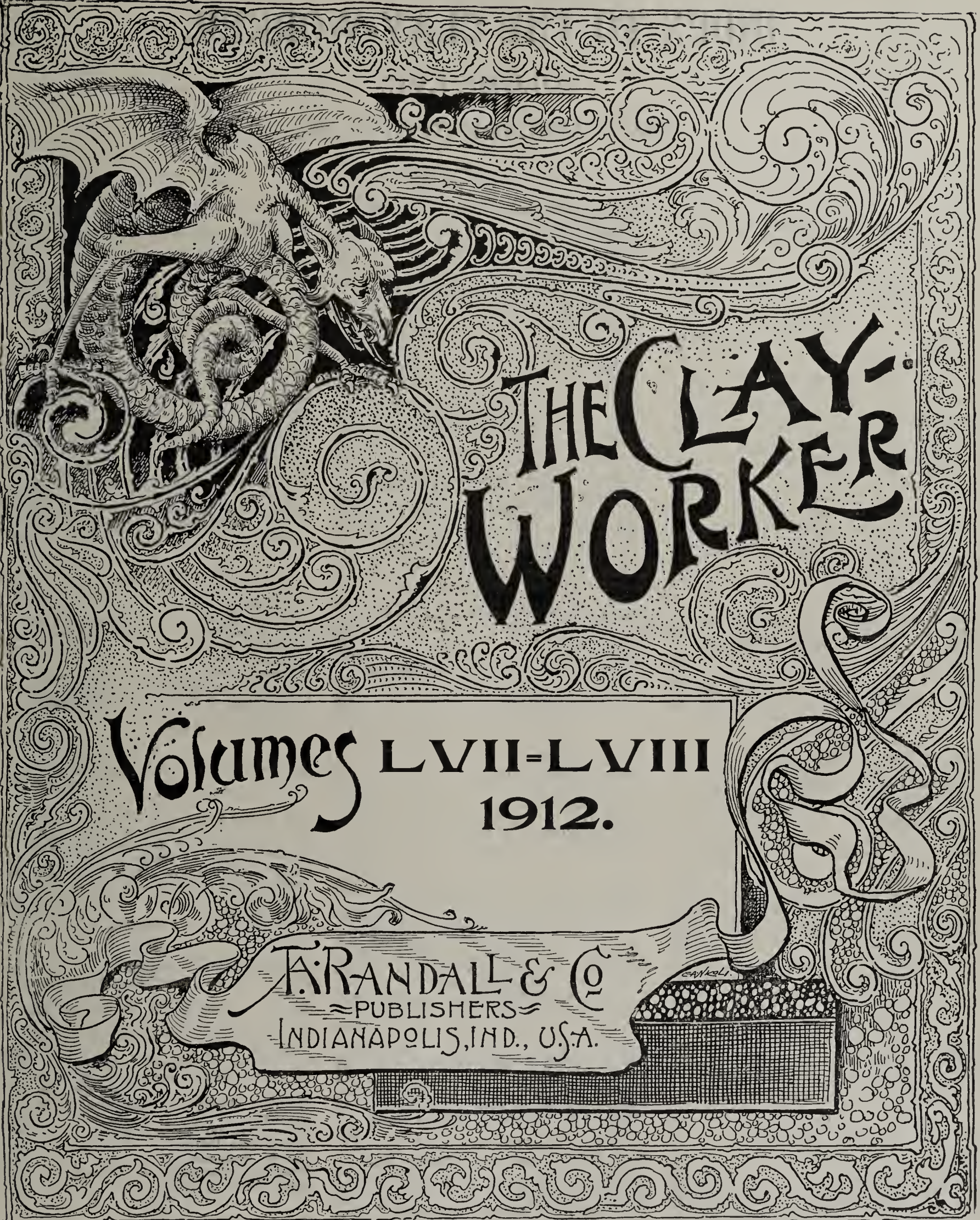
FOR SALE.

Retiring From Business.

A very large assortment of all kinds of brick yard machinery, some as good as new. Write for full particulars and prices.

S. H. YEAKEL,
11 1 c Allentown, Pa.

For Sale, Wanted, Etc., Ads Continued
pages 705, 706 and 707.



THE CLAY- WORKER

Volumes LVII-LVIII
1912.

A. RANDALL & CO
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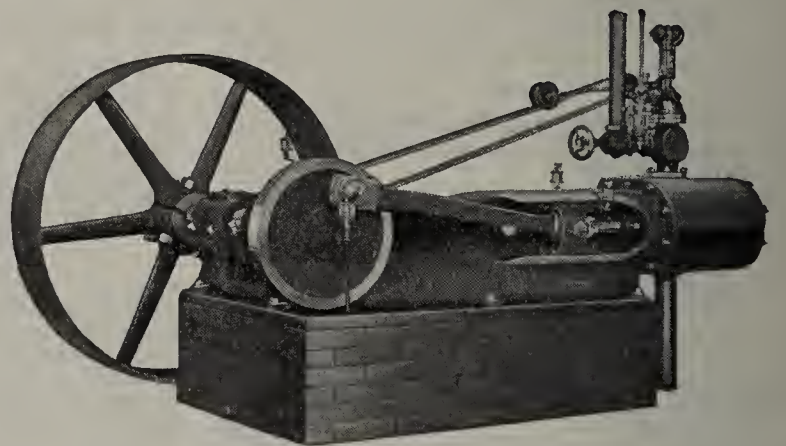
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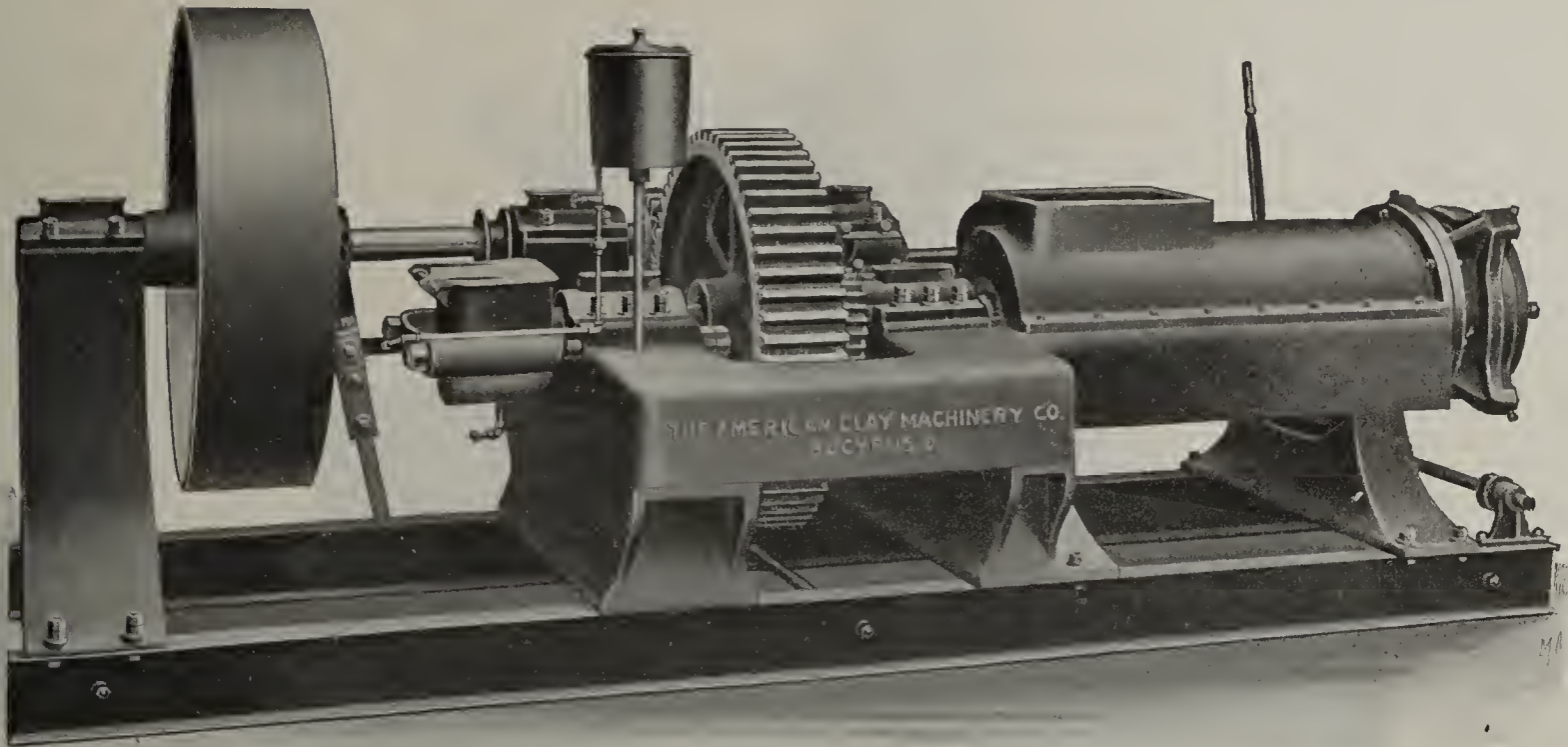
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When we built the No. 218 Auger Machine it was strictly along the lines of quality. Not a single quality feature was overlooked. As a consequence the No. 218 was a success from the start. Many a manufacturer looked it over and bought. Some wanted to buy, and were anxious to possess a No. 218, but thought they ought not to spend so much money. They asked us to get up a second machine which would be as near the 218 in quality as could be secured in a lower price machine.

With this object in view we brought out the No. 233 machine.

It is a machine similar to the No. 218. It has much quality, great capacity and is a splendid machine. For those who want a strictly up to date machine at a moderate cost this No. 233 will prove satisfactory in every way.

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We build every machine and appliance needed in the clay trade, and give a full equivalent of quality in each article.

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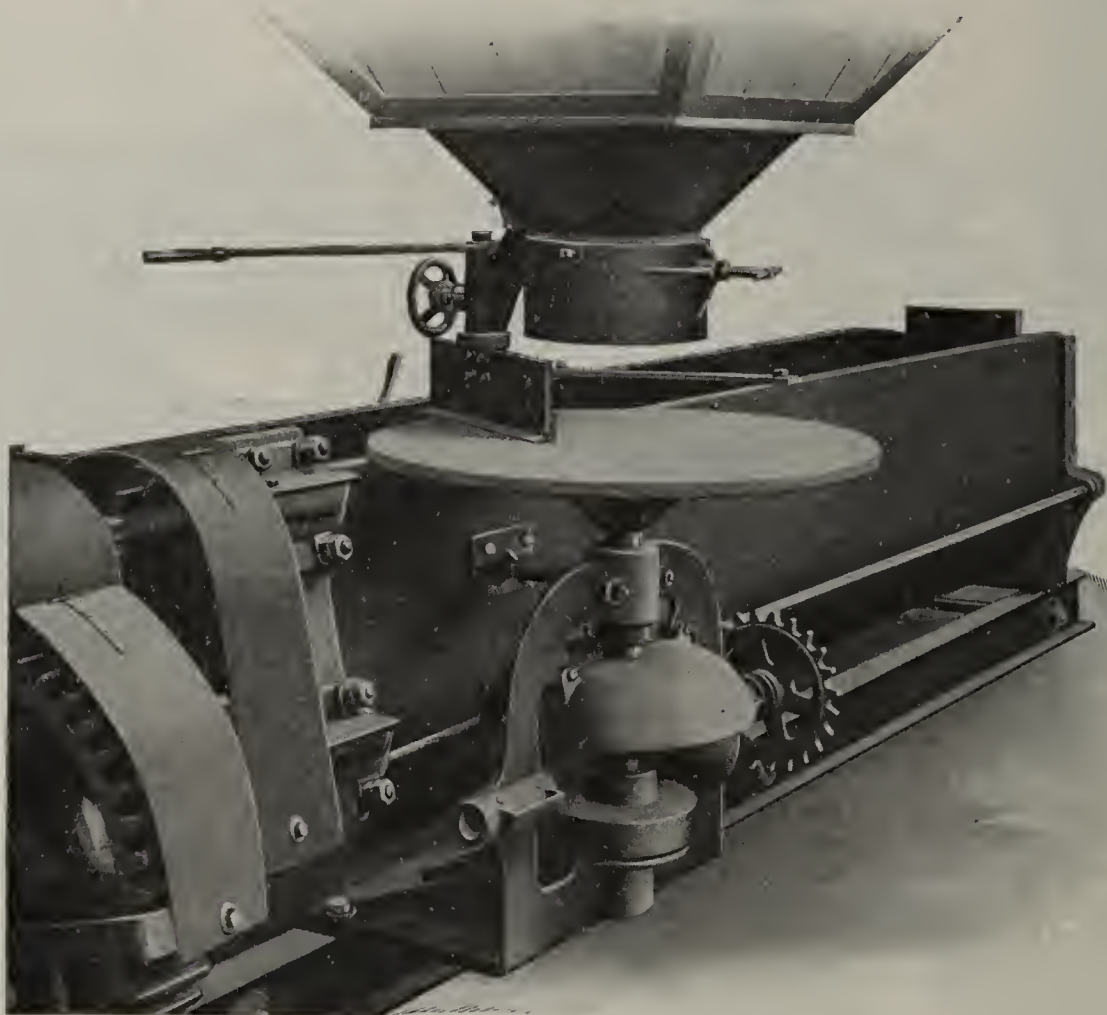
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Preparation Important



In the proper preparation of your clay the Disc Feeder is important. Our Feeder is so designed that it can be attached to any of our Pug Mills and can be driven from either side as desired. It has a self contained gear frame, the gears being protected from dust and dirt. The circular plate is 36 inches in diameter, and is dressed smooth and true. Larger diameters are furnished on request. The clay is fed through the adjustable spout leading from the overhead hopper. The scraper is attached to this spout with a hanger. The scraper is also adjustable. The scraper is provided with a white iron wearing shoe which is renewable.

A complete description of this machine will be furnished upon application. We build every machine and appliance required in the clay trade. Make your needs known.



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Ask Noah Webster.

In his big Dictionary Webster has a lot to say about the Eagle Repress.

You'll find his opinion of the Eagle under various headings, such as "Excellence," Worthiness, Quality, Promise, Fulfillment and Worth.

Webster isn't the only authority on this subject, either. Every brick manufacturer who has used the Eagle Repress knows that what the word authority says on these various words applies to The Eagle Repress.

The Eagle has more points in its favor today than any other press. It was designed and built with a view to successful and continuous operation without repairs. For years it has lived up to this original aim. It has made a reputation deserved and lasting. Those who have used it are pleased with it, and if you are at all interested in dependable machinery the Eagle testimonials we have will interest you.

The Eagle Repress is a paving and front brick machine and will help you make a reputation on these products and will also help you to operate economically. A full description of this or any other appliance or machine used in the clay trade will be sent on request.

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Bucyrus, Ohio, U. S. A.

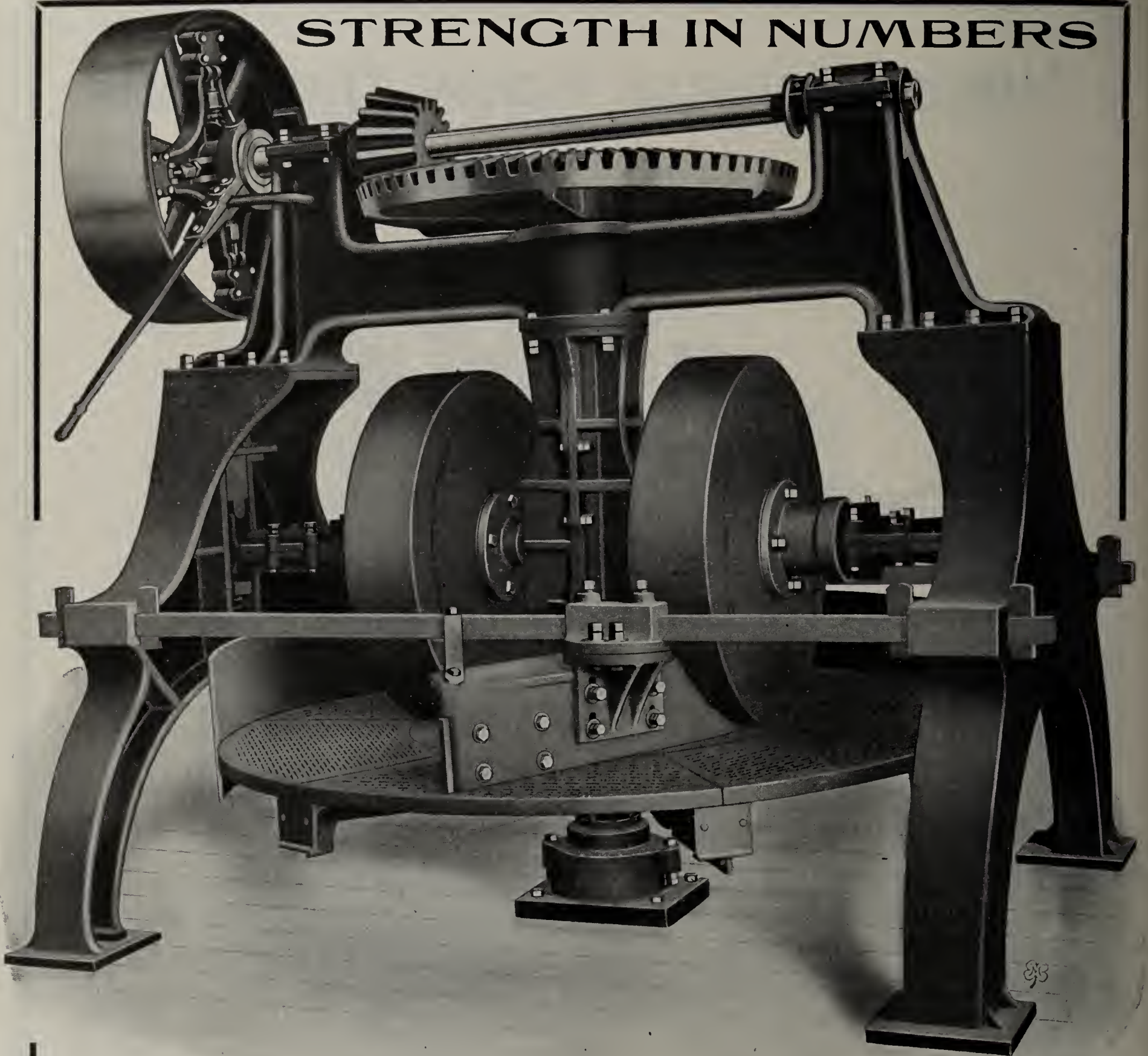


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There are a full thousand of our pans in the plants of the country, each doing its part toward increasing the quality and quantity of the output. If there is strength in numbers, this army of picked quality ought to convince the pan user that the American Clay Machinery Company's line of pans is accepted as a standard of excellence and a standard of efficiency. In truth, there is not a pan built anywhere throughout the wide world that will surpass the American pans.

An excellent point about the American line of pans is that they are built in a variety of sizes, so that any want can be nicely filled. Also, they are built from standard patterns, jigs and templates, and any needed repairs are sure to fit. Our pan department is presided over by an expert pan superintendent who has a crew surrounding him whose life duty has been to build American pans of quality. You get expert service worked into the quality of your pan, which is a mighty factor toward satisfactory service.

Write us about any pan you may need. We build every machine and appliance required for making every kind of clay products.

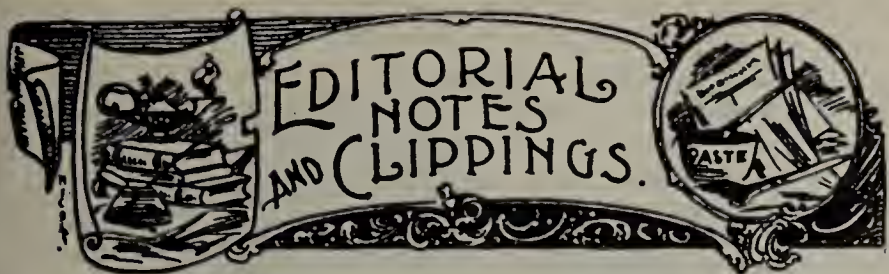
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Mention THE CLAY-WORKER.



J. L. Townsend will erect a brick-making plant at Pinson, Tenn.

G. C. Brown, of 1301 Main street, Dallas, Texas, desires prices on a stiff mud brick plant equipment.

John L. Barclay and others are interested in a movement to erect a brick manufacturing plant at Crescent, La.

The Heinz Roofing Tile Company, of Denver, Colo., is erecting a plant at that place for the manufacture of roofing tile.

C. A. DeArment, of Petoskey, Mich., will erect a drain tile plant which he will operate in connection with his brickmaking plant.

J. L. Townsend, of McDonalds, N. C., is in the market for a soft mud brickmaking outfit of 50,000 daily capacity. He would prefer a second-hand outfit.

The Kansas Buff Brick Company contemplates the erection of a plant at Wichita, Kansas, which they will operate in addition to their plant at Buffalo, Kansas.

The Ideal Brick and Tile Company, Ltd., has been incorporated at Brantford, Ontario, Canada, with \$60,000, by H. J. Wallace, Gilbert Brereton and W. H. Fairchild.

The Maryland Fire Brick Company, Baltimore, of which S. B. Kanowitz is manager, has started the erection of a large brick plant, including a main factory building, dryer, kilns, etc.

The Portsmouth Paving Brick Company, Portsmouth, Ohio, has let the contract for rebuilding its plant which was recently destroyed by fire. The new plant will be modern in every particular.

John Robaczewski, of Detroit, Mich., is investigating the shale deposits at Joplin, Mo., with a view of erecting a brick plant in that vicinity. A company has been formed under the title of the John J. Robaczewski Company.

The McEwing & Thomas Clay Products Company, St. Louis, Mo., with \$20,000 capital stock, has been incorporated by A. T. Griesbeck, Charles E. McEwing and Charles P. Tilley to equip a plant for the manufacture of all kinds of clay products.

The Purington Paving Brick Company, Galesburg, Ill., has enjoyed a very large business during 1912. With the shipments made up to December first their sales had equalled the sales of last year, which is a remarkable showing, as their shipments were unusually heavy all last year.

Clyde Shipton, of Uhrichsville, O., has entered suit against the Evans Clay Manufacturing Company for damages in the sum of \$10,000. The lands of the contending parties adjoin and the plaintiff charges that the defendant, in operating their mines, mined 26,000 tons of coal from land belonging to him.

The brick plant of the Consolidation Coal Company, at McRoberts, Ky., the new industrial city on Wrights Fork, has increased its output to 50,000 bricks a day, and is still barely able to supply the vast building operations in the new city. A Y. M. C. A. building is under way, a large store building will soon be completed, while hundreds of dwelling houses are going up.

The plant of the Kansas City (Mo.) Terra Cotta Company at Nineteenth street and Manchester avenue has been sold and a new corporation formed under the name of the Kansas City Terra Cotta and Faience Company. The plant is to be doubled in capacity and is to employ 150 persons. The work of building new kilns and erecting additional buildings is to begin immediately. The improvements will represent an added investment of \$50,000. The new company was financed by E. V. Eskesen, general manager of the New Jersey Terra Cotta Company at Perth Amboy, N. J., and P. C. Olsen of the South Amboy Terra Cotta Company. H. M. Gerus, formerly assistant manager of the New Jersey Terra

Cotta Company, is to have active management of the new plant.

M. M. Garrett, of Merrimac, Texas, wants prices on an equipment for a small brick yard.

The Medora Shale Brick Company, of Medora, Ind., has certified to an increase in stock from \$30,000 to \$65,000.

The Elgin Standard Brick Co., of Elgin, Texas, has been incorporated by W. H. Rivers, Jr., M. J. Carlton and others, with \$30,000.

W. D. Roy, of Louisville, Ky., is at the head of the Coral Ridge Clay Products Company, which will erect a large brick plant at South Park, a suburb of Louisville.

The British Columbia Transport Company, of New Westminster, B. C., has taken over the Pitt River brick plant, and will spend \$15,000 making improvements and additions to the plant.

The Clay Products Company has been organized by Thomas I. Walker and others of Lexington, Ky. Four hundred acres of land containing excellent clay deposits have been purchased and will be developed.

Robert and John Hartley of Phillipsburg, Pa., have purchased a brick plant in Cambria County, which will be operated under the firm name of The Hartley Brick Company. The plant will have a capacity of 40,000 red and white building brick per day.

Work has been started on the main building for the new brickmaking plant of the Valley City (N. D.) Brick and Tile Company, and the work will be rushed as rapidly as possible. The construction of the office and other buildings will be deferred until brick made by the company are available.

Estevan, Sask., Can., is to have another big industry in the Great West Brick and Coal Company, which has bought the Bastian property, south of the river. The company, which is capitalized at a quarter of a million, will manufacture pressed brick and other clay products, including tile and hollowware.

Warren Overpack president of the Marshalltown Sewer Pipe and Tile Company, recently purchased the large plant of the Pural Brick Company at Medicine Hat, Manitoba, for a consideration of about \$150,000. Mr. Overpack also has in contemplation the erection of an immense plant adjoining the Pural plant for the manufacture of fireproofing, hollow ware and roofing tile.

The Idaho Fire Brick Company has commenced excavating for its large plant. The fire clay, which has been tested in all parts of the United States and which is found on the Johanson farm four miles northeast of that town, is pronounced to be the best ever found and the company is prepared to do a large business. The company figures that it will be cheaper to haul clay to Troy rather than to manufacture it on the grounds where it is found.

The Fallston Fire Clay Company was sold to A. L. Umphrey, R. L. Wilson and T. P. Cuthbert, all of Pittsburgh. The Fallston Fire Clay Company was organized twenty-three years ago by ex-Judge Hice, his two sons, Richard and Agnew, T. L. Kennedy and G. F. Kennedy. T. L. Kennedy has been the president and Richard Hice the secretary since the organization of the company. About a year and a half ago the plant was almost entirely destroyed by fire but has been rebuilt. The plant has been used exclusively for the manufacture of high grade facing brick and radial chimney boxes. All the facing brick used in the Pittsburgh & Erie terminal at Pittsburgh was furnished by the company.

James B. Oberly, who for 24 years has owned and operated a brick yard at Third street and Cleveland avenue, Wilmington, Del., is fitting up a fine new plant at Thirty-sixth and Broome streets. He will, however, retain his present brick yard to supply the southern and western sections of the city. The new plant is to be one of the most modern and up-to-date in the country, with the latest and most improved machinery. It will have a capacity of 50,000 bricks a day, or 15,000,000 a year, though Mr. Oberly intends to put out only 42,000 bricks a day to begin with. Together with his present plant, which has an output of 5,000,000 bricks a year, Mr. Oberly will be able to produce 20,000,000 bricks a year. The plant will be equipped for making bricks in winter, as well as in summer, if it is necessary to supply them during the winter. The buildings and machinery represent

(Continued on page 696.)

EDITORIAL NOTES AND CLIPPINGS—Continued.

a cash investment of \$60,000. The buildings are all as nearly fireproof as they can be made.

John Veneklassen, Sr., of the Zeeland Brick Company, Zeeland, Mich., was married to Miss Jennie Steffen, Wednesday, November 29.

A new company has been organized at Bad Axe, Mich., to be known as the Bad Axe Brick and Tile Company. The capital stock of the company is given at \$10,000.

The plant of the Eagle Brick Company at Lock Haven, Pa., which has been closed for a number of years, has recently been started under the management of B. F. Fletcher.

M. McCutcheon, of Elmira, and J. W. Wagers and E. Peltier, of Eugene, Ore., are interested in the organization of a company to engage in the manufacture of brick at Elmira, Ore.

The new plant of the Central Clay Products Company, of North Tonawanda, N. Y., located at Beach Ridge, was started up the first of December. The plant is complete throughout and has a daily capacity of 50,000 brick.

The organization of the Lynchburg Brick Company, of Lynchburg, Va., has been completed by the election of H. E. Dewitt, president; C. S. Hutter, vice-president, and W. O. Taylor, secretary and treasurer. The company is capitalized at \$60,000.

J. H. McGowan, manager of the Chandler (Ariz.) Brick Company, announces that the capacity of the plant will be doubled at once. The plant has only been in operation about six months, but the town of Chandler is developing so rapidly that the company cannot keep up with its orders.

The plant of the Wyoming Valley Brick Company at Bresler, Pa., has been sold to Mathias Stipp, of Scranton, Pa., for \$15,000. The plant has been idle for some time and it is the intention of Mr. Stipp to resume operations immediately. The plant has a capacity of 30,000 bricks per day. Employment will be given to fifty hands.

C. W. Kempton and others of Portland, Oregon, have plans under way for the erection of a large clayworking plant near Dallas, Ore., on which they expect to spend something like \$100,000. While brick will be the chief product at the start, tests have shown that the shale is admirably adapted to the manufacture of sewer pipe and it is expected that this product will be turned out later on.

The New Castle Pottery plant, located just south of the Shenango pottery plant, New Castle, Pa., will be fully equipped and placed in operation. The New Castle plant was purchased some time ago by the Shenango Pottery Company. Eighty thousand dollars will be spent in placing the New Castle plant in first-class shape for operation. James M. Smith has assumed the management of the Shenango pottery plant.

Thomas W. Green has been elected manager of the Clay Products Company, Sioux City, O. He has resigned as assistant manager of the Sioux City Brick and Tile Company and has sold his stock in that company to his father, Thomas Green, president and manager of the company, and to his brother, C. F. Green, vice president of the company, who will fill the position of assistant manager. Mr. Green's connection with the Clay Products Company follows the resignation of G. N. Fairchild as president and manager of that concern. L. W. Mallory has been elected president of the Clay Products Company. Mr. Fairchild still retains 25 per cent.

of the stock in the company, but retires from active connection with the company's management.

A loss of \$1,200 was sustained at the plant of the Peerless Brick Company at Lebanon, Pa., recently by fire which started in the kiln sheds.

Alwine Brothers, brick manufacturers of New Oxford, Pa., have turned out thus far this season at the plant at Berlin Junction over 8,000,000 building brick for all of which they have had a steady demand.

Oscar Grose, of Verdigris, Neb., has purchased the controlling interest in the Sioux Falls Pressed Brick Company, at Sioux Falls, Iowa, and will install machinery for the manufacture of cement brick in addition to the burned clay brick.

A wall of one of the kilns at the plant of the Texarkana (Texas) Brick Company collapsed and seriously injured two workmen—A. L. Wilburn and Jack Harris. The latter's nose was broken and he also sustained painful scalp wounds and bruises on the body. Wilburn was badly bruised on the head and his right leg slightly fractured.

The city officials of Champaign, Ill., paid an official visit recently to the plant of the Clinton Paving Brick Company, at Clinton, Ind., and were guests at a dinner given by Manager J. W. Robb. In the party were Mayor William Caughlin, Aldermen George B. Franks, C. D. Brownwell, C. M. Eagleton and H. A. Glasscock; City Engineer S. Siset and T. C. Sohman, assistant city engineer.

To celebrate the closing fire of the Pomona (N. C.) Brick Company's season, a banquet was served to the employees and a large number of business men. Chicken and possum were served on rough boards and boxes about the kiln. The entire banquet was prepared over the fires of the kiln, which contained 480,000 brick, receiving the fire of the last shift of the season. H. H. Hanson, a prominent business man of Pomona, presided over the festivities. Several addresses were made.

The annual meeting of the stockholders of the Harbison-Walker Refractories Company will be held at the company's general offices in Pittsburgh, Pa., on January 20th, 1913. In accordance with its previous custom, the company has mailed stockholders a copy of the annual report for the fiscal year ended September 30, 1912. The earnings for this period, after deducting \$281,672 expenditures for all ordinary repairs and maintenance, which covers depreciation of plants, were \$1,395,933. Extraordinary expenditures for repairs, improvements, depreciation of mining outfits, and for depletion of clay, coal and ganister-properties amounted to \$74,243, leaving net profits for the year of \$1,321,690.

The Hocking Valley Products Company, Columbus, O., is completing the erection of ten brick residences for employees at Greendale, the seat of its operations in Hocking county. These were designed as model homes to demonstrate in a practical way the construction possibilities and effects with the Hocking Products Company's brick. All of the residences are being constructed along different lines and of a different class of bricks. They will be sold to the employees on a rental basis. The residence construction of the company is part of the plans evolved by President D. P. Reagan some time ago for making Greendale attractive to employees. The plans contemplate an auditorium or theater and gymnasium. President Reagan reports that the business of the company is showing steady gains and predicts that the coming year will bring continued activity. The brick plants of the company are being operated at near capacity and the output is now being sold throughout the United States, Canada and Mexico.

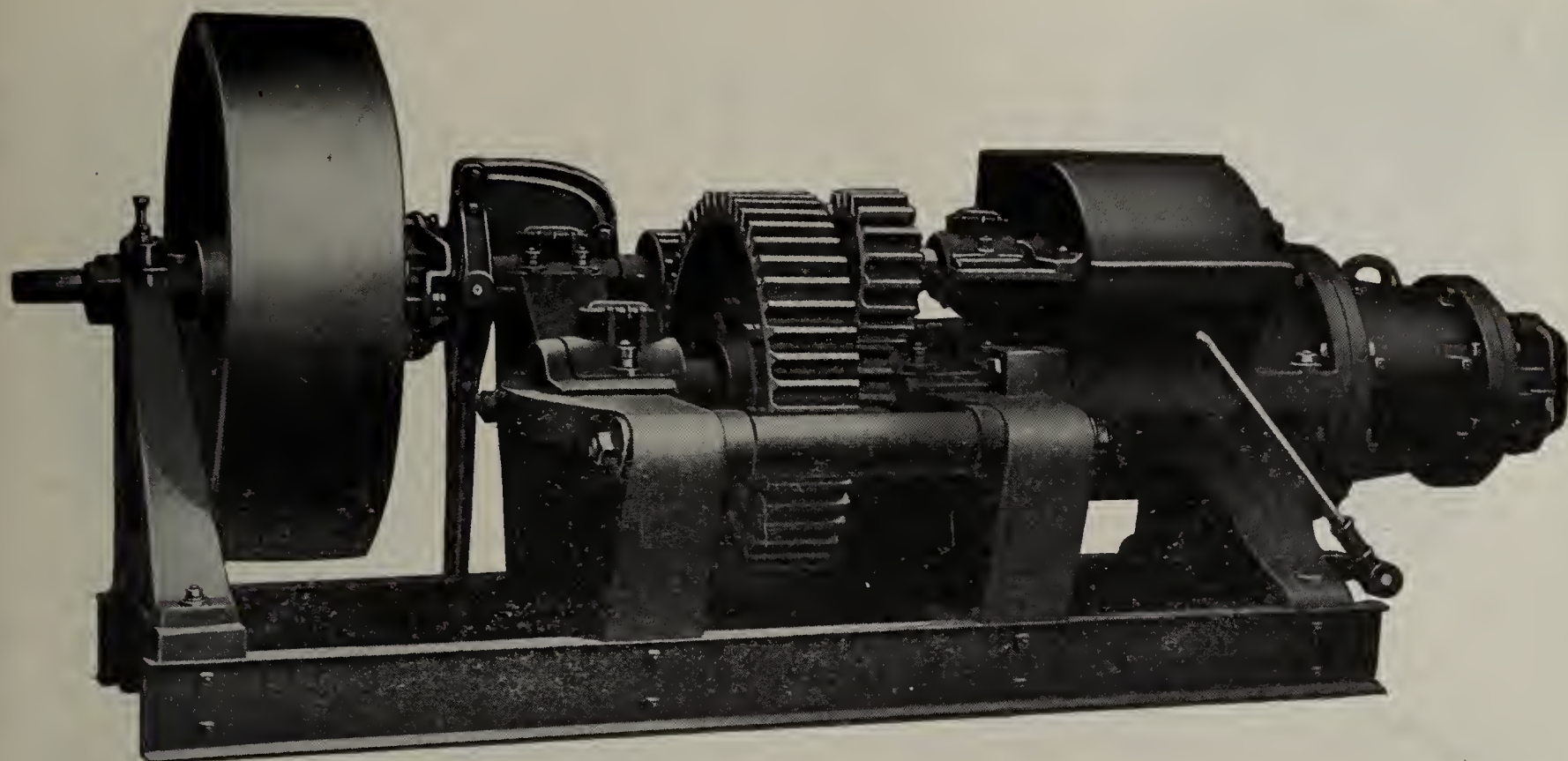
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Model "GA" Auger Brick Machine

In general design, this machine is similar to our "Mammoth Jr." Brick Machine, but is direct instead of counter geared, thus simplifying the construction and avoiding the use of high speed gears. The result is less wear and tear on gearing, less noise, less power lost through gear friction and consequently less expense for maintenance. Owing to the slow speed, the operation is unusually smooth and quiet. There is very little vibration to work loose nuts and keys. It is a reasonable conclusion that an almost noiseless machine will require less care and last longer than one which is continually shaking itself to pieces.

The machine is self-contained, being mounted on channel steel sills, between which are heavy iron members extended down to the foundation level and drilled for the foundation bolts, thus providing a very rigid construction. The journal boxes and other parts are designed for most convenient access, and all are of very substantial proportions.

This type of machine is built in several sizes—further particulars on request.

E. M. FREESE & COMPANY, Galion, Ohio

Written for THE CLAY-WORKER.

BRICK NEWS FROM NORTHWESTERN OHIO.



HAT HAS BEEN one of the best seasons Toledo has ever known is drawing to a close. All the brick yards here except three have closed for the season. These will probably continue running until severe weather sets in. The season has been an unusually active one and the demand has been much greater than the supply. Toledo brick men could have sold many more brick if they could have been manufactured. Bricklayers and teams, however, have been very scarce and local contractors have been greatly delayed by the consequent scarcity in brick supplies. One local brick manufacturer recently ordered 500,000 brick from Fremont to take care of the demands of his trade. Brick making has ceased at the city workhouse for the season with 500,000 brick on hand, most of which have been contracted for. It is estimated that there are about 15,000,000 brick in stock in Toledo and the yards are now busy laying up stock. The heavy demand of the earlier part of the season has lightened considerably, especially in the last two weeks, both in and out of the city. There are plenty of men available now and unless severe weather sets in suddenly the yards will be in normal condition for the winter season relative to the stocks on hand.

The paving brick business is good, although some of the dealers express a little disappointment in the number of brick contracts from small cities in this section now doing paving. Considerable brick has been used this season in country road improvements. Very few of the state roads built in Ohio this season have been of the old style gravel construction, most of the highways constructed this season being of water bound macadam, concrete or brick, a heavy percentage being of the brick construction. More than thirty-five miles of brick country roads have been laid in Ohio this summer and new contracts are being awarded right along. A. R. Kuhlman, manager of the Ohio Brick Company, of Toledo, is responsible for the statement that nothing but No. 2 brick should be used for country road building, as it is the best possible material that can be secured.

"A brick road," said Mr. Kuhlman, "will last for fifty years without repairs, standing the heavy hauling better than any other material. Stone roads have to be repaired every two years, making an enormous total in the course of a little time. There are brick pavements in Toledo which have been down for nearly a quarter of a century and which are still in good shape."

Prices on both building and paving brick are normal.

The traffic situation here is somewhat relieved so far as brick dealers are concerned and the car shortage is less noticeable. While congestion is still keenly felt by coal and grain dealers, brick men are having little difficulty in securing cars and shipments in a reasonable time. Almost the entire traffic difficulties in Toledo are directly traceable to the condition at Detroit, where there is such a shortage of yard space that cars cannot be taken care of by the northern roads and are in consequence stacked up in the Toledo yards, creating a congestion here. At times last season when the congestion generally was extremely bad there were nearly 1,000 cars tied up in the Toledo yards through the inability of northern roads to take care of the cars. The situation is close this season, but unless the weather should become very severe it is hoped that there will be no repetition of the bad condition of last year. Detroit has provided some more yard space this season and northern railroads have added to their equipment aiding some in the situation. Brick men have not been handicapped to any great extent this season, although subjected to some incon-

venience owing to the inability to secure prompt shipments.

The city of Norwalk, O., has declared all popular trees a nuisance and ordered their removal, the claim being made that it is practically impossible to keep the sewers clear of the enormous roots of the trees. Many instances have recently been found where it was necessary to take up many rods of sewer pipe in order to clear the lines of these cumbersome roots. Director Carpenter declared that his men have found roots twenty-five feet long in sewers that were dug up and cleaned. All poplar trees in the city have been ordered cut down.

A new six-apartment terrace is being built opposite the new East Side high school by Contractor Joseph Kesting. The building will be of pressed brick and is estimated to cost \$17,000.

The S. A. Weller Pottery No. 2 was almost totally destroyed at Zanesville recently. The loss was \$65,000 and was covered by insurance. Fire Chief Lanner was struck by falling brick and sustained a broken rib during the fire. The low water pressure greatly handicapped the firemen in their work.

The Kent-Turner Mantle and Tile Company, now located on Jefferson avenue, will soon move into more commodious quarters in the new Fifty Associates building, 224-226 Erie street. The new quarters have been leased and the building will soon be ready for occupancy.

The Toledo Builders' Supply Company in the Spitzer building, has taken on another room and partitions are now being removed to make provision for a fine large brick display room. This room will be 30x40 feet when completed and will be used for the purpose of exhibiting the various kinds of brick manufactured and handled by the concern.

Work has been started on a new \$350,000 bottle manufacturing plant to be erected in Toledo by the Toledo Glass Company, across the City Boulevard from Central Grove park. The main building, which will be 460 feet long and 100 feet wide, will be of brick construction with tile roof and will be entirely fire proof. By a peculiar arrangement of the roof overhead ventilation will carry away all excessive furnace heat. A factory track to cost \$14,000 is being built. It is expected to have the plant completed within six months.

A modern brick business building is being erected on Huron street by the E. H. Close Company. It will have a frontage of 30 feet on Huron street and a depth of 120 feet. Old buildings are now being razed from the site to make way for the new structure.

Beside a state normal school, Bowling Green, O., is to have a new high school and a new postoffice building. Bids for the construction work on the high school will be received within a few days and bids on the new postoffice structure will be received about the first of January. This means construction work for Bowling Green next summer amounting to about \$300,000.

C. Stolzenbach, director in the American Encaustic Tiling Company, died recently at his home in Zanesville. He was afflicted with inflammation of the liver. The deceased was aged 76 years and besides the position held with the Tiling Company was president of the Zanesville First National bank, vice-president of the National Biscuit Company, of New York, and a director in many other concerns. Although a millionaire at the time of his death, Mr. Stolzenbach was a peddler, carrying a pack on his back when he first arrived at Zanesville fifty years ago.

L. C. Wallick and A. L. Wallick, of Toledo, lessees of the Secor hotel and the Cadillac Hotel Company, of New York City, have arranged for the leasing of a \$1,000,000 hotel to be erected at Columbus, O., at the corner of Broad and High streets. The tentative plans for the building have been made and actual work will be started very soon. The building will contain 500 rooms. Plans are being drawn by Chicago architects. The new hostelry will be known as the Hotel Deshler.

A new \$100,000 elementary grade school is to be erected at Portsmouth, O. The material used in construction will be brick. The architect is Albert Pretzinger, of Dayton, O.

T. O. D.



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Written for THE CLAY-WORKER.

BRICK NEWS FROM DIXIE LAND.



GOOD DEAL of construction work will be done in Memphis this winter. Brick manufacturers and agencies give reports of activity. Several jobs here will utilize terra cotta and tile work will figure in many.

A new county jail will be erected at Memphis. The contract for plans has been let to Architects Jones and Furbringer. Their preliminary estimate places the probable cost, including the ground, at about \$325,000. The building committee on the part of the county court is composed of Justices F. M. Guthrie, J. A. Heard and Luther Jones.

The South Paris China and Pottery Company of Paris, Tenn., has had plans made for buildings to be erected in that town. About fifty cottages will be built to house the potters.

Tom Armstrong, of Parsons, Tenn., has established a tile and brick plant at that point. He formerly lived at Decaturville.

The directors of the Rapid City Brick and Tile Company, of Trezwell, Tenn., recently met at Nashville and elected officers as follows: A. S. Warren, Jr., president, Nashville; Capt. W. J. Jackson, Nashville, vice-president; W. M. Shipman, general manager and secretary, Trezwell; Pitt Henslee, treasurer, Dickson, Tenn. The authorized capital of the company is \$30,000.

The Winslow Lumber Company, of Lexington, Tenn., has taken up the handling of brick in connection with their lumber business.

Walter Hale, of Altoona, Ala., has let the contract for the erection of a brick building to cost between \$3,000 and \$4,000.

In the supreme court holding at Knoxville, a few days ago, Judge Grafton Green handed down a decision on a new point of law. The case was styled the South Knoxville Brick Company vs. the Empire State Surety Company. The brick company had taken out a policy in the Empire Surety Company to protect it from damages as a result of accidents to its employes. An employe was injured and the company was so notified, but it held that it was not liable under the policy. A suit was brought against the brick company which it fought and won, carrying it to the supreme court. The brick company then asked that the surety company reimburse it for the expense of defending the suit, which was refused. The brick company then sued to recover the amount and today the court held that it was liable for the amount of costs in fighting the suit and written opinion given.

The contract has been let at Memphis by Architects Jones and Furbringer to E. J. Pearson for the construction of six stores at the southeast corner of Cooper street and Central avenue. The building will cost about \$15,000. White enameled brick will be used with stone trimmings. All floors will be of tile. The contract calls for their completion by Jan. 1, 1912.

Col. Thos. S. Hutchison, of Nashville, Tenn., a contractor of prominence in that city, and who was elector for the State at large on the Roosevelt-Johnson ticket recently, has gone to Greece, taking passage a few days ago on the steamship Laura of the Austro-American line, with a view to enlisting in the Greek army.

A 200-room annex for the Hermitage hotel at Nashville, Tenn., is contemplated. This will cost about \$200,000. Robt. R. Meyer, president of the Meyer Hotel Co., is now looking after the interests of the hotel. The plans for the annex have been drawn by Architect J. E. R. Carpenter. Mr. Carpenter is a New York architect and is the man who designed the hotel.

Ward's Seminary, at Nashville, Tenn., will erect several new buildings. Host and Gardner, of Nashville, Tenn., in conjunction with John Kevan Peebles, of Norfolk, Va., are drawing the plans. The buildings will cost about \$500,000. Between now and Sept. 1, 1913, it is contemplated to erect ten buildings.

The contract has been let at Memphis for the eight-story

Chisca hotel that will be built after plans by Architects Hancker and Cairns, of Memphis, and will contain more than 400 sleeping rooms, being larger than either the Peabody or Gayosa, the other two leading hotels of Memphis. The building will have a frontage of 150 feet on Main street. The contract time for the completion of the building is August 1, 1913. The contract has been let to the C. B. Barker Construction Company, of Memphis. Red brick with gray terra cotta trimmings will be used in the exterior finish. Six store rooms will be placed on the first floor at Main street. The hotel lobby will be seventy-four by one hundred and seven. The main floor will be finished in oak and marble and the style of decoration in the lobby will be Pompeian. The grill room will have an early English effect and the cafe will possess Italian decorations. The floors will be of marble and tile. Four elevators will be installed.

Work is going forward from day to day in Memphis on the fifteen-story addition to the Bank of Commerce and Trust building on Main street, a duplicate of the original building in general outline. The cost will be \$480,000. Gray hydraulic pressed brick are being used on a steel frame work together with terra cotta trimmings.

The Wm. R. Moore building recently finished here is a handsome business house of red brick on a re-inforced concrete frame. Shaw & Pfeil were the architects. Murch Bros. were the contractors. This is one of the largest wholesale dry goods houses in the south.

The contract for the Manual Training School, the first of the new buildings to be erected by the George Peabody College for Teachers, at Nashville, Tenn., has been let to the Hedden Construction Company, of New York.

Work is beginning on the new Illinois Central station at Memphis. It will be six stories high of brick construction. The entire cost for building, elevations and rights of way will probably amount to \$3,000,000. A. S. Baldwin is the chief engineer and D. J. Brumley is the engineer of construction.

A Chattanooga special edition referring to the clays of that section says: "The clays of the Chattanooga district are extremely valuable, and are located near lines of railroad entering this city. Many large Chattanooga concerns are engaged in the manufacture of sewer pipe, fire and face brick, hollow tile, etc. The Chattanooga Bottle and Glass Company has demonstrated the value of the glass sands of the section in its successful production of all glass bottles. Other minerals found in the district and utilized for manufacturing purposes are limestone, cement rock, lava used in the manufacture of acetylene gas tips, talc for crayons and slate pencils, ochre for paints, bauxite, copper, zinc, etc. For years Chattanooga has been the home of sewer clay pipe and roofing tile. The largest sewer pipe plant in the south is located here, turning out annually miles and miles of small and large drainage tiles. Brick kilns are numerous and both common building blocks and the finer face brick are produced. Only recently has there been a plant established for the making of fine face brick from shale, the plant being situated on the edge of the city, right at the shale bed. Hollow ware of all sorts is manufactured in the clayworking plants of Chattanooga. Flower pots, turpentine cups, urns and many other small and useful articles are among the products. A large percentage of the turpentine cups used in North and South Carolina are made in Chattanooga. The sands of this section have been found to be peculiarly adaptable for the manufacture of glass and there is a large plant in Chattanooga, which makes all sorts of glass bottles."

Thos. Jenkins & Co., contractors, Madison avenue, Memphis, are doing the terra cotta and stone work on a flat building for I. Samselson and on a similar building for Ed Boyle and Lawson Treadwell.

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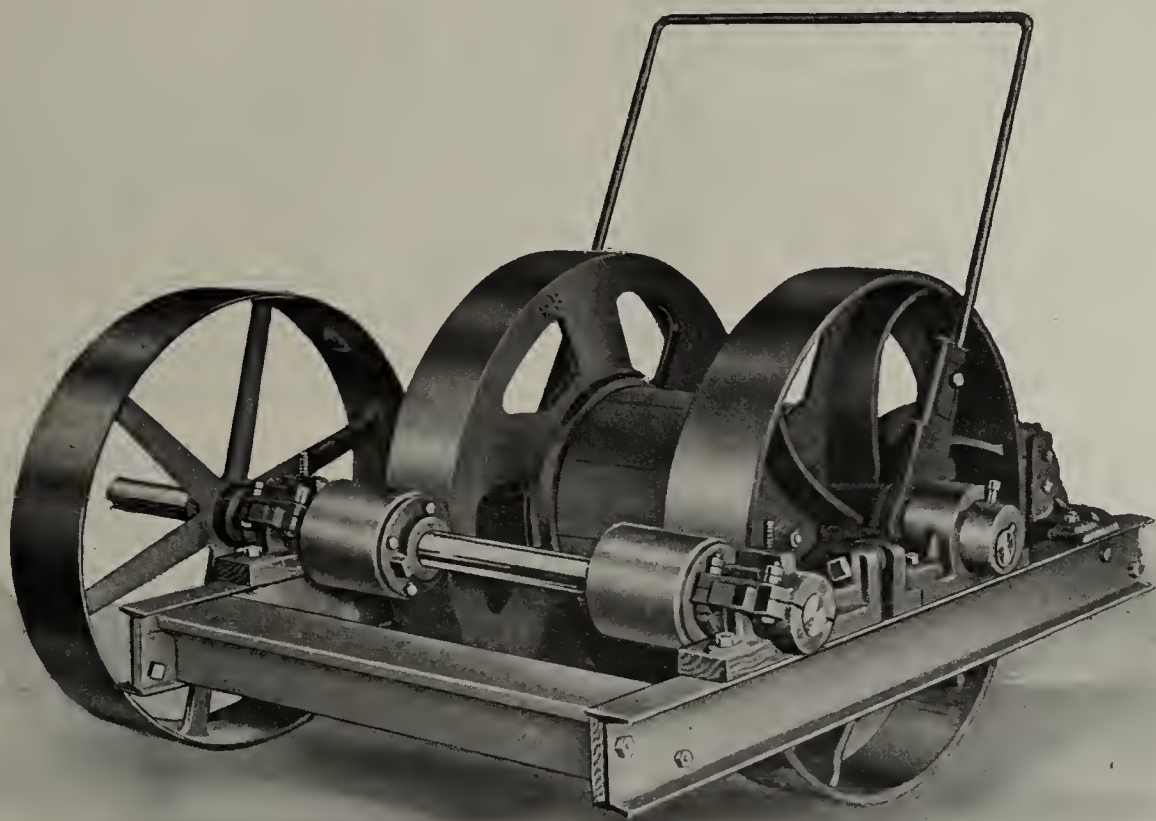
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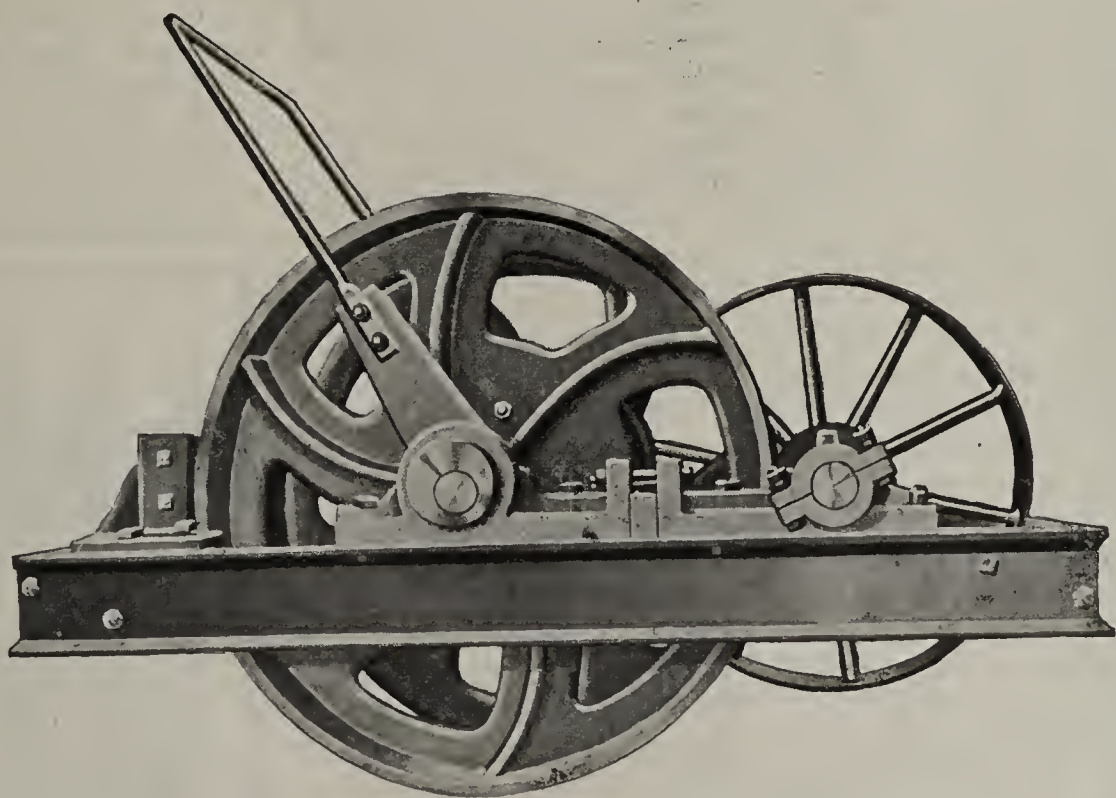
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Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



THE PAST MONTH in the clay products industry on the coast has been very satisfactory considering the lateness of the season and the rains which have necessarily prevented much new building of importance. The fall season has averaged considerably better than a year ago and the outlook for the coming year is especially hopeful. While prices have not been as high as they should be, the present situation in the industry is quite stable and has a tendency to improve. The market this year for high grade pressed brick has been very strong in the south, and in that section the factories have had difficulty in supplying the demand. The producing capacity, however, of the southern plants is being steadily increased as the building requirements arise, so in the future there will be plenty of stock available. Common brick is selling at \$7.50 per thousand as usual in the San Francisco market, and there is on hand enough stock for the winter at least.

Some plants will operate much of the time during the winter, but as many yards depend on sun-drying and have not the facilities for storing dried brick, they will close down as usual for two or three months during the rainy season. The number of concerns using artificial drying methods is steadily on the increase. The terra cotta market is fairly strong still, and most plants are operating continually, though not full capacity at present. The sewer pipe plants are having a normal business for this time of the year and they keep pretty well cleaned out of stock. The vitrified clay pipe situation looks better than ever on the coast and the manufacturers are more than satisfied with the results obtained by the educational campaign being carried on by the publicity men.

The California Pottery Company has a good four or five months' business ahead before the April trade starts, announces the company, and they expect to operate their plant in East Oakland continuously all winter. Their business is especially good in sewer pipe, as they are supplying vitrified clay pipe for the sanitary systems being installed at Havenscourt, a new suburban tract being opened across the bay, and for other systems at Richmond, Cal., Fitchburg and other places. The company is now operating their new kiln for terra cotta flue linings and patent chimneys.

S. W. Smith, treasurer and manager of the United Materials Company, has been laid up for a month with rheumatism and has just returned from taking the baths at Byron Hot Springs.

The Pringle Dunn Company, Gorrill Bros. and Carl Ehrnhart, local contractors, have all been awarded large sewer contracts in connection with the Harbor View site of the Panama-Pacific Exposition.

C. Hidecker, manager of the Ione Fire Brick Company, states that the trade in his line is steady and that his company will run their manufacturing plant all winter, a big stock of sun dried brick having been stored up for burning during the rainy season.

Mayor Stitt Wilson, of Berkeley, Cal., is urging immediate action on the part of the citizens to provide for much-needed sewer improvements in the city. A sewer bond election will probably be held in the near future.

The Atlas Paving Brick Company, at the foot of Thirty-second avenue, San Francisco, is operating now with a capacity of 150,000 paving brick daily by reason of a large, new kiln just completed. This concern furnished all the paving brick used by the United Railroads Company, the local street car company, in paving between the tracks. The com-

pany has a paid-up capital of \$250,000. L. A. Steiger is the president, and George Little, superintendent of the plant.

The Port Costa Brick Company has planned to install soft mud machinery in their plant this winter.

T. H. Collins, chief engineer for the Denny-Renton Clay and Coal Company, of Seattle, has had a section of Powell street in this city paved with the vitrified paving brick manufactured by his concern in order to demonstrate the qualities of this material for paving. The pavement has been most favorably commented upon by local parties interested in public improvements, but whether the down-town streets will be paved with brick eventually is, of course, not to be known at present.

The Simons Brick Company, of Los Angeles, by reason of the big demand in southern California for brick, has installed new machinery which will increase their daily output to 360,000.

Brick which were brought around Cape Horn sixty years ago and used in the walls surrounding the old grammar school at B and Seventh streets, Marysville, Cal., have just been used again in new buildings built on D street by I. C. Evans. The brick have been pronounced to be in perfect condition by experts, and suitable for the highest grade construction work.

F. B. Tillotson, superintendent of the West Side Brick Company at Pentland Junction, reports that he has had a very busy season on account of the growing demand for brick in the oil fields.

A new dry house, 110 by 180 feet and four stories in height, is to be erected by the F. J. Hiatt Brick and Tile Company on California street, between Juniper and Laurel, at San Diego. The company is also installing much new machinery and making other improvements in connection with the plant. Hollow building tile is one of the best products of the concern, but shortly they will be in a position to supply the San Diego market with different varieties of pressed brick. New clay deposits are being opened up in San Diego county to supply the enlarged plant with raw materials. The improvements will mean that the capacity of production will be increased several times that at present.

The Baker Construction Company, of Denver, Colo., has been awarded a contract for supplying and laying about 20,000,000 brick for use of the United Verde Company in the construction of its smelter at Douglas, Ariz.

The Manville Bros. brick yard at Silver City, N. M., made 250,000 brick this year.

O. A. Krebbs and E. C. Krebbs, of Sherwood, Ore., have had some clay they found in this vicinity tested in Portland and the test showed that the clay was adapted for brick, tile and pottery. They are planning to start a manufacturing plant in the spring.

SUNSET.

San Francisco, Dec. 5.



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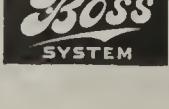
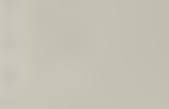
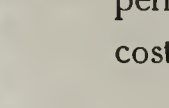
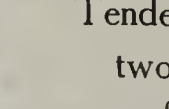
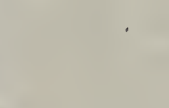
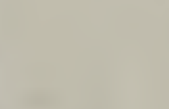
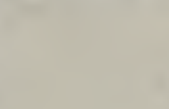
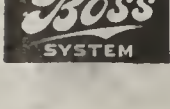
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DRYING AND BURNING

A Common Sense Application.

The Boss Ten Hour Dryer.

Tender clays ruined even in seventy-two hours the old way dried with perfect ease in ten hours. Drying cost less than 5c. per thousand.

The Boss System of Burning Brick

Burn your brick with FORCED DRAFT. Save half of your fuel bill. Applies to kilns already built without any alterations.

For further particulars write to

John C. Boss Company, ELKHART, INDIANA

Originators of the principle of drying and burning brick with air under pressure.



Classified Advertisements

FOR SALE, WANTED, ETC.

Advertising rates in this column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

FOR SALE

FOR SALE.

About 18,000 first-class brick pallets.
J. C. RILEY,
12 3 dm Bloomington, Ill.

FOR SALE.

Steel pallets for sale; 9½x32, for pipe rack dryer; used making about one million brick; 3,000; price 7 cents each. QUEENS COUNTY BRICK MFG. CO.,
12 1 d Farmingdale, L. I., N. Y.

FOR SALE.

Eight thousand wooden pallets, size 10½x32 inches; also racks. In good condition and will sell at a reasonable price. ALBERT NEUERBURG,
4401 E. Tenth St., Indianapolis, Ind.
12 3 d

FOR SALE.

Two four-mold Boyd dry presses, one equipped for Roman brick, excellent condition. Price twelve to fifteen hundred dollars. TUNA VALLEY PRESSED BRICK CO.
Bradford, Pa.
12 tf d

FOR SALE—Lease, factory building, machinery, mining equipment of The Cawn Mining Co., near Canton, O. Splendid clay and shale for building or paving brick; right in the heart of big brick producing locality of Ohio. Vein of coal for steam and fuel purposes. Our own products highly profitable. Let me write you about them. F. O. HAMILTON, Receiver,
12 1 d Canton, O.

FOR SALE.

Owners Have Decided to Retire. And will sell their brick plant to be removed from present location. Factory complete, run all season and in good condition. Consists of two boilers, one 125 h. p. and one 50 h. p. Two engines 85 and 18 h. p. Fan for burning brick, nine-foot Frost dry pan, dirt conveyor, pug mill, Raymond stiff mud machine, new. Rotary cutting table, new and 10-foot off-bearing belt. Write for prices. Address,
BRADLEY,
12 tf d Care Clay-Worker.

FOR SALE AT A BARGAIN.

Brick machine, pug mill, car, friction, shafting, kiln doors, grates, racks and pallets for ninety thousand brick. Going out of business.

SANBORN BRICK & ICE CO.,
12 2 c Portage, Wis.

FOR SALE.

One Martin letter "A" machine and pug mill, Martin cable brick delivery system. Practically new.

GEO. W. SCHMIDT,
11 3 d 180 Linwood Ave., Buffalo, N.Y.

FOR SALE.

Excellent Brick Clay Land For Sale—Forty acres, at Riverdale, Illinois; Belt railroad and street frontage; depot 1½ miles; 35 minutes service to Chicago; price reasonable. Address,
A. C. REICH,
Riverdale, Chicago, Illinois.

FOR SALE.

A solid bed of purest yellow clay, varied depth of from ten to twenty feet, covering area of about 20 acres. If interested address
EMAUS LAND IMPROVEMENT CO.,
11 3 cm Emaus, Pa.

For Sale—Good as New.

Complete Brick and Tile Plant
Freight 50 cts. per ton to Cincinnati and Columbus, Ohio. Side track paid for. Location, Blanchester, Ohio. Non-resident owners will sell at a decided bargain. For particulars address
W. E. Harkness,
Care of The Bindley Grocery Co.
Marion, Ohio.

FOR SALE.

A fine tract of clay land twenty-eight miles from Birmingham, Ala., on the Central of Georgia railroad. There are two small pottery kilns on the premises which include 240 acres. The clay is of exceptional fine quality and makes the best grade of stoneware. Will sell outright or take stock in up-to-date pottery. I am a practical potter myself, but lack capital to push the business as it needs. A fine opportunity to establish a prosperous business that will continue to grow in the years to come. For further particulars, address,
F. A. BRUNER,
12 1 d Sterritt, Ala.

BRICK MACHINERY FOR SALE.

190-ft. section Jeffery No. 110 chain pan conveyor; Penfield No. 20-A plunger brick machine; Raymond "Columbia" double mould steam repress; 6 Carnell hand represses; portable track; 100 light Colt's acetylene gas machine; 2 80-h. p. boilers; pulleys, shafting, etc. POWHATAN CLAY MFG. CO.,
11 3 dm Richmond, Va.

British Columbia, Can.

FOR SALE.

THE ONLY STIFF MUD SHALE BRICK COMPANY IN BRITISH COLUMBIA, MANUFACTURERS OF IMPERVIOUS ROUGH FACE BRICK, PAVING BRICK, SEWER BRICK, ETC; REQUIRES ADDITIONAL CAPITAL FOR IMPROVEMENTS, INCLUDING DOWN DRAFT AND CONTINUOUS KILNS, ETC.

WILL CONSIDER SALE OF FIRST MORTGAGE BONDS, ADDITIONAL SHARES, OR MIGHT CONSIDER SALE OF CONTROLLING INTEREST TO PRACTICAL PAVING BRICK MEN, TO SECURE SAME.

SALE PRICE OF PRODUCTS DELIVERED, VANCOUVER, BRITISH COLUMBIA:

COMMON BRICK... \$10.50 per M
SEWER BRICK..... 17.50 per M
PAVING BRICK..... 30.00 per M
FACE BRICK.\$25.00 to 45.00 per M

SIZE OF BRICK: 8¾x4x2¾ INCHES.

PLANT WELL EQUIPPED WITH RAYMOND DRY PANS, STIFF MUD MACHINE (50 M PER DAY), ETC., ETC. POWER PLANT, 250 H. P. TUNNEL DRYER, RECTANGULAR DOWN DRAFT KILN, OIL-BURNING EQUIPMENT, ETC. CAPACITY WITH PROPOSED ENLARGEMENTS, ONE MILLION BRICK PER MONTH.

SUPPLY OF RAW MATERIAL UNLIMITED; OUTCROP OF SHALE EXPOSED, 3,500 FEET; VERY SMALL OVERBURDEN. PLANT ON TIDE-WATER. WATER TRANSPORTATION TO ALL MARKETS. DISTANCE FROM PRINCIPAL MARKETS, 40 MILES BY WATER.

FURTHER PARTICULARS FROM

RAYMOND N. BOND,
417 ROGERS BUILDING,
VANCOUVER, B. C., CAN.

Classified Advertisements—Continued.

WANTED—STEAM SHOVEL.

Thew O preferred. Must be in good condition. Address,

ROGER MOORE'S SONS & CO.,
12 3 d Wilmington, N. C.

FOR SALE.

Soft mud brick plant; daily capacity 40,000; good proposition at a bargain. Worth investigating For particulars, address, A. P. COOLIDGE,
10 3 cm Helena, Ark.

FOR SALE—Mathews Gravity Carrier, complete, twenty-seven sections with standards for same, three ninety-degree curves and one ten-foot elevator. Address,
ROCHESTER GERMAN BRICK AND
11 1 c TILE CO., Rochester, N. Y.

FOR SALE.

Entire right in patent pug mill and stone separator, a long sought and much needed machine. Very simple and practical. Takes clay direct from bank, wet or dry. A rare opportunity to get much for little.

C. W. KILBORN,
12 1 c Bridgeton, N. J.

FOR SALE—One right hand C. & G. Cooper girder frame Corliss engine, cylinder 10½-inch bore by 30-inch stroke, 100 R. P. M., developing 75 horse power at 90 pounds steam pressure; 8 foot fly wheel with 15-inch face. Removed to replace with greater capacity. Low price for quick sale.

STATE JOURNAL COMPANY,
10 4 cm Lincoln, Neb.

RACKS AND PALLETS FOR SALE.

Complete for drying 500 M brick, all hardwood runways, railroad switch adjoining. Could be loaded at minimum cost. Will be through using them in very short time. A splendid opportunity for any one who wants to be prepared for the heavy demand next spring. Apply

COLLINGWOOD BRICK CO.
11 2 d Toledo, Ohio.

FOR SALE.

1—C. W. Raymond Co., 8-ft. single geared pugger.

1—C. W. Raymond Co., Daytonia No. 2 Auger Brick Machine with hand cutter.

1—C. W. Raymond Co., Cyclone No. 20 Disintegrator.

1—W. P. Grath hand power Repress. Some extra belts, pulleys, shafting, etc.

A. C. GORDON,
11 3 C Box 75, Weiser, Idaho.

FOR SALE.

1—J. D. Fate Imperial machine, complete with down delivery attachment.

E. M. Freese "GA" brick machine.
American combination brick machine.

Madden No. 5, 5-B, 5-C and 6-D machines.

24x24-inch and 16x16-inch smooth roll crushers.

Bensing automatic side and end cut tables.

13x18 Atlas H. D. engine.

All in first-class condition.

ARBUCKLE & COMPANY,
12 tf L Rushville, Ind.

FOR SALE.

We offer for sale, cheap, the following parts of Standard dryer cars, made by the American Clay Machinery Co.:

50 complete cast iron lower decks in sections.

About 600 of each, right and left end posts with cross bars, complete, to fit any standard car of the above make.

About 300 middle posts with cross bars.

About 200 wood top decks, in one piece.

BACH BRICK CO.,
2647 Montrose Ave., Chicago, Ill
11 2 d

SPLENDID INVESTMENT — FOR SALE.

Brick plant in best province of Western Canada in operation twelve months. Center of population. One hundred acres of land—inexhaustible supply of finest shale in province. Excellent terra cotta and hollow tile proposition. At present solely making facing brick. Two four-mold Berg's latest model dry presses. Nine temporary up-draft kilns, capacity each 115,000. Natural gas, ample water, railway. Impossible to supply demand of market.

Will entertain sale outright or subscription for stock. Write quickly.

P. O. BOX 1678,
12 1 C Calgary, Alta., Can.

FOR SALE—BRICK AND TILE PLANT.

We offer for sale twenty-nine acres of land located on the river bank in Minneapolis, and a ten-compartment gas producer, "Youngren" kiln, with complete steam dryers and machinery for "soft mud" or "wire cut" brick and tile. The land contains clay enough to last for twenty years. Limitless market for products in Twin Cities. Property owned by men engaged in other lines of business. The practical stock-

holder having recently died, property can be purchased on most favorable terms, or will exchange for property that will require no personal supervision. Everything in running order, and brick can be made the year around. Direct all communications to Chas. M. Way, care Minneapolis Bedding Company, Minneapolis, Minnesota.

12 2 dm

ARCH. TERRA COTTA WORKS.

2 kilns, machinery, large brick mill, siding.

A. W. DRESSER,
11 3 cm Burlington, N. J.

FOR SALE.

1—12 ft. Raymond pug mill.

2—Double die Victor represses.

All in first-class condition. Cheap.

FT. SCOTT BRICK & TILE CO.,
9 3 d Fort Scott, Kas.

FOR SALE.

1—E. M. Freese "GA" Brick Machine, with new tile and brick dies.

1—Kells Tile and Brick Machine, dies 3 to 10 in., Hollow Block and Side Cut Brick Dies. Hand cut-off table for tile and brick.

1—Madden No. 5 Tile and Brick Machine.

1—Madden No. 5-C Tile and Brick Machine. ARBUCKLE & CO.,
11 tf L Rushville, Ind.

FOR SALE—Forty thousand dollar brick plant, with equipment complete. Inexhaustible supply of finest shale. Unlimited supply of natural gas. Three foot vein of coal. Capacity, sixty thousand brick per day. Fifteen kilns, thirty-two tunnel gas dryers, machinery buildings, brick engine and boiler houses, two-story brick store building and company houses. Price, terms, blue prints and photographs upon application. For sale by widow of former principal stockholder, who is now the sole owner and whose other interests all lie in the south. Will sell for one-half present appraised valuation. Address BOX 11, OKLA.,
11 3 cm care Clay-Worker.

WANTED, ETC.

WANTED.

Complete second-hand dry press outfit with power; must be reasonable and in good condition. Address,

BOX 12—BOND,
12 1 c Care Clay-Worker.

Classified Advertisements.

WANTED — First-class mechanical draftsman who has had experience in clayworking machinery. Address,
BOX 11, DAY,
11 tf d Care Clay-Worker

WANTED—Hand repress to make briquettes. Must be in good condition and cheap. Give full description, name of maker and lowest price.
MELVILLE,
12 1 d Care Clay-Worker.

WANTED.
Pug mill, small second-hand. Also pebble mills, small capacity for trial grindings. Address all particulars to
DURANT KILNS,
12 1 dm Bedford Village, N. Y.

WANTED.
A BUILDING MATERIAL CO.
Wishes to represent in Indianapolis or entire State, a hollow tile and brick concern.
BOX 11, NEW,
11 1 c Care Clay-Worker.

WANTED.
First-class Martin machine complete pug mill. Also sander, dump table, crusher, 5,500 steel pallets, belting, shafting, etc. Address,
BOX 12—PERFECT,
12 1 dm Care Clay-Worker.

WANTED—A first class man to take charge of our machine room who thoroughly understands Boyd Presses, American Dry Pans and who knows the manufacture of high class face brick. Prefer one who understands boilers and engines also, and knows his business thoroughly. We have no use for any other. SOUTHERN,
10 tf d Care Clay-Worker.

BRICK SALESMAN WANTED.
One capable of handling large contracts—southwest territory. Two plants with yearly output of thirty-five million. Face, paving and common brick. Product of recognized merit in wide territory. \$5,000 investment required. Position open Jan. 1. Address,
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12 1 d Care Clay-Worker.

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Machinery for soft mud brick plant of 40,000 daily capacity, Boiler, engine, steam pipe rack dryer, steel pallets, track, pumps, etc. Must be in first-class condition. Give particulars and lowest cash price f o. b. Philadelphia, Pa. Address, E. F. SCHLICHTER,
10 S. 18th St., Philadelphia, Pa.
12 1 C

WANTED.
First-class kiln fireman. One who understands burning terra cotta preferred. State wages and experience. Address,
BOX 12—TERRA COTTA,
12 1 d Care Clay-Worker.

WANTED.
Superintendent for fire clay plant, Nos. 5 and 6 veins. Must be thoroughly experienced in the manufacture and burning of hollow ware and fire-proofing. Apply immediately to the
METROPOLITAN PAVING BRICK CO.
12 1 d Canton, Ohio.

WANTED.
A position as manager or superintendent of a paving or face brick plant. Terms of employment to be based on guarantee of satisfaction. Am employed now, but have notified my company of my intention to resign and reasons for same. Address,
BOX 12—C. O.,
12 1 c Care Clay-Worker.

MISCELLANEOUS

INVESTMENT.
Capital invited to build additional dryer and kilns. Middle west, plant built this year and now in operation. Clay and market the best. Stiff mud brick, drain tile and building tile. We invite inspection by bona-fide investors. Address,
BOX 12—TEK,
12 2 d Care Clay-Worker.

STONE POTTERS, ATTENTION!
Only bank of potter's clay in all Oklahoma. Makes most excellent ware. Near large city with three railroad crossings, gas, coal and wood fuel. Hundreds of miles to nearest pottery. Unlimited demand for product. Fortune for some experienced potter who can grasp the opportunity.
WHO WANTS IT? For information, address,
D. W. KELLER,
12 1 cm Hartshorne, Okla.

AN INVESTMENT.
Company manufacturing clay products offers seven per cent. preferred interest. Proceeds to increase capacity. Cost of production very low account superior material and modern plant. Stock offered has all advantages of preferred and common stock and is secured by assets conservatively valued at twice the amount of total preferred issue. November statement shows surplus equal to original capital stock after two years' operation. No brokers, no commission, no watered stock. Investigation solicited. Address,
BOX 12—WOOD,
12 1 d Care Clay-Worker.

MISCELLANEOUS

I BRING BUYER AND SELLER TOGETHER—I sell clayworking plants, stores, factories and real estate. If you want to buy, sell or trade any kind of property or business anywhere, write me. Established 1881.
FRANK P. CLEVELAND,
965 Adams Express Bldg., Chicago, Ill.

The Department of Clayworking and Ceramics

Established by the Legislature in 1902 at the

New Jersey State College,

RUTGERS COLLEGE.

NEW BRUNSWICK, N. J.

Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

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W. H. S. DEMAREST, D.D.

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Patent Attorneys

918 F St., Washington, D. C.

YOU CAN'T FADE 'EM
The "Red Brick" brand. Brilliant in tint; easy to mix, go farther than any other and none like them for Brick, Mortar, Cement, etc. Red, Brown, Purple and Black.
RICKETSON'S MINERAL PAINT WORKS,
MILWAUKEE, WIS.

Kilns Driers Processes

JULIUS J. KOCH

Consulting Engineer

for

Clayworking Industries

3325 Caroline St. St. Louis, Mo.

If...**You Want
to Sell
or Buy...**Second hand Claywork-
ing Machinery, Tile Mills,
or anything pertaining
thereto.**If...****You Want
a Man**for any position or a posi-
tion in any connection
with the Clayworking
Trades use the**For Sale
and Want
Columns
of...****The...****Clay-Worker.****RATES**For all transient advertisements, such
as "For Sale," "Wanted," etc., the rate
is 25 cents a line per insertion. Aver-
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counts as two lines.**The Best, Quickest, Cheapest
Method of Securing Results.**

HELICOID SCREW CONVEYOR is heavier stronger and better made than
any other. Requires fewer repairs—no lapped and riveted joints to come
apart—flight all one piece. We are the only people who actually roll a con-
tinuous flight conveyor by either the hot or cold rolling process. All other
steel conveyors have sectional flights. Our No. 34 Catalogue explains the dif-
ference. Elevating, Conveying and Power-Transmitting Machinery.

H. W. Caldwell & Son Co., 17th St. & Western Ave. **Chicago**
Fulton Bldg., Hudson Terminal, No. 50 Church St., New York.

KIESELGUHR

A non-conductor and a perfect insulator.

Crude, Pulverized and Bolted.

For prices address

WM. H. SCHEEL

159 Maiden Lane, New York, N. Y., U. S. A.

EXCELLENT OPENING

for a

WHITE FACED BRICK FACTORY

In a North Carolina town, located on the main line of the

SOUTHERN RAILWAYare extensive deposits of white burning brick clays, admirably suited
for making fancy white and buff brick.Near by are numerous rapidly growing cities consuming many thou-
sands of brick annually, thus furnishing excellent home markets.Power is sufficient for all demands at reasonable rates. Coal and
wood are obtainable at low costs. Native labor is ample.

This is a proposition that will stand the closest investigation.

Full particulars obtained by referring to file 42205, and writing

M. V. RICHARDS, *Land and Industrial Agent,**Southern Railway*

Room 1369

WASHINGTON, D. C.

**The World's
BEST****Brick Moulds**

Write us.

THE G. B. MENTZ CO., Wallkill, N. Y.

MANGANESE.

BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

NATIONAL PAINT AND MANGANESE CO.,
LYNCHBURG, VA.

MINERS AND GRINDERS.

Chicago Retort & Fire Brick Co.

"AJAX"
Fire Brick for
Building Kilns

GENERAL OFFICE:

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CHICAGO, ILL.

'Phone
Randolph 3601.

KILN FLOOR TILE

THE RECOGNIZED STANDARD OVER 50 YEARS.

ANY SIZE **FIRE BRICK** ANY SHAPE

Write Us Now **Evens & Howard Fire Brick Co.**
St. Louis, Mo.

The Parker-Russell Mining & Manufacturing Co.

St. Louis, Missouri.

St. Louis Office: Liggett Bldg. New York Office: 45 Broadway.

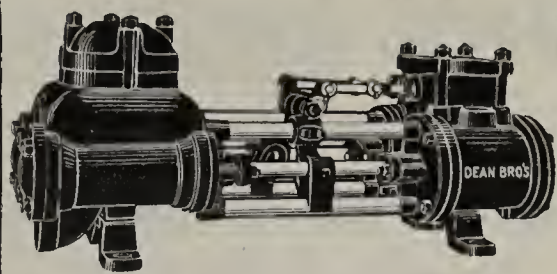
FIRE BRICK OF DIFFERENT GRADES.
FIRE CLAY TILES OF DIFFERENT SHAPES AND SIZES.

Boiler Tile, Locomotive Tile, Cupola Blocks.
Kiln Floor Tile, Lime Kiln Supplies.
By-Product—Coke Oven Brick.

Fire Clay Liners for Cement Kilns.
Crude Clay in Bulk, Ground Clay and
ground brick in barrels or sacks.
Gas Benches erected complete, including iron work.
Gas Retorts and Settings.
Fireproofing for buildings.

All Contracts Made as of St. Louis.

Correspondence solicited.



DURABLE DUPLEX PUMP.

PUMPS FOR ALL SERVICES
AND ALL PRESSURES.

JET AND SURFACE **CONDENSERS**

Send for Catalogues.

DEAN BROS. STEAM PUMP WORKS.
INDIANAPOLIS.

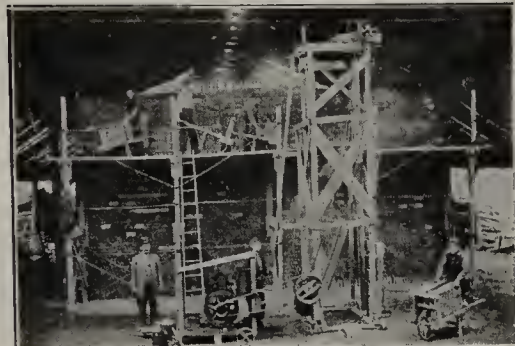
NOT IN THE PUMP TRUST.



The Yates Patent Down-draft Kiln.
Also Continuous.

If you want to pay dividends, build modern kilns as good burning is the keynote to success. Sixteen of my kilns are in operation at the Shawmut Vitrified Paving Brick Works, Shawmut, Pa. Come and examine results for yourself. Also refer you to D. W. DeRosay, General Manager Corry Brick & Tile Co., Corry, Pa. Other references given if desired.

ALFRED YATES,
SHAWMUT, PA.



Newton Portable Brick Handling System

This system gives you the advantage of three men taking the place of nine, as here shown. Above is a photograph of elevator and staging in operation, saving you six men over old way of passing and tossing brick; same advantage taking brick out of kiln. Send for circular and special information.

A. C. NEWTON,
Pat. Aug. 9, 1909. CRESCENT, N. Y.

Anchor Brand Colors

For Mortar Cement and Brick.

BROWN, BLACK, RED AND BUFF.

Strongest and Most Durable.

Manufactured by

C. K. WILLIAMS & CO.

EASTON, PA., U. S. A.

Correspondence solicited.

Chattanooga Paint Co.,

Chattanooga, Tenn.

Manufacturers of

Red Oxides for Brick-makers' Use.

**Eclipse
Mortar Colors,**

Red, Brown, Buff, Black.

Clinton Hematite Red

The highest grade of
Red Oxide of Iron for

BRICK COLORING

Also all shades of
MORTAR COLORS

Get the genuine, with the
"Little Yellow Side-Label"

Clinton Metallic Paint Co.,

CLINTON, N. Y.

GABRIEL & SCHALL

P. O. Box 1712. 205 Pearl Street.

NEW YORK.

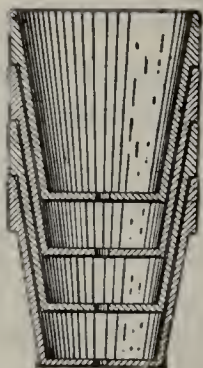
Sole Importers in the United States of the

Precipitated **G & S** Carbonate
of Barytes

The only preventative for scum and discoloration on Facing Brick and Terra Cotta, neutralizing the Sulphate of Lime in the Clay and Water.

Circulars and Particulars on Application.

Mention The Clay-Worker
When Writing to Advertisers.



Make Money

WITH THE ONLY SUCCESSFUL

Flower Pot Machine

(PATENTED.)

No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "

Write for Circular and prices.

The Rockwood Mfg. Co.,

1801 English Ave.

INDIANAPOLIS, IND.



Dennis Improved System of Double Chamber and Double Arch Down Draft Kilns.

Patented April, 14, 1903 and September, 8, 1903.

THESE KILNS BURN ALL HARD
BRICK.

Three of these Double Chamber Kilns will burn as many brick in a year as four single arch kilns the same size, because as soon as one side is unloaded you can set green brick, and so have the kiln half set by the time all the burned brick are unloaded. These kilns burn the brick hardest on the bottom. This feature is something new for Down Draft Kilns.

Burn soft mud, stiff mud or dry pressed brick. In proportion to capacity this is the cheapest and strongest kiln on the market and will give better results than any other known kiln.

Plans for Round Kilns, also Single Arch Down Draft Kilns. Plans for taking the heat from a cooling to a green kiln for drying off or water smoking.

Write for printed booklet and testimonials. County and State rights for sale.



Double Chamber Down Draft Kiln

ADDRESS

F. W. Dennis

1052 Bermuda St.,
NORFOLK, VA.

PHILLIPS & McLAREN CO.

PITTSBURGH, PA.

Builders of
Pittsburgh Standard
Dry and Wet
Grinding Pans
for Brick, Terra Cotta,
Sand, Cement, Ore,
Refractories, etc.
Also
Rock and Ore Crushers.

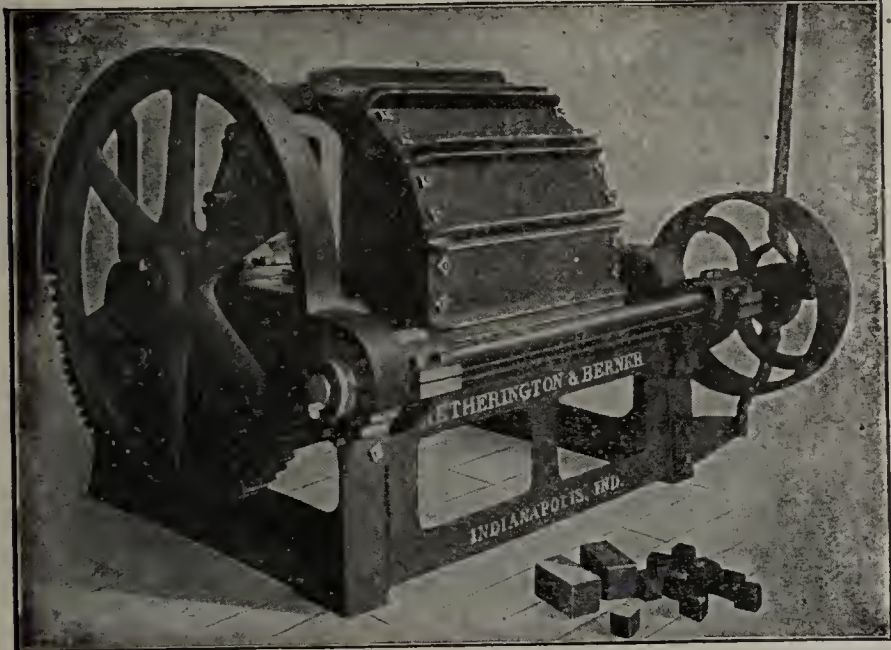
When writing for prices state
kind of Clay or Material to be
ground and capacity desired.

Eastern Office,
Stephen Girard Bldg.,
Philadelphia, Pa.



The STANDARD RATTLER FOR TESTING PAVING BRICK.

Every municipality and every manufacturer of paving brick should have a Standard Rattler and thus be able to make frequent tests of brick and block.



This Rattler is designed in accordance with the requirements of the National Brick Manufacturers' Association's specifications, and is skilfully constructed of the very best materials for the purpose, insuring the greatest efficiency and durability. It meets every requirement.

Easy to Operate, Easy to Fill, Easy to Empty, and in fact *The Standard Rattler*. For prices, etc., write

Hetherington & Berner,
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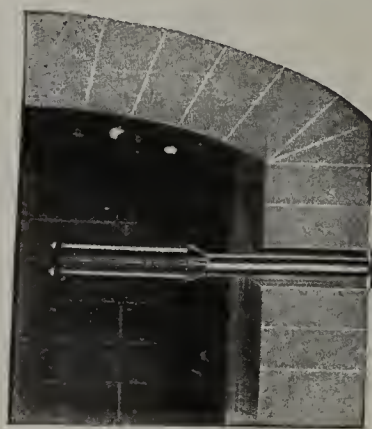
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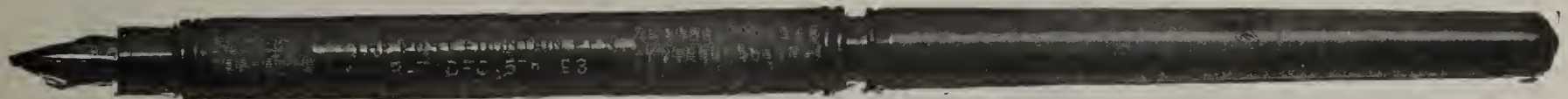
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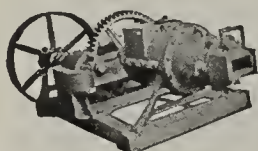
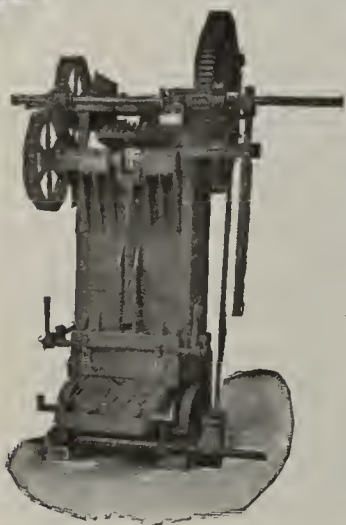
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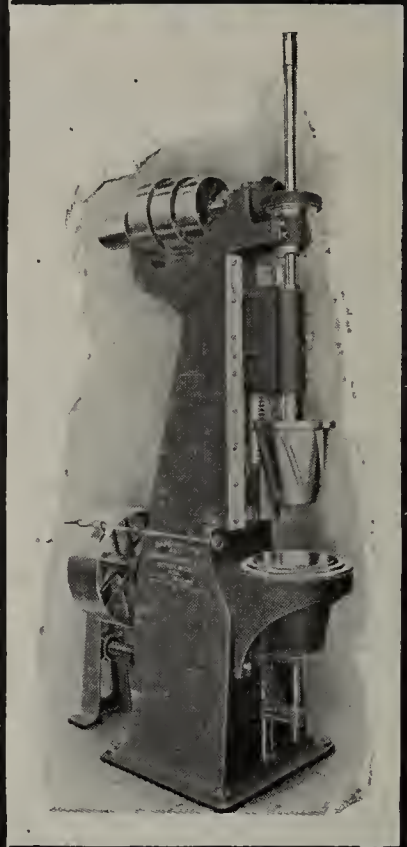
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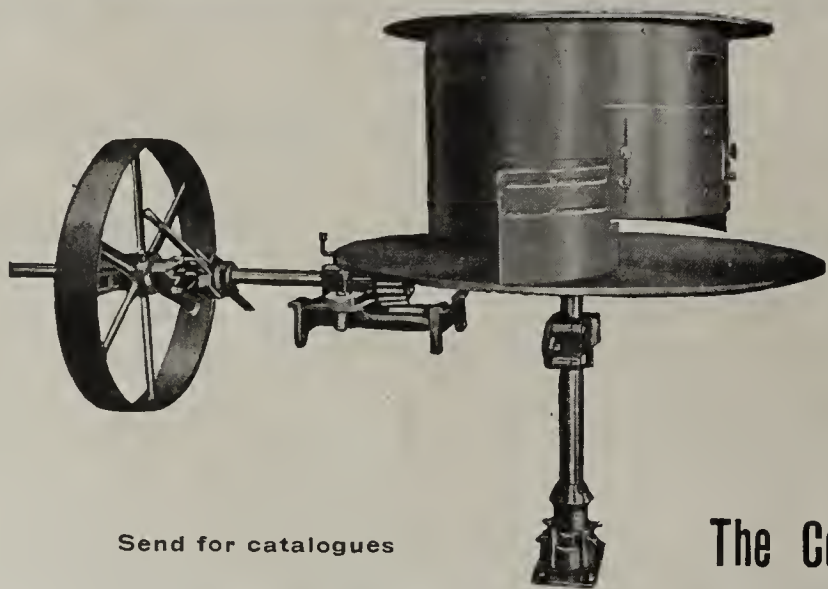
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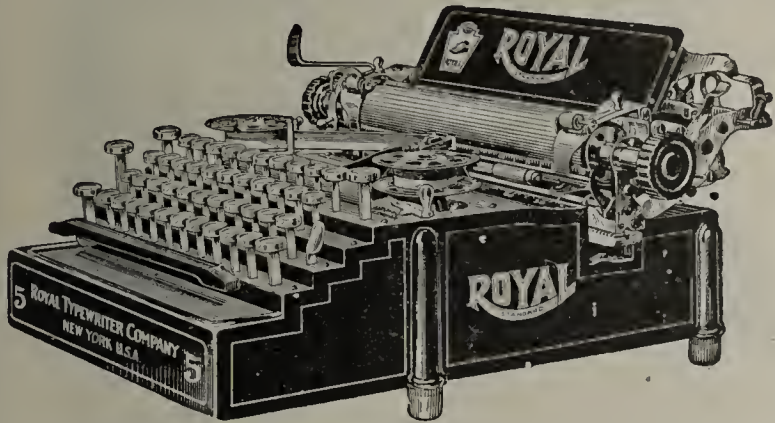
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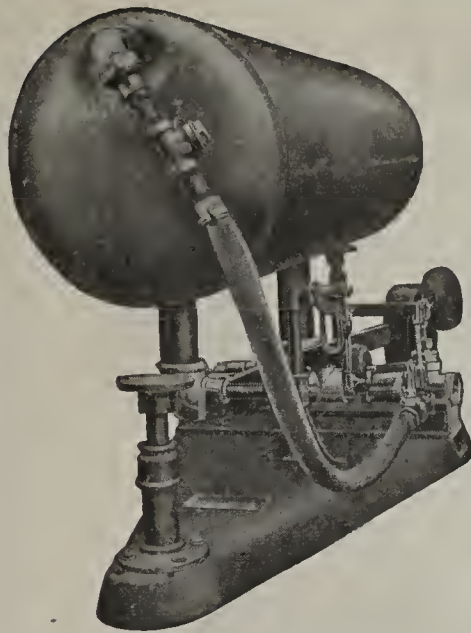
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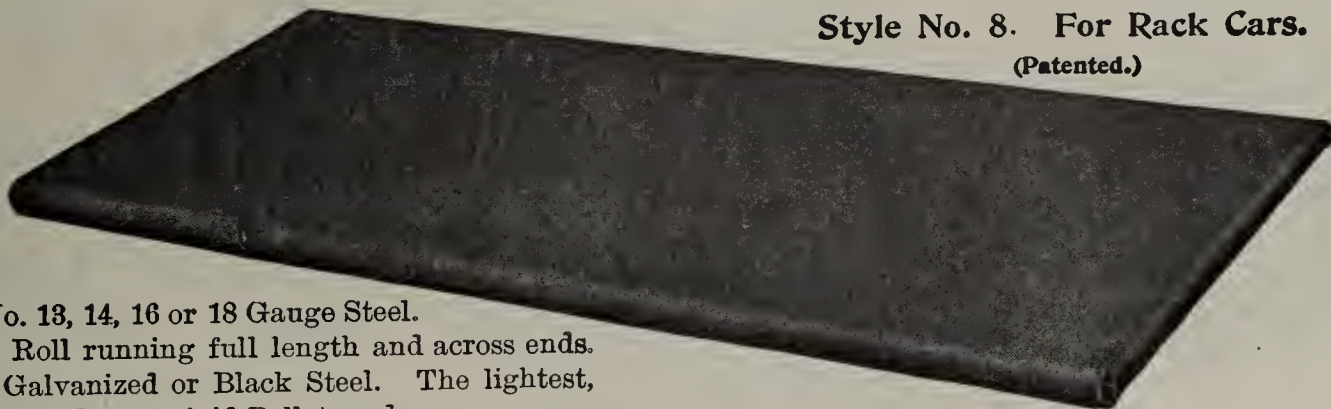
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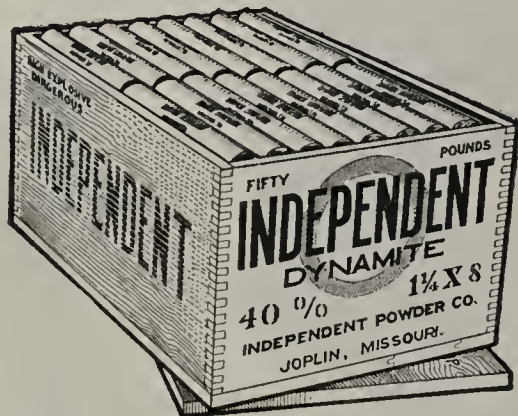
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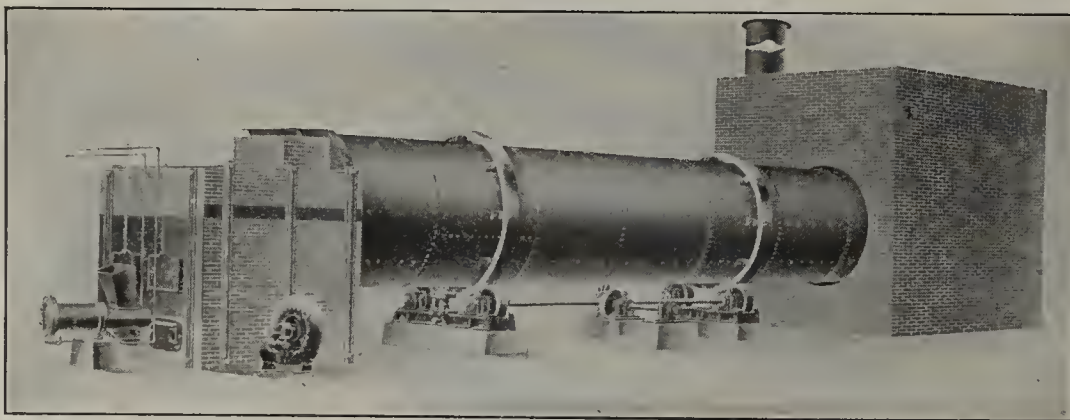
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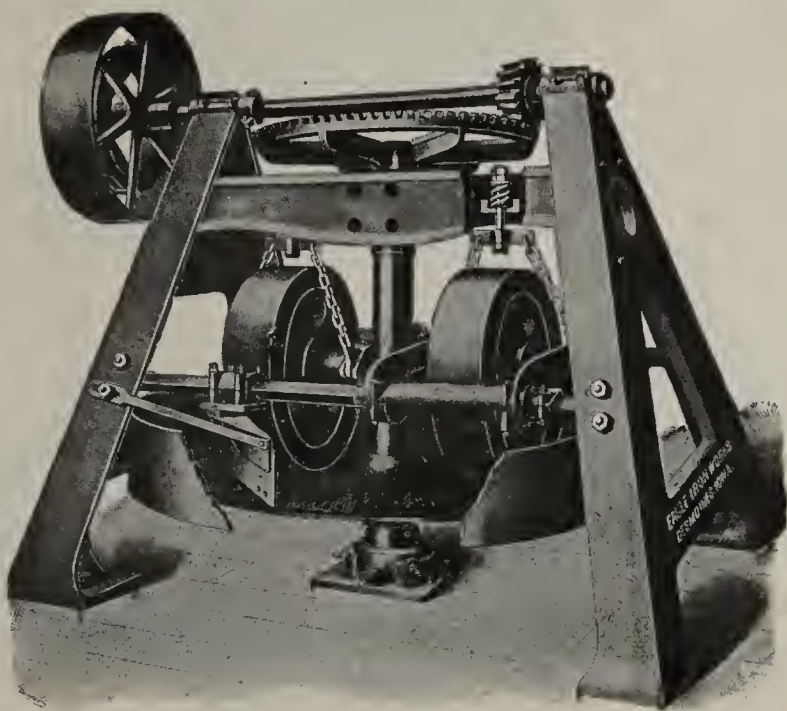
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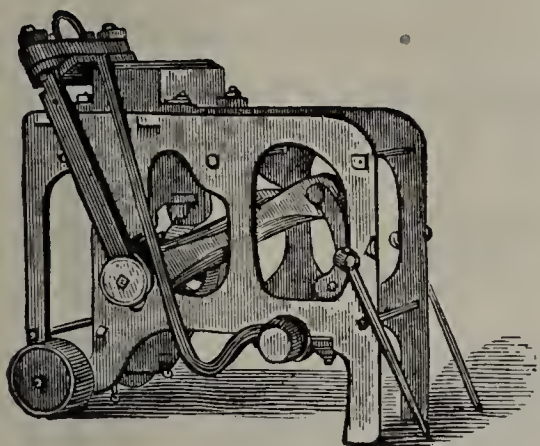
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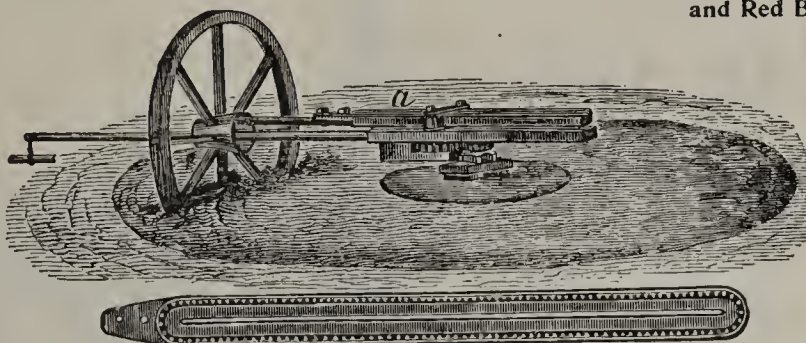


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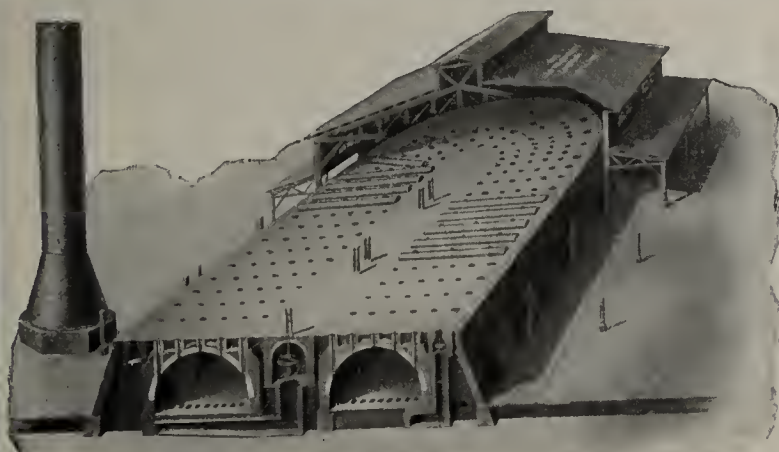
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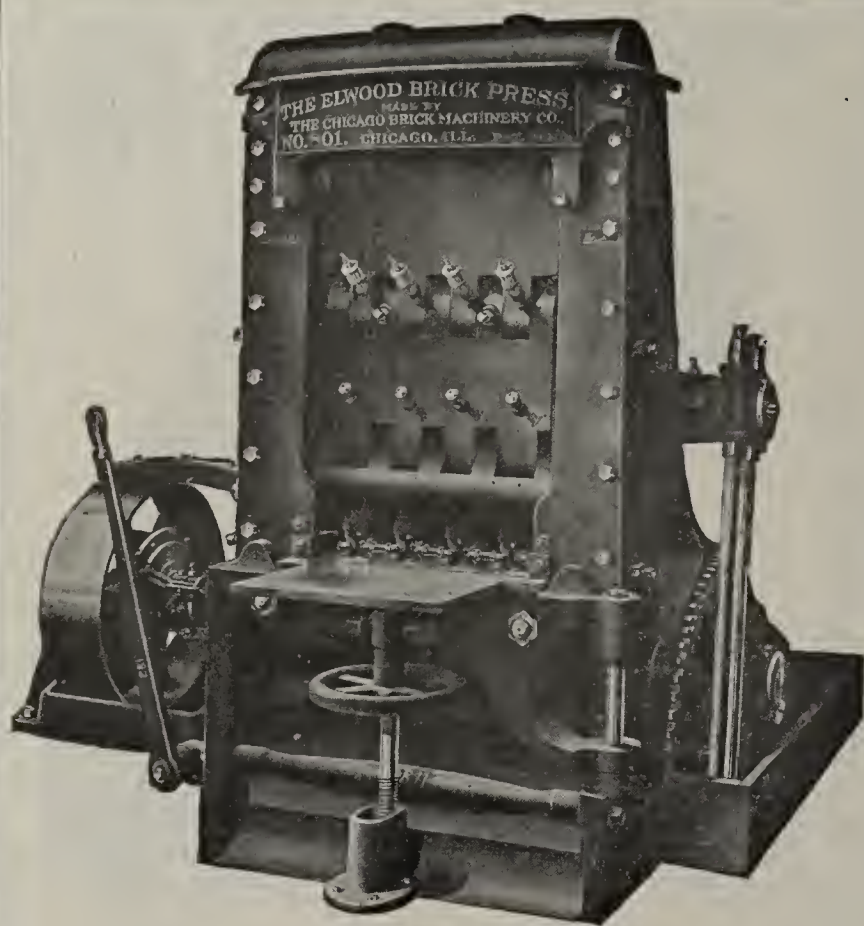
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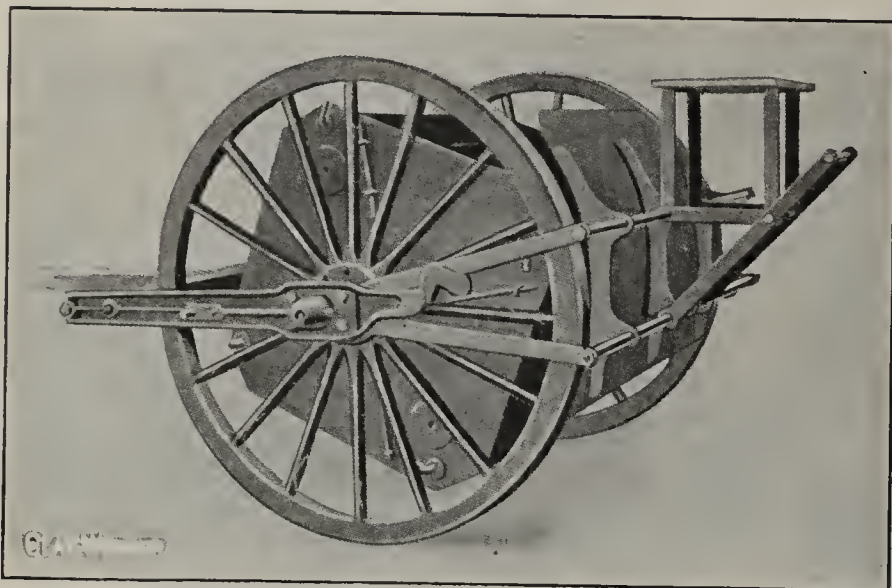
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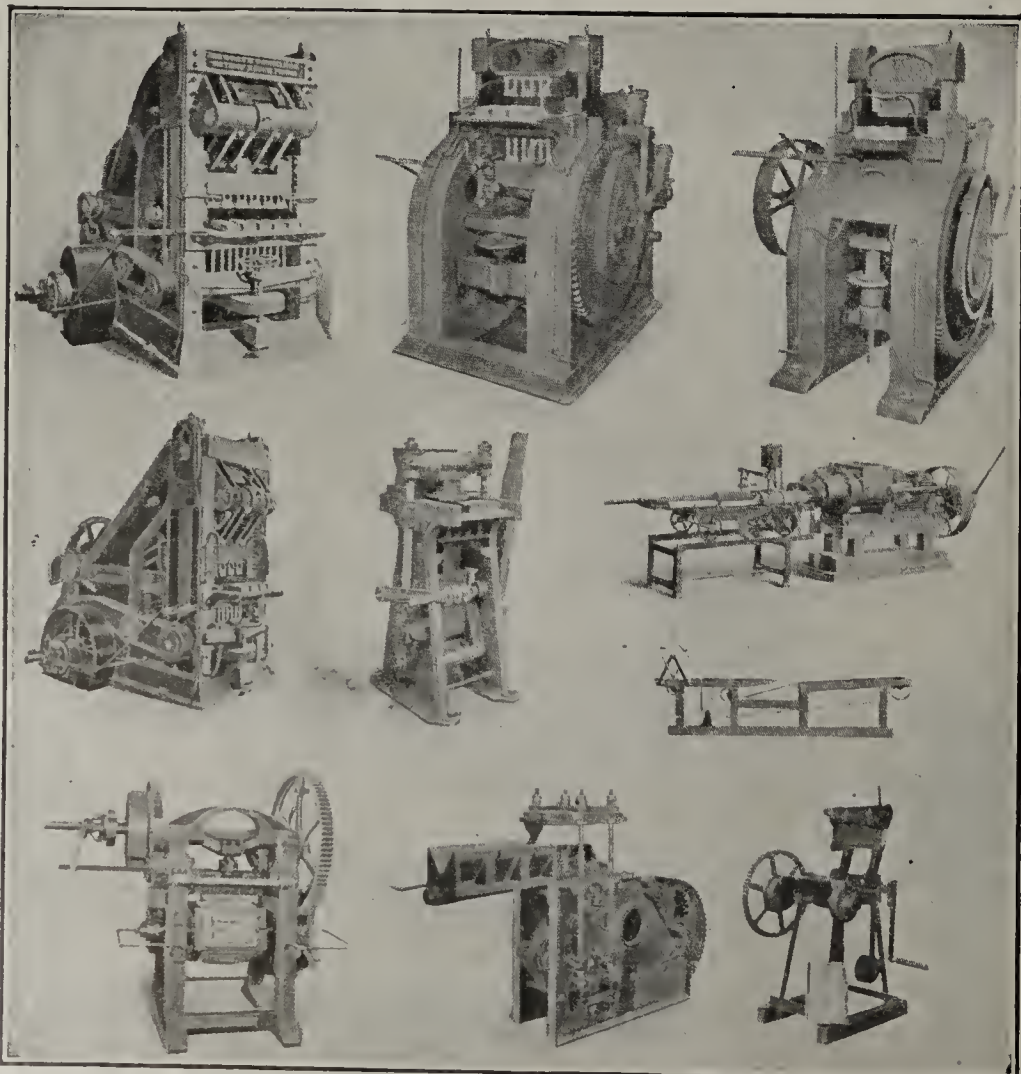
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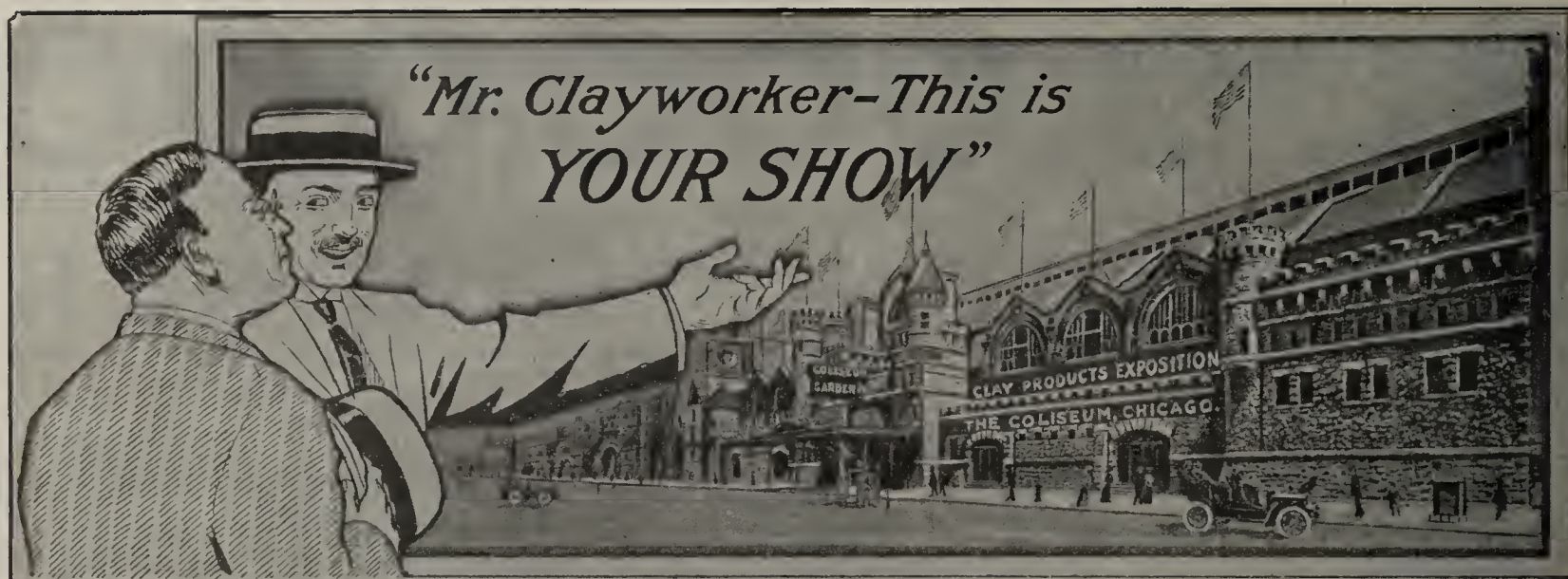
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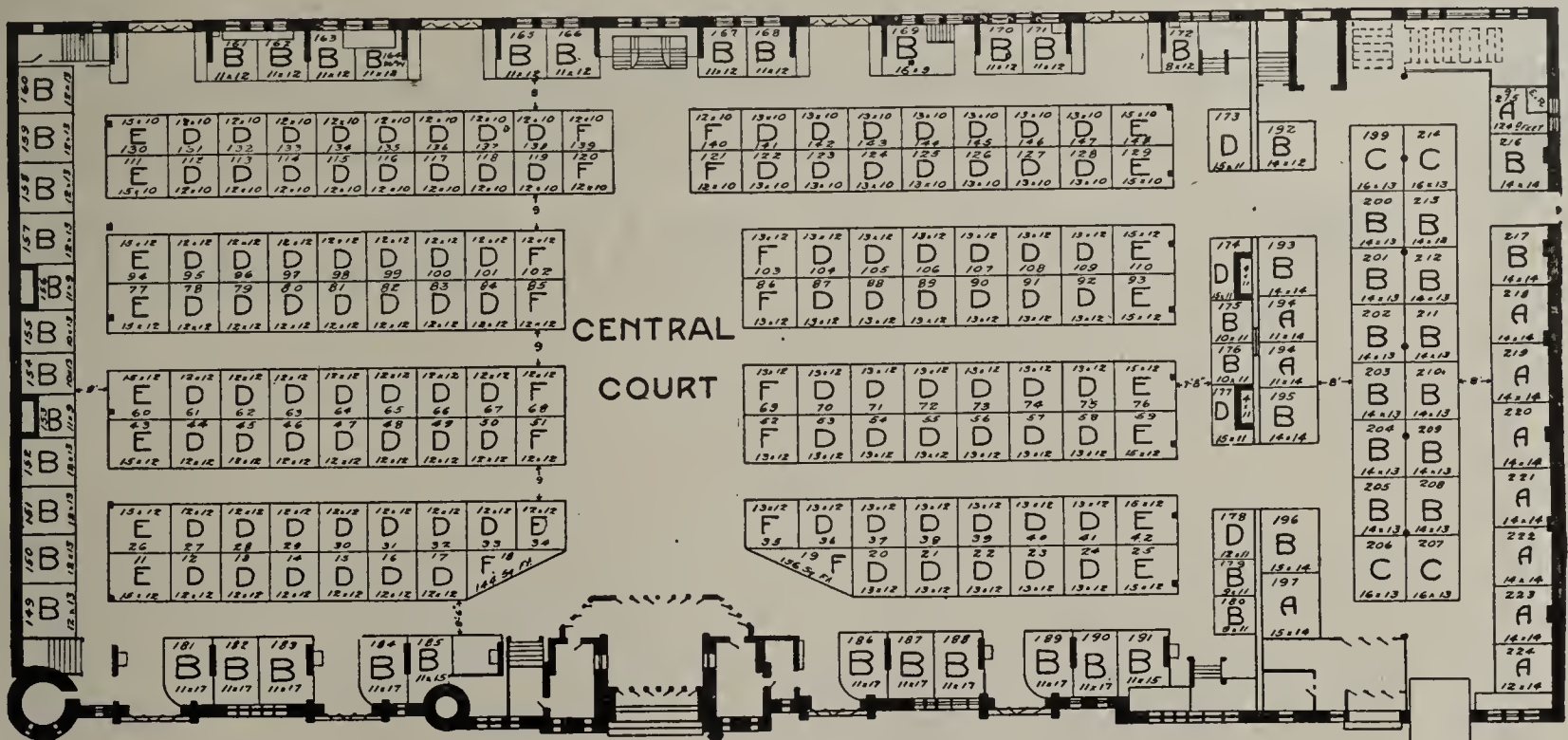


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Repair Season.

At this season when "the frost is on the pumpkin and the fodder's in the shock" with brick kilns cooling off and building and paving operations drawing to a close, it behooves the progressive clay manufacturer to start at this "first breathing spell," to look about him and begin to lay his plans for plant betterment for the coming season.

It is a well realized fact that the dilatory strain in our human nature will allow us to defer, until long after needed changes are due, the trouble and expense of making these necessary improvements during the busy season, this, although we know that it is far better to go to the extreme of borrowing money to buy new and better machinery and equipment than it is to lose money operating the old.

The biggest factor in the success of the biggest business men of today is their insistence on improved equipment; not because they have the ready money at hand—not always—for,—the bigger the business today,—the bigger the borrower.

There is no mistaking that, the combined and systematic advertising campaign being waged in the interest of burned clay products is beginning to have a well grounded and far-reaching effect on the popular mind, and a steady continuance of the movement, coupled with the certain good effected by local displays and the annual recurrence of the great National Clay Products Exposition presages a steady increase in business in our chosen line for the ensuing year.

To take care of this onrush of business—and every condition and feature points towards a rushing season for all—we are waiting for your inquiries and promise them the most careful and prompt attention.

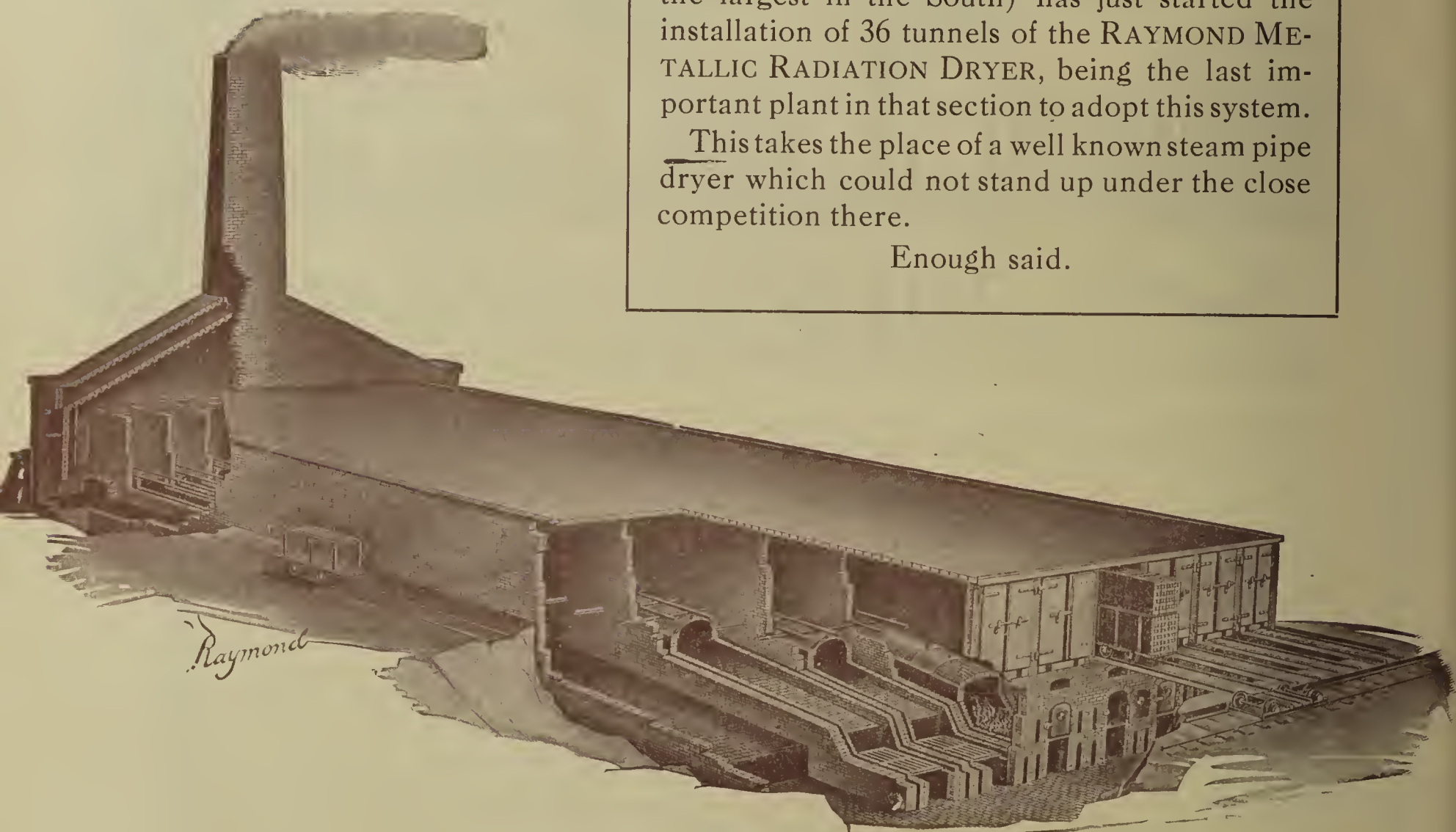
Whether it is the latest improved types of machinery, dryers or kilns, you will find us ready to co-operate with you to the end of properly equipping you for a goodly share of the choicest of this trade, and at the greatest possible margin of profit from your operations.

The C. W. Raymond, Co., Dayton, Ohio,
U. S. A.

The Bibb Brick Co., of Macon, Ga. (one of the largest in the South) has just started the installation of 36 tunnels of the RAYMOND METALLIC RADIATION DRYER, being the last important plant in that section to adopt this system.

This takes the place of a well known steam pipe dryer which could not stand up under the close competition there.

Enough said.



A GREAT ADVANTAGE

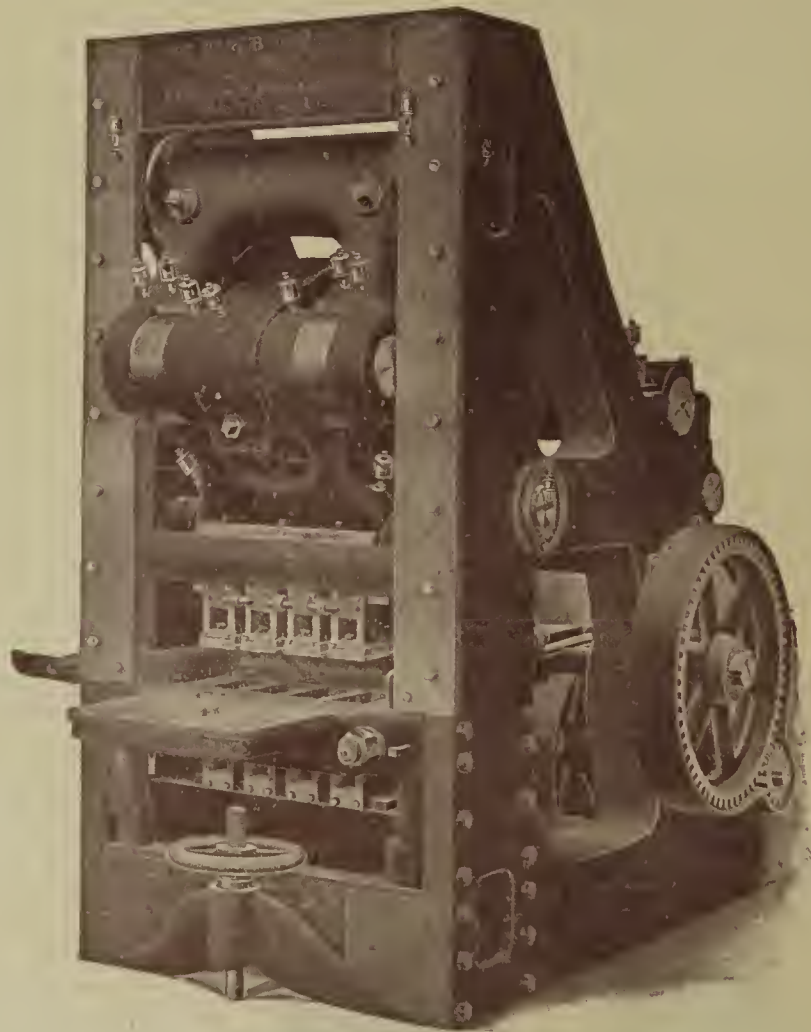
in Brick Machinery
is that quality called

FOOL PROOF

Not every

Yard is blessed with the best mechanics, and it is a question whether it would pay to have a high priced operator constantly with the machine.

Better have a machine that anyone can operate and keep going.



The BERG DRY PRESS

Exemplifies
In The Highest Degree

**SIMPLICITY, STRENGTH
and STAYING QUALITY.**

Perfection of Product and Ease of Operation and Repairs help to make this machine Leader of its Class. Write for details.

**The C.W. RAYMOND
COMPANY**

The Strongest Power in the
World of Clayworking
Machinery

Dayton, Ohio, U.S.A.

Mention THE CLAY-WORKER.



THE RAYMOND SPRING BRICK BARROW

made from the best thoroughly seasoned hardwoods. Well braced in all directions for severe duty. Various types for all kinds of clay works usage.



THE RAYMOND SPRING DRY PRESS TRUCK

An excellent type of everyday truck; best of pattern, materials, workmanship. Notice the double wheels, shod iron legs, strong springs and general makeup.

THE C. W. RAYMOND CO.

Drop us
a card

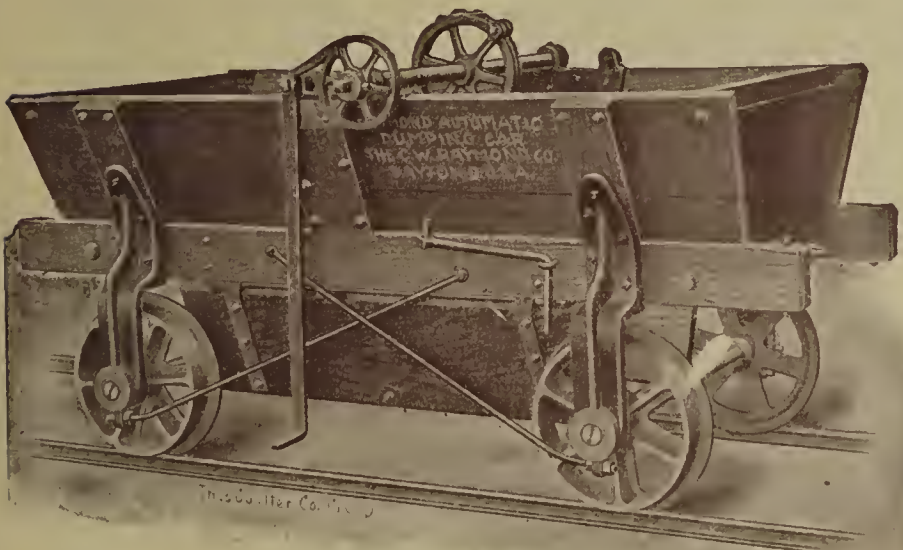
The Strongest Power in the World of
Clayworking Machinery

Do it
today

DAYTON, OHIO, U. S. A.

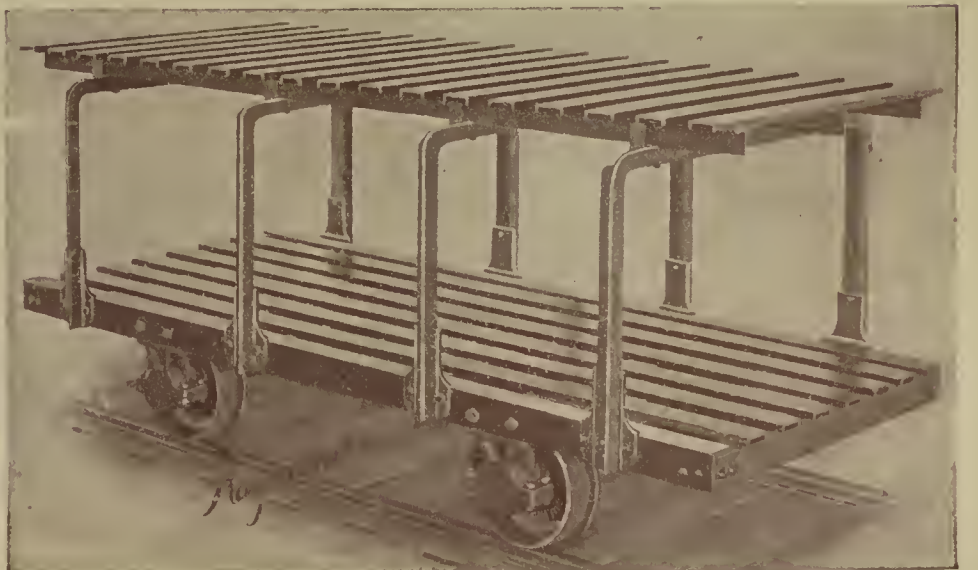
THE RAYMOND AUTOMATIC BOTTOM DUMP CLAY CAR

One of the most convenient and practical cars built. Automatic dumping arrangement and wearing parts easily renewable.



THE RAYMOND STYLE "J" EXTRA HEAVY DRYER CAR

Without question the heaviest and best constructed dryer car on the market. Notice heavy, cage bushed roller bearings with oil reservoir that "holds the oil."





Who Pays For It?



Your Competitor bought a
Producer Gas Fired Continuous Kiln

He says, that its actual saving in Fuel and Labor, and Higher Percentages of Better Ware will reimburse him in full in

About Three Years.

Then He's Not Really Paying for It—merely advancing on it.

His Customers

Are not taxed to pay for it, for selling prices remain stationary.

Did it ever occur to you, that

YOU PAY FOR HIS KILN?

There's nobody else to do it.

You Pay For It, in Loss of Business, Loss of Prestige, Loss of Profits, Inability to Control Prices, Discrimination in favor of Delivery, and Color and Quality. Think it over.

Would You Rather

Stand Good for the temporary expense—reap the golden profits, and hold a commanding position in the trade

or

Inactively,
Buy a Kiln for the Other Fellow
and Hold the Empty Sack?

ITS UP TO YOU, BROTHER
A line today will tell you about it.
Write

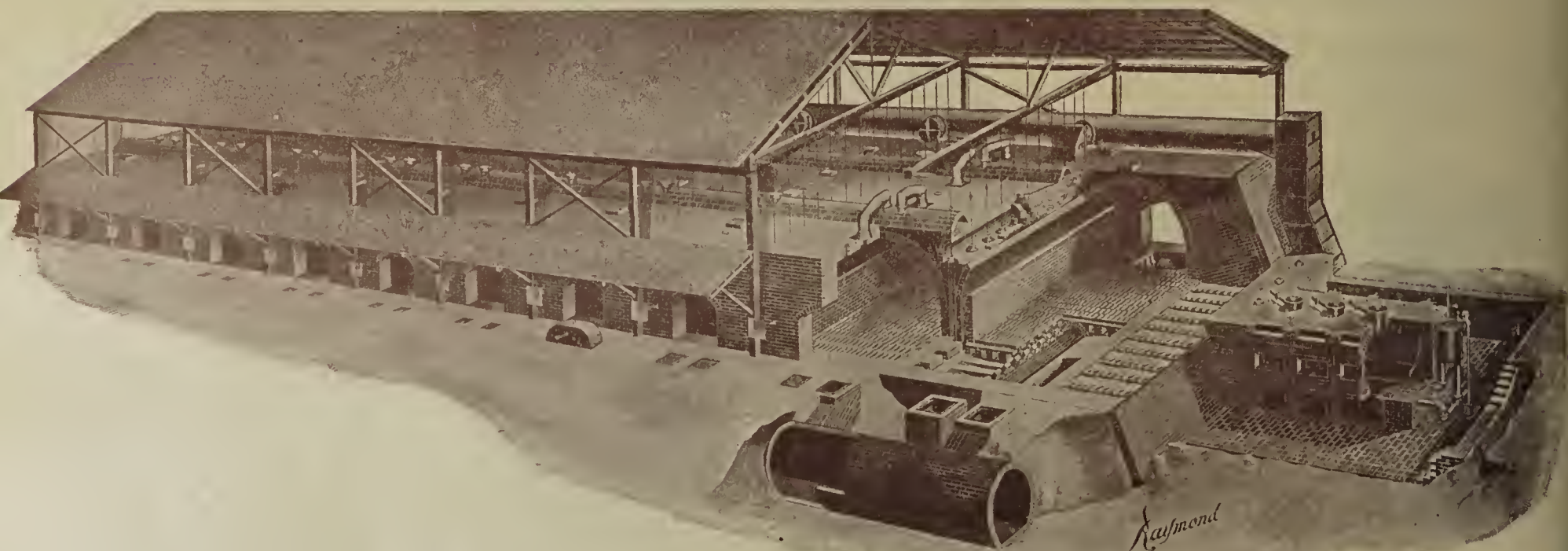
The C.W. RAYMOND CO.

The Strongest Power in the World of Clayworking Machinery

DAYTON,

OHIO,

U. S. A.



ONE HUNDRED BUNGALOWS

A beautiful book issued by the Building Brick Association of America that will bring you business if properly circulated.

This book was gotten up at a very large expense at the earnest solicitation of a great many members of the Building Brick Association of America, who felt that the thing they needed most in their business was a book illustrating small houses. This book has now been placed on the market, and we trust it will appeal to you as just the thing to help you sell brick.

While one Bungalow does not use many brick, still, the rapid displacement of wood and cement which is going on will, in time, afford a very large market to the brickmaker.

The average house in America is a small house. If wood could be entirely displaced in favor of brick, it would increase the face brick business to several times its present volume and would add more than 50 per cent to the common brick business. These figures may seem startling, but they are correct, and it is worthy of a great effort on the part of every brickmaker to secure the construction of small brick houses.

Upon request we will send you a brief review of this book.

It will pay you to purchase a number of these books and place them in the hands of your architects and prospective builders.

The price is 50 cents.

T. A. RANDALL & CO.

211 Hudson Street.

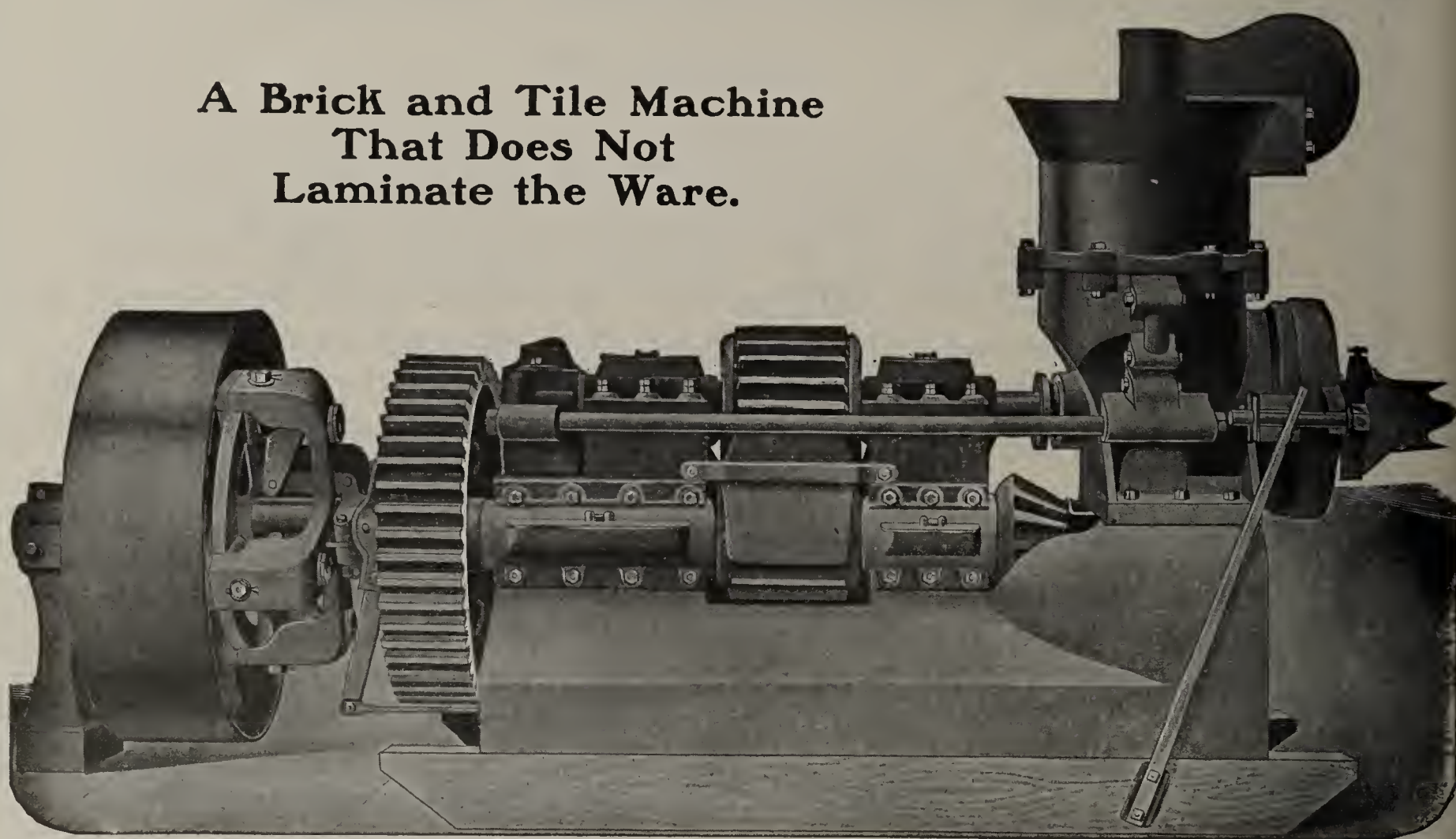
INDIANAPOLIS, IND.

TURN FAILURE INTO SUCCESS

With The Wonder Machine.

A Machine of Large Capacity. Unequaled in
Record of Durability.

A Brick and Tile Machine
That Does Not
Laminate the Ware.



The Big Wonder Brick and Tile Machine.

We also make Side-Cut Brick Cutters, Clay Crushers,
Dry Pans, Disintegrators, Pug Mills, Granulators and Cor-
rugated and Smooth Roll Crushers.

Write for Catalog and Prices.

THE WALLACE MFG. CO.,
FRANKFORT, IND.

SATISFACTION

DO YOU GET IT?

Are you satisfied with quality and quantity of your output?

F. W. WRATE, PRESIDENT

L. A. PAGE, VICE-PRESIDENT

J. W. ADAMS, TREASURER

R. VALENTINE, SECRETARY



Phone 384

North Iowa Brick & Tile Co.

(Incorporated)

MANUFACTURERS OF

DRAIN TILE

Hollow Building Blocks and Common Brick
Fireproofing and Silo Blocks

Mason City, Iowa, Aug. 28, '12

Arbuckle & Company,

Rushville, Ind.

Gentlemen:

In reply to your recent inquiry as to the satisfaction that your brick and tile machinery have given us since we installed the same in our plant will say that we placed in our plant in the years 1906 and 1907 your brick and tile machines, disintegrators, pug mills, in fact nearly a complete equipment of brick and tile machinery for this plant. All the said machinery has been in steady operation during this time and is giving us complete satisfaction and seems to be good for some years to come.

We can truthfully state that we have never done business with any firms that have taken as much trouble and pains to satisfy in every particular their patrons as have both the Madden & Co. and Arbuckle & Co. firms of Rushville, Ind., and will say that your efforts along this line are fully appreciated

We beg to remain,

Very respectfully yours,
NORTH IOWA BRICK & TILE CO.

R Valentine Secy

FES/RV.

Are you satisfied with cost of upkeep and repairs?

Are you satisfied with the treatment your machine builders are giving you?

Read how North Iowa Brick & Tile Co., Mason City, Ia., is satisfied.

We satisfy by giving customers the right sort of machine for the work he has to do. We see it is put in right and at a satisfactory expense for labor and power.

WE EQUIP ENTIRE PLANTS.

We manufacture machinery for making Brick, Drain Tile, Fire-Proofing, Hollow Brick and anything that can be made by stiff mud process.

It will pay you to get our figures.

ARBUCKLE & COMPANY

Successors to Madden & Co., and
the Scott-Madden Iron Works Co.

Sold by Scott-Madden Iron Works Co.,
Keokuk, Iowa

Mention THE CLAY-WORKER.

RUSHVILLE, IND.

THE CLAY-WORKER'S POCKET KIT.

Worth its Weight in Gold to Every Factory Superintendent and Foreman.

EMBODIES

1. Pocket Knife.
2. Leather Punch.
3. Swedging Awl.
4. Wire Cutter.
5. Wire Pliers.
6. Alligator Wrench.
7. Hoof Hook.
8. Screw Driver.
9. Screw Bit.



INVALUABLE TO
Yard Superintendents,
Factory Foremen,
Mechanics, Miners,
Farmers, Horsemen,
Sportsmen and
ALL WORKINGMEN.

This is Not a Cheap Knife, But a First-Class Combination Tool Built for Practical Use.

CUTS OFF BARBED FENCE WIRE AS EASILY
AS AN ORDINARY 8-INCH PLIER.

Can be carried in the pocket and used as an ordinary knife, but is far stronger and more useful.

"A Stitch in Time Saves Nine."—So it is about a clay plant, a bolt tightened at the right time may save a serious breakdown, causing loss of time and money. How often would this be avoided if the superintendent or foreman had the right tool within reach when wanted. How often are these little, but very important details neglected because the necessary tool is not convenient, or has been mislaid, and how much time is lost in consequence. Avoid all this by carrying in your pocket the C. W. Pocket Kit. You will find use for it a hundred times a day.

One Tool Does Not Interfere With the Free Use of
Another. Each One Works Independently.

A Great Premium Offer.

This POCKET KIT, which is a marvel of mechanical ingenuity, will be mailed to any address, postage prepaid, for \$1.50.

Or we will mail this POCKET
KIT and THE CLAY-WORKER
for One Year to any address in
the United States or Canada for

\$2.50

THE C. W. Pocket Kit is built for practical use, and is not filled with knickknacks or flimsy makeshifts as is the case with ordinary combination knives. Instead it is a practical, efficient combination. Its workmanship is first-class. All rivets are countersunk. The temper is drawn in Screw Driver, and Point of Awl to prevent either from breaking. It is no more clumsy or awkward to carry in the pocket than an ordinary three-bladed knife. The blades are made of the best 85 carbon cutlery steel, and tempered to withstand hard usage.

The Pliers and Wire Cutters are Drop-Forged TOOL steel (not steel castings), and tempered especially to do the work required of them, and give entire satisfaction in handling and cutting fence wire, baling and binding wire, harness rivets, etc.

The Leather Punch will be found indispensable for making various sized holes in leather for buckles, rivets, belt lacing, etc.

The Leather Punch acts as a wedging awl or marlin spike WHEN TURNED TO THE LEFT; especially adapted for use in LACING BELTS, untying knots, etc. Besides being a perfect leather punch and swedging awl, this tool is a perfect screw bit, making a tapering hole in wood for various sized screws WHEN TURNED TO THE RIGHT.

The Screw Bit and Screw Driver features of this knife are perfect in their operation.

The Lace Hook and Hoof Hook formed on end of plier handle will be found convenient in many ways.

T. A. Randall & Co., Publishers The Clay-Worker, Indianapolis:

You will please send me THE CLAY-WORKER POCKET KIT and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued,

beginning with the issue. Enclosed find \$.

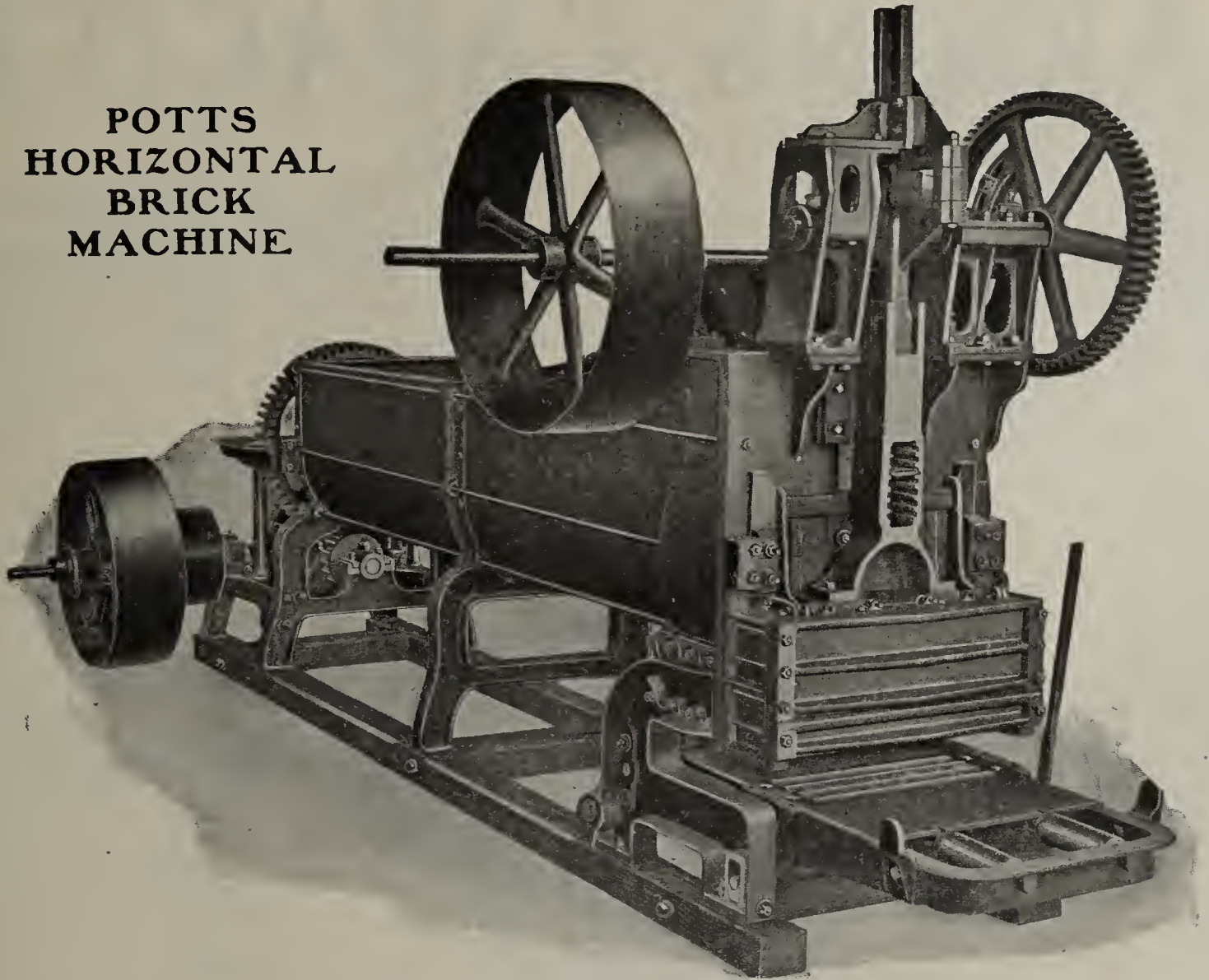
Name

Postoffice

Street and Number

County State

**POTTS
HORIZONTAL
BRICK
MACHINE**



**The Potts Brick Machine
Cannot Be Equaled for
SIMPLICITY**

It has only one tempering shaft. This means that there are fewer exposed bearings, less gearing to operate, and no working parts in the clay or underneath the machine. Every working part is easily accessible.

STRENGTH

All shafts are made of steel, and the gear and crank shaft of cast steel. All wear-resisting parts are made extra heavy of the best steel and iron castings. It guarantees sure service.

OR WORKMANSHIP

Potts workmanship has made our reputation. Every joint is planed, insuring good solid bearings. All bolt holes are drilled from the solid iron and bolts made to measure. The Potts Brick Machine will stand continuous operation at highest speed.

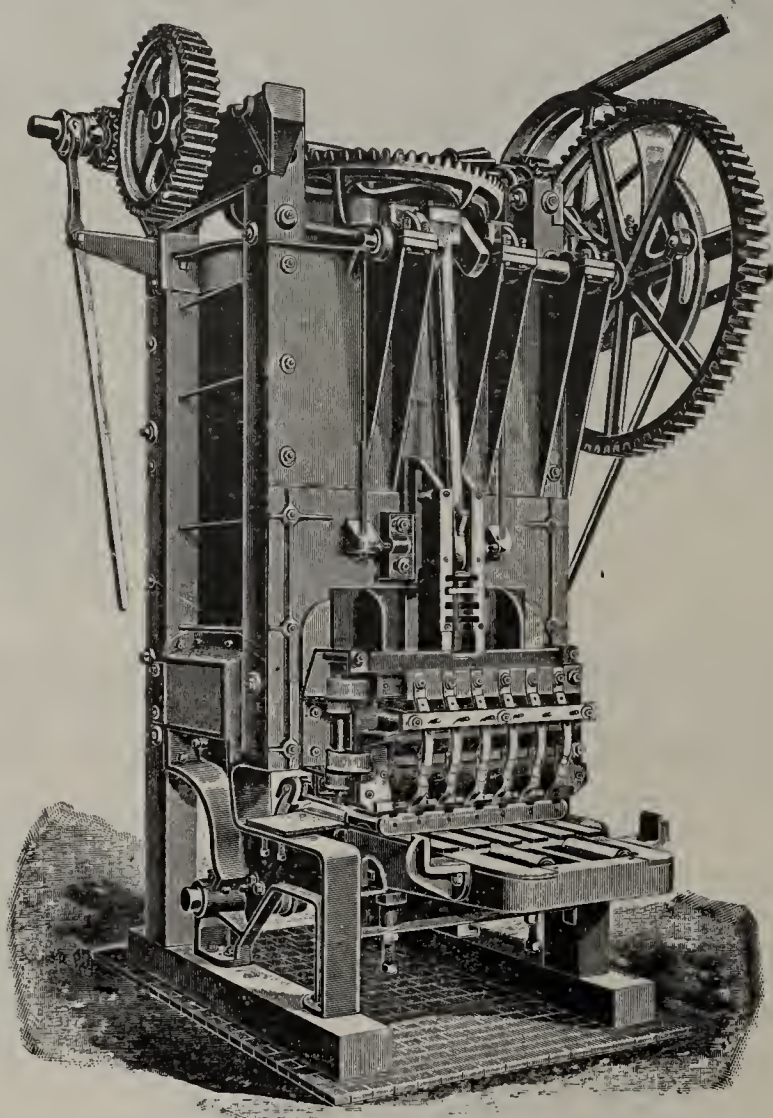
C. & A. POTTS & CO.
Indianapolis, Ind.

**OUR NEW
MACHINERY CATALOG**

is just off the press. Not only does it give complete descriptions and prices on Potts Machines, but it contains information that is useful to every brick-maker.

EARNING CAPACITY.

The thing which gives value to any machine is its earning capacity. The earning capacity of brick machinery depends as much on strength and thorough construction as anything. Most brickmakers have learned this in the expensive School of Experience. When a machine is broken down its earning capacity and its value is gone. Continued results, therefor, determine the economic value of a machine, rather than first cost. On this basis "New Haven" Machines have proven to be the least expensive on the market.

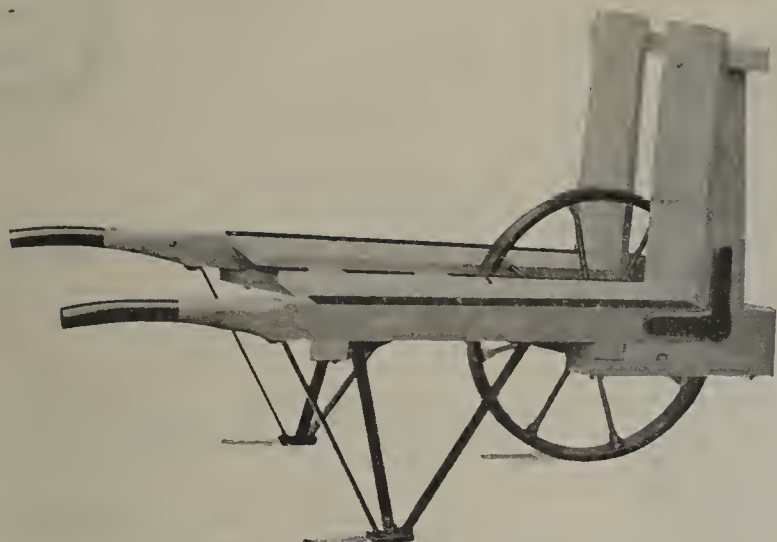


"New Haven" Vertical Brick Machine.

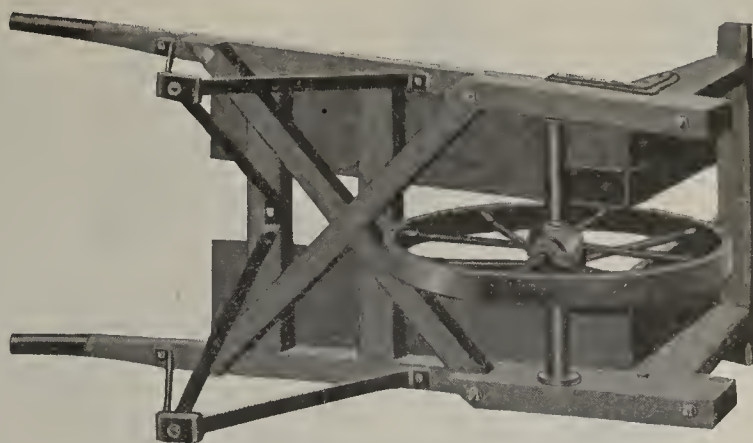
Because of their simplicity, unusual strength, and excellent construction, "New Haven" Vertical Brick Machines are seldom out of repair, and hence earn more and are much more valuable to their owners than the light weight affairs that break so often. They do better work than is possible with less powerful machines. It will pay any prospective buyer to think seriously about this matter of earning capacity, and look into the merits of the "New Haven" Machine from that point of view.

The EASTERN MACHINERY CO.

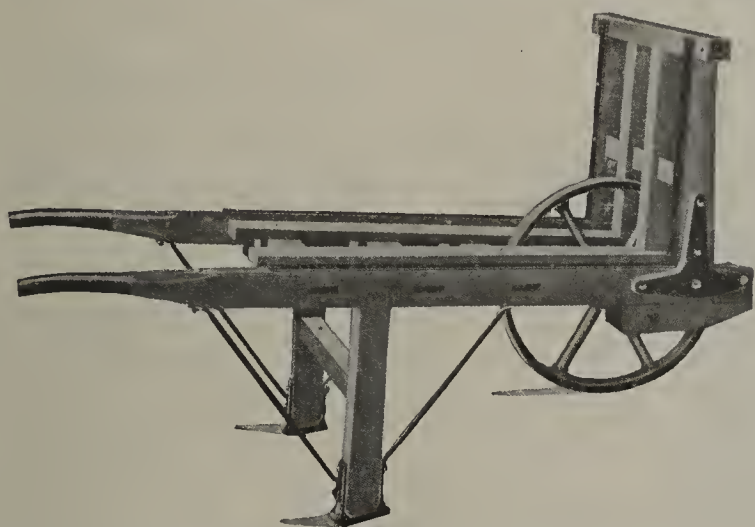
 **NEW HAVEN, CONN.**



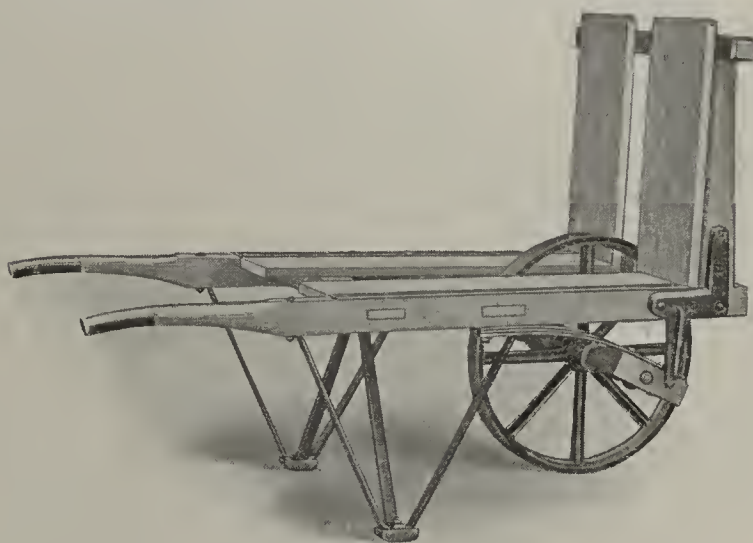
Regular Brick Barrow



Regular Barrow
Showing Solid Construction and Braces



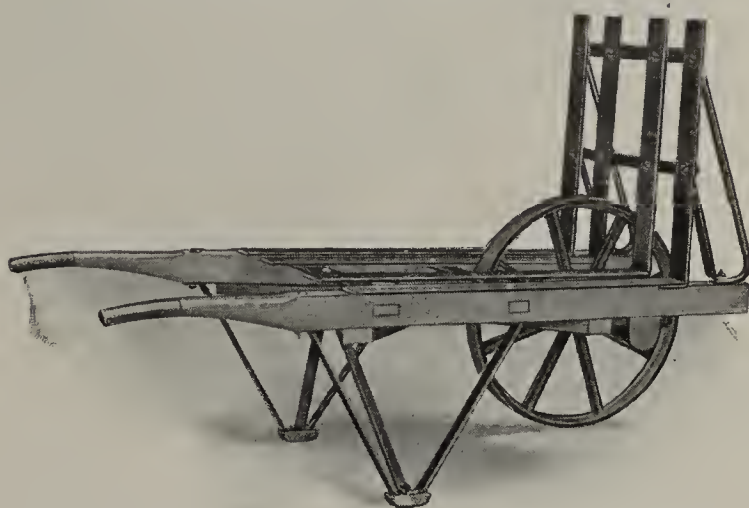
Extra Heavy Burnt Brick Barrow



Spring Brick Barrow
Regular and Roller Bearing



Roller Bearing Brick Barrow



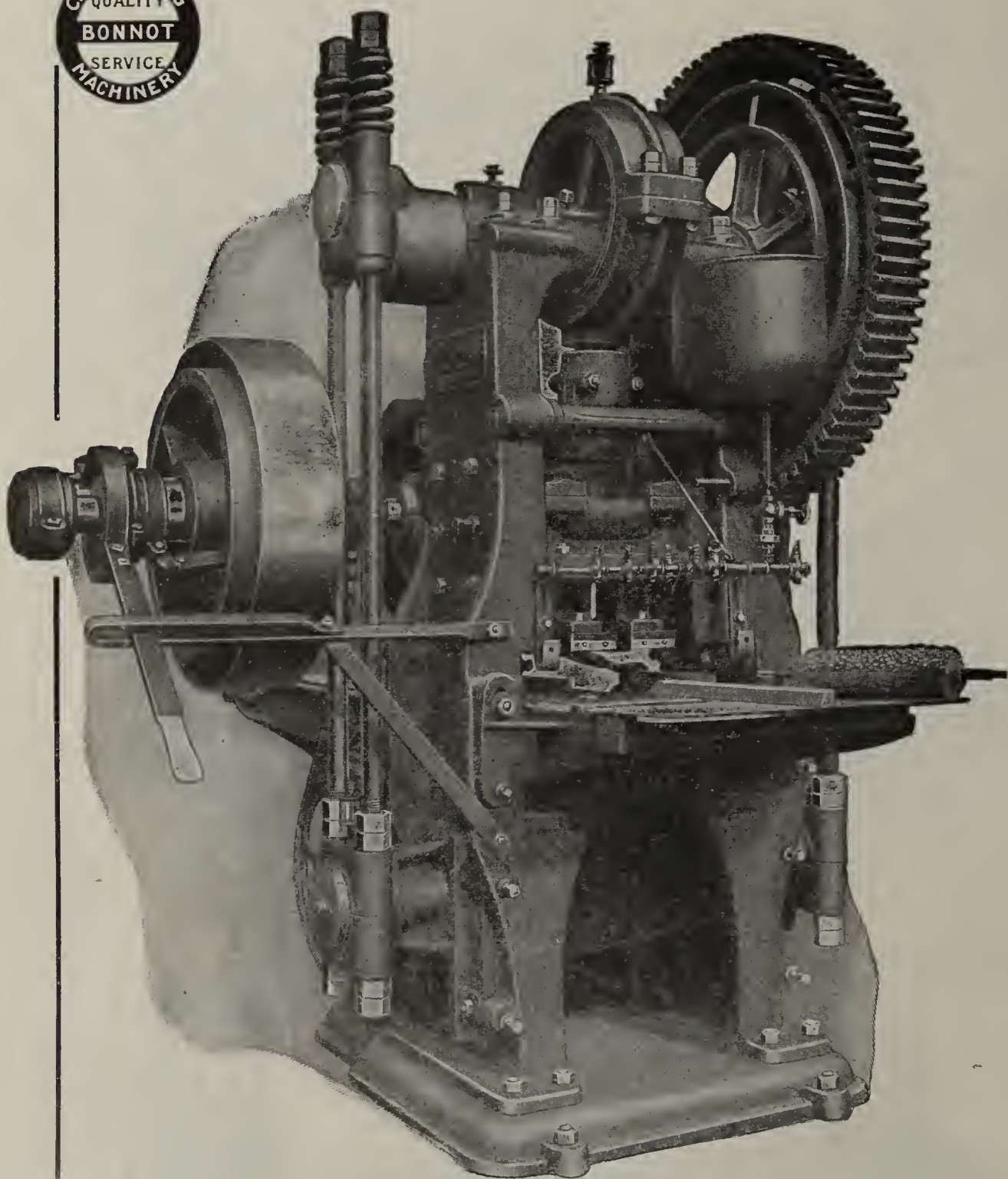
Steel Slat Barrow

We make the best Roller Bearing on the market today—Try it.

Write for our catalog showing our complete line of Barrows—many other styles.

We are booking scores of orders for Spring shipment. Place yours now and be sure of having your Barrows when the season opens.

THE WELLINGTON MACHINE CO.
Wellington, Ohio



Customers Say

IT IS

"The Most Satisfactory
to Operate."

"Costs Least Amount
for Repairs."

"Dies Last Three Times
as Long."

"Most Convenient
Adjustments."

"Smoothest Running."

Get Our Catalog
Describing This
and Other
Clay Machinery.

**BONNOT
MACHINERY
IS
BUILT FOR
SERVICE.**

BESSEMER LIMESTONE COMPANY
Youngstown, Ohio.

July 12th, 1912.

The Bonnot Company, Canton, Ohio.

Gentlemen:—In reply to your request of July 10th, we are pleased to advise that our experience with your Represses has been very satisfactory. We consider them superior in every respect to any Reprress which we have used.

We have in use at the present time, nine of your manufacture.

Yours very truly,
C. C. BLAIR,
General Manager.

THE METROPOLITAN PAVING BRICK CO.
Canton, Ohio.

July 3rd, 1912.

The Bonnot Company, Canton, Ohio.

Gentlemen:—Replying to your letter of the 2nd inst. we are pleased to state that the Bonnot Represses we have in use are giving us excellent service and less trouble to keep them in repairs than any other Reprress we have ever used, and we expect to replace seven old presses of other makes with yours within the next year.

We are entirely satisfied with the work done on your Represses and consider them the best on the market.

Yours very truly,
THE METROPOLITAN PAVING BRICK CO.,
By H. S. Renkert,
Treas. and Gen'l. Mgr.

HSR-PM

THE BONNOT COMPANY

909 N. Y. Life Bldg., KANSAS CITY, MO.

CANTON, OHIO

631 Higgins Bldg., LOS ANGELES, CAL.





YES

150,000,000 Block

MADE ANNUALLY BY

The Metropolitan Paving Brick Co., Canton, Ohio

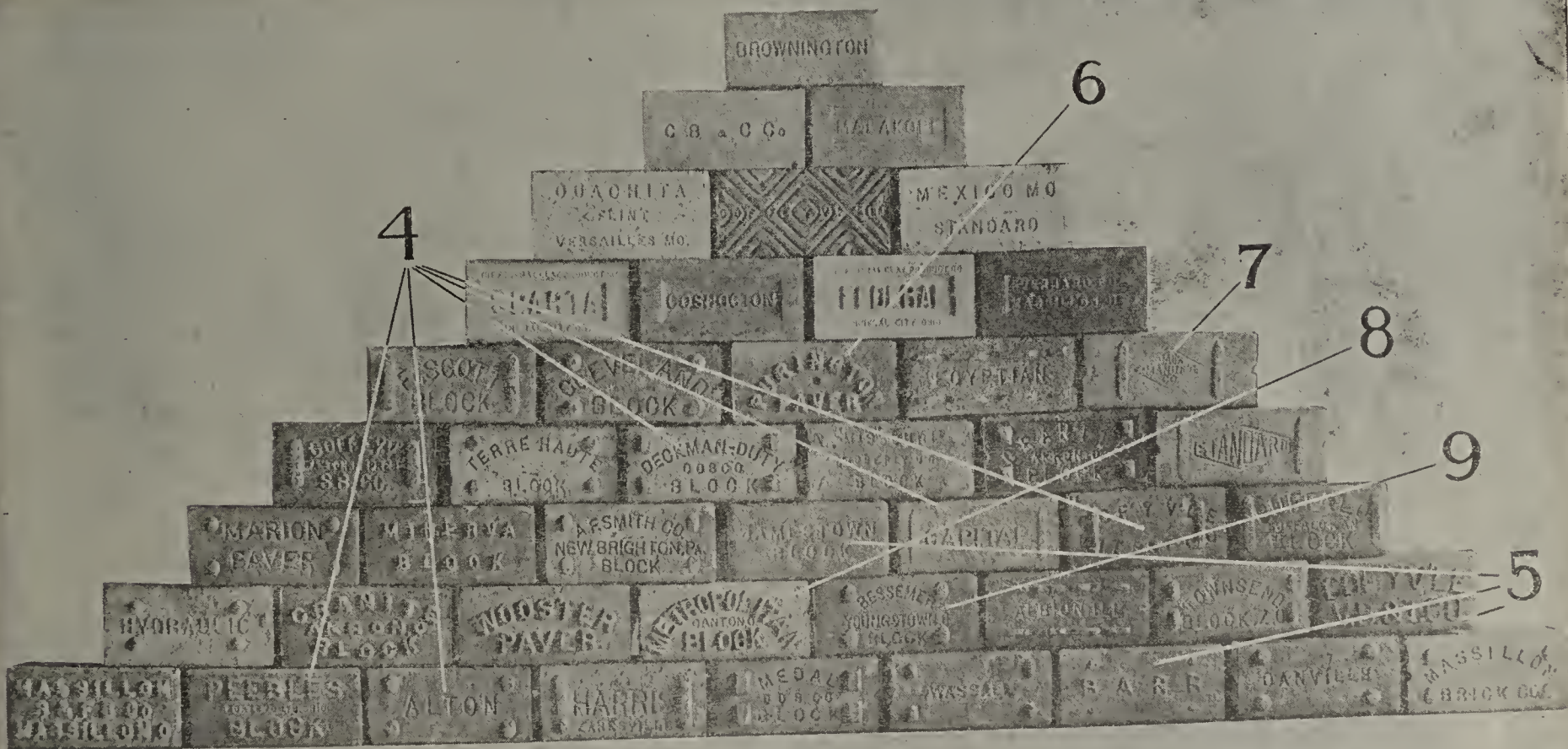
and

Bessemer Limestone Co., Youngstown, Ohio

are all made on **Bonnot** machinery, and all are **Repressed Block**.

17 Bonnot Represses used by the above named concerns.

3,000,000 Brick and Block are repressed DAILY on Bonnot Represses



Some Products of the Bonnot Repress

Figures Show Number of Represses Some of These Customers Are Using.

THE BONNOT COMPANY

909 N. Y. Life Bldg., KANSAS CITY, MO.

CANTON, OHIO

631 Higgins Bldg., LOS ANGELES, CAL.



Mention THE CLAY-WORKER.

BOOKS FOR CLAYWORKERS.

These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

The Clayworkers' Handbook, by the Author of "The Chemistry of Clayworking." Price \$2.00.

A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport, Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting or Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

Modern Brickmaking, by Alfred B. Searle. Price \$5.00.

It contains well-written chapters on the nature and selection of clays and other materials used, general brickmaking, the different processes, machinery, kilns, setting and burning, various products and uses, and sources of difficulty and loss.

Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

Clays: Their Occurrence, Properties and Uses, by Heinrich Ries. Price \$5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

Bricklaying, by Owen B. Maginnis. Price \$2.00.

This book contains extensive explanations of the most improved modern methods of bricklaying, and is the current practice and experience of the best authorities, making an invaluable work of reference for architects, engineers, contractors, builders and mechanics.

The Effect of Heat Upon Clays, by Prof. A. V. Bleining. Price \$2.00.

A book of valuable information on burning and drying, told in a plain, practical way, and invaluable to the burner or superintendent.

Bricklaying System, by Frank B. Gilbreth. Price \$3.00.

A book whose 330 pages are filled with rules and hints for the foreman and bricklayers, designed to increase the output of the workmen and enable them to do difficult work in the best manner.

Vitrified Paving Brick, by H. A. Wheeler, E. M. Second Edition. Price \$2.00.

A review of present practice of the manufacture, testing and uses of vitrified paving brick.

Tables of Analyses of Clays, by Alfred Crossley. Third Edition. Price \$2.00.

Including analyses of chemically pure clays, well-known common and pressed brick clays, paving brick clays, fire clays, shales, etc., both in this country and abroad. A valuable book for those desiring to compare their clays with well-known and standard clays.

Kiln Records, by W. D. Richardson. Price \$1.00.

To establish a successful system of burning, observations and records should be made regularly, carefully and conscientiously, and this can be done to best advantage by the use of Mr. Richardson's Kiln Records.

Engineering for Land Drainage, by C. G. Elliott. Price \$2.00.

Giving instructions for laying out and constructing drains for the improvement of agricultural lands intended for the use of those who are charged with the responsibility of making plans for and executing drainage improvement.

Practical Farm Drainage, by C. G. Elliott. Price \$1.50.

A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

Tile Underdrainage, by J. J. W. Billingsley. Price 25 Cents.

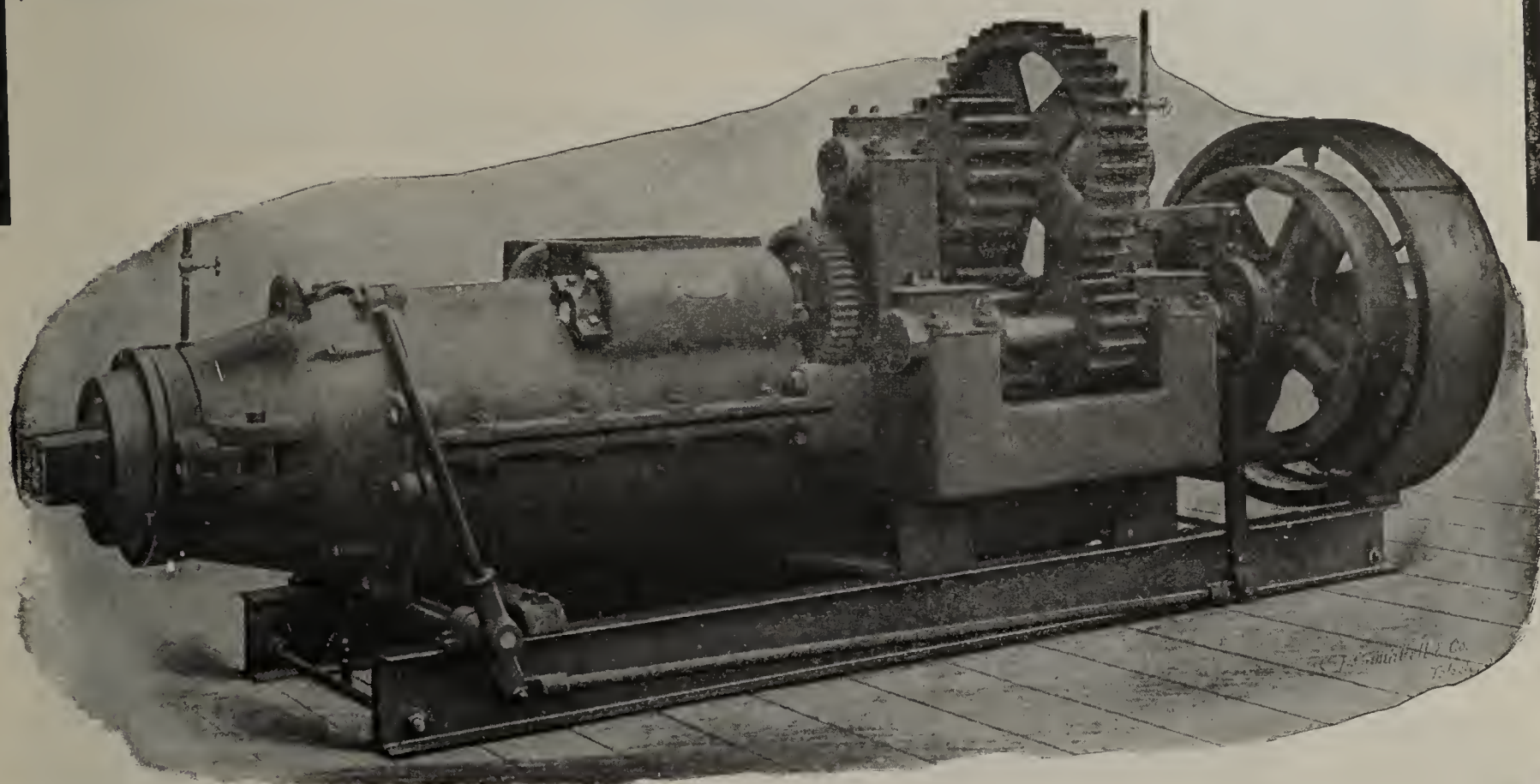
A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distributing among tile users. In lots of 100, \$2.50; in lots of 1,000, \$20.00.

T. A. RANDALL & CO.,
Indianapolis, Ind., U. S. A.



HORIZONTAL BRICK MACHINES

Brewer Horizontal Brick Machines are built in three sizes, ranging in capacity from 2,000 to 5,000 bricks per hour, in weight from 5,000 to 14,000 pounds. In many cases the machine rated at 2,000 brick per hour is making 3,500 and the 5,000 machine 7,500. The rated capacity is low, the weights are high in proportion.

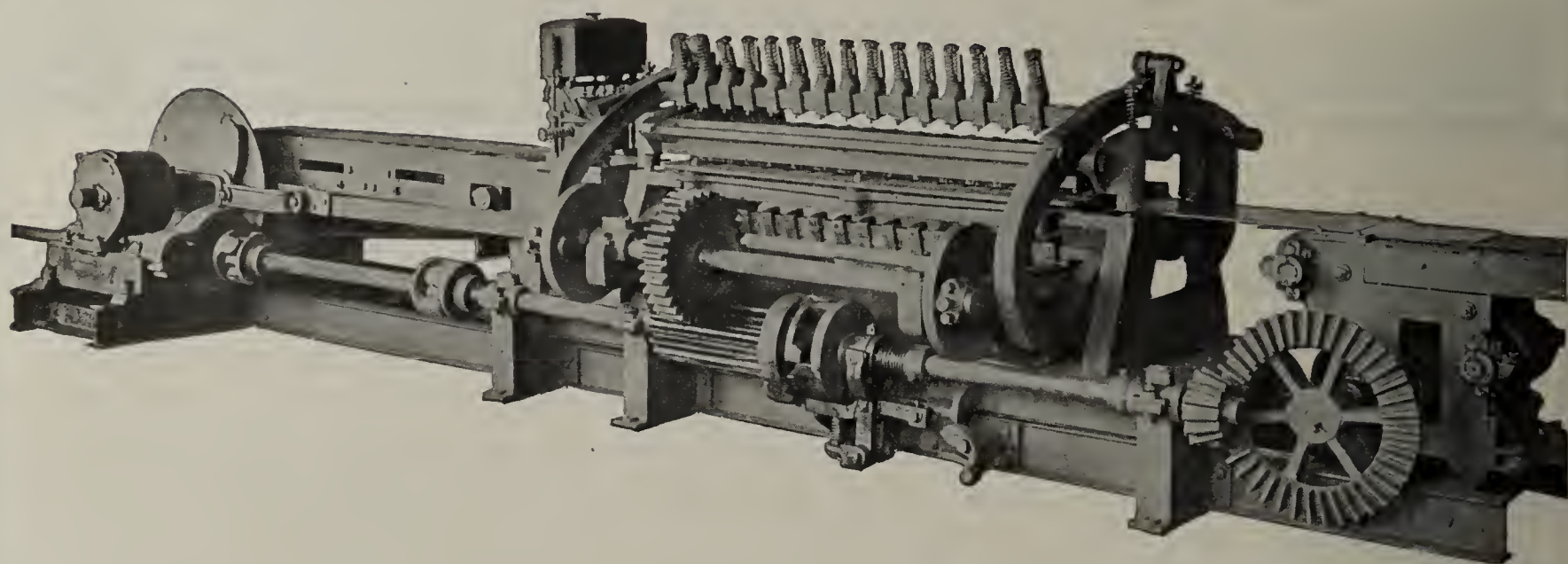


Some Features of Construction.

The knives are forged from hard, high-carbon steel; each one independently adjustable for pitch. The expressing screws or augers and the casings which surround them are made of white iron. The bearings are self-oiling. The backthrust bearings are self-oiling, self-aligning and adjustable to take up the wear of the expressing screw. The hoppers are kept clear by a feed roll which does not clog. The gear frames are cast in one piece. The gears are semi-steel. The mounting is self-contained.

Full specifications in our catalog. Ask for it.

H. BREWER & COMPANY, Tecumseh, Mich.



Model T 60 Reciprocating Automatic Cutter

This cutter, which is of the reciprocating type, is built in two Models "T 50" and "T 60" for capacities up to 12,500 brick per hour or more. The design is extremely simple and substantial. It embodies many of the well tried features of our Rotating Automatic Cutters.

The cutting frame carries only one set of cutting wires and has a swinging movement, avoiding the wear and play common to sliding parts. It is actuated by cranks, driven by a single gear and pinion, giving a smooth, quiet starting and stopping of the cutting stroke. The frame remains stationary between cuts, affording ample time to renew broken wires.

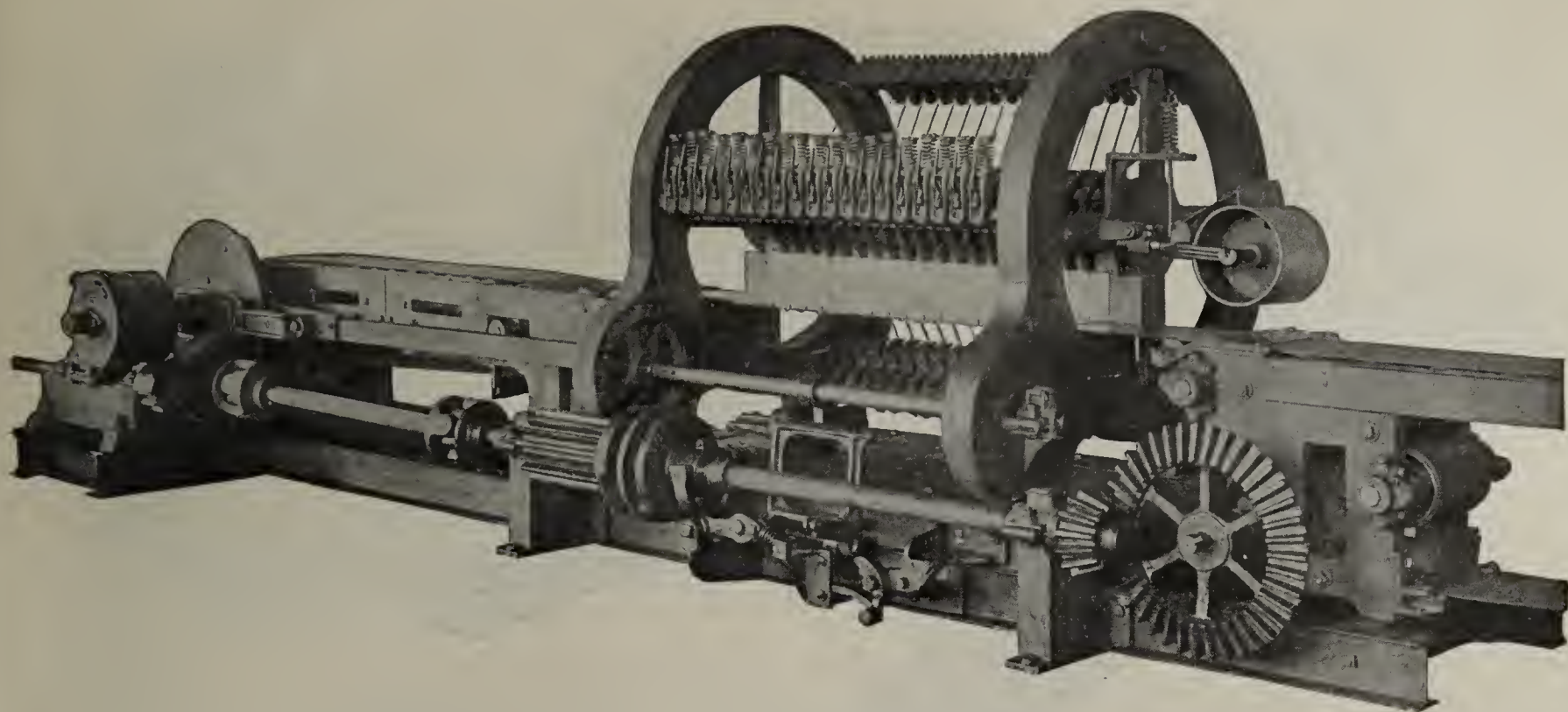
The platens are very easily removed and replaced when the thickness of cut is to be changed. Four bolts hold the platen in place. When these are removed it can be lifted straight up, between the end castings. Only a few minutes required to make the change.

An upper platen (Dunn Patent) can be furnished to insure smooth upper edges on the brick. This is automatically raised to clear the clay column after the cut is completed and is returned to position in time for the next cut, avoiding any tendency for the column to become wedged. Solves the problem of making smooth edge brick on a reciprocating cutter.

Either Model is made to suit a variety of work. The "T 60" is built special to accommodate the largest sizes of fireproofing, etc. These cutters can also be especially arranged for cutting the Dunn Wire-Cut-Lug Paving Blocks.

E. M. FREESE & COMPANY, Galion, Ohio

Mention THE CLAY-WORKER.



Model C 20 Rotating Automatic Cutter

We build rotating automatic cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for hollow ware, fireproofing, radial chimney blocks, etc., up to $13\frac{1}{2}$ in. by $7\frac{1}{2}$ in.

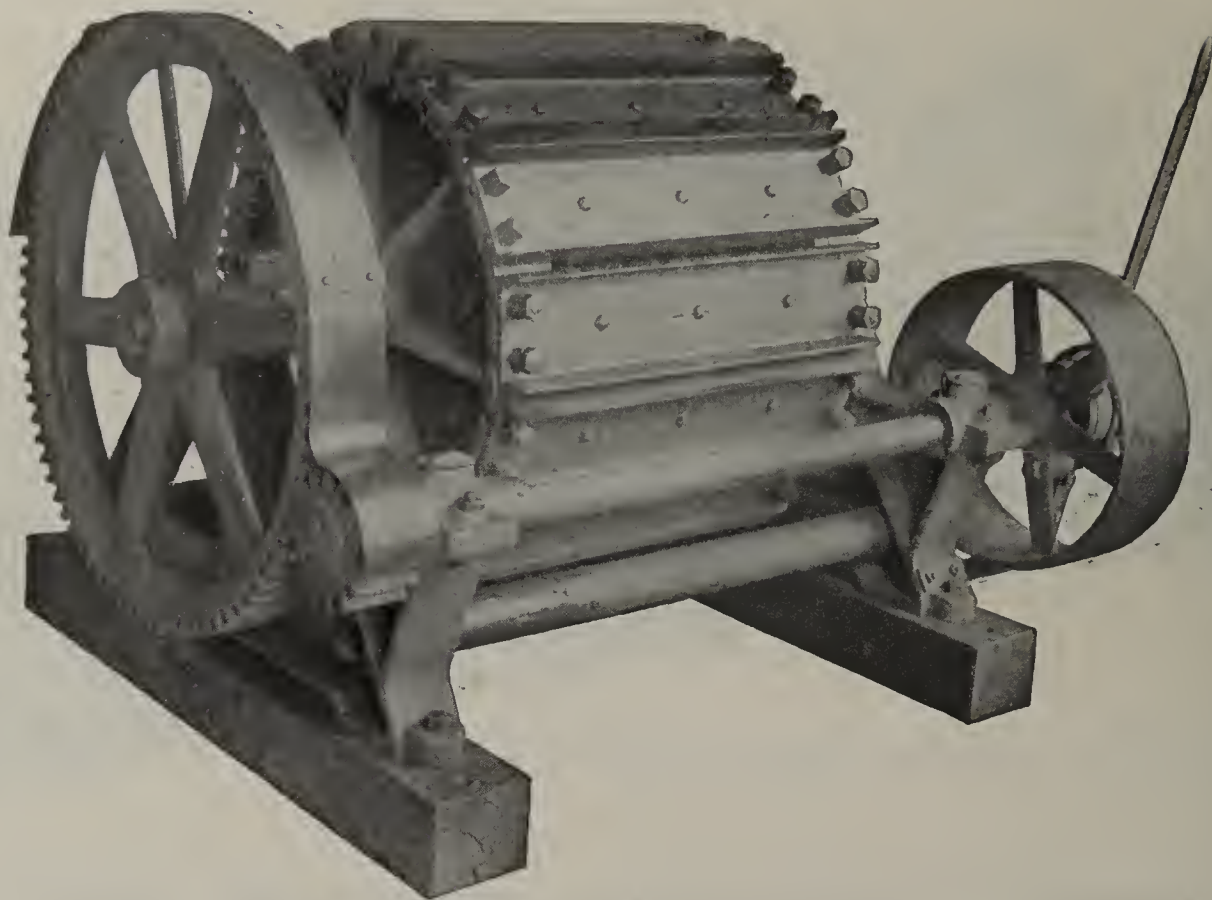
The above illustration shows the Model C 20 Cutter, which is an improved model of our well-known Size 16. It is intended for capacities up to 7,500 standard size brick per hour—18 brick are cut at each cut. At this speed the cutting reel makes only a little over two revolutions per minute, remaining stationary between cutting strokes. It is not necessary to stop the brick machine to renew broken wires, as this gives ample time.

The cutting apparatus, including drive for separating belt, is entirely self-contained, being mounted upon one set of I-beam sills, assuring permanent alignment of all parts. The measuring and separating tables are built with iron or steel sides.

Cutting reel and carriage are carried on rollers requiring little or no oiling. Carriage is positively moved with the clay by an accurate cam. Clutch mechanism is the simplest possible. Wearing surfaces have renewable steel plates.

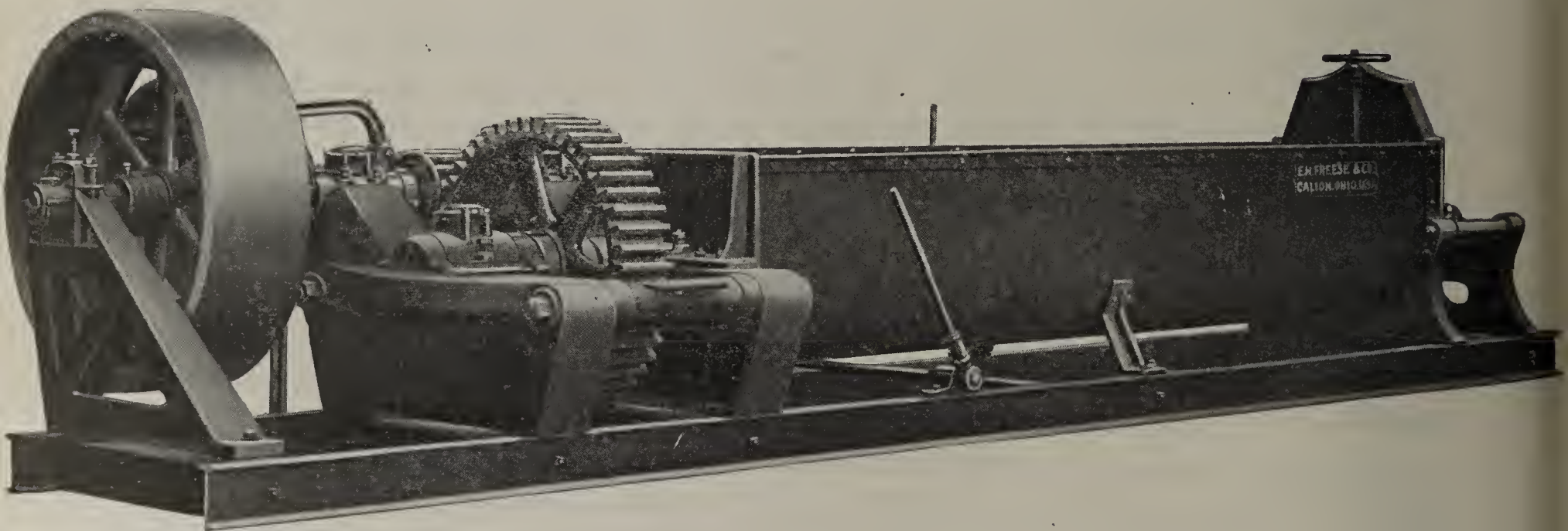
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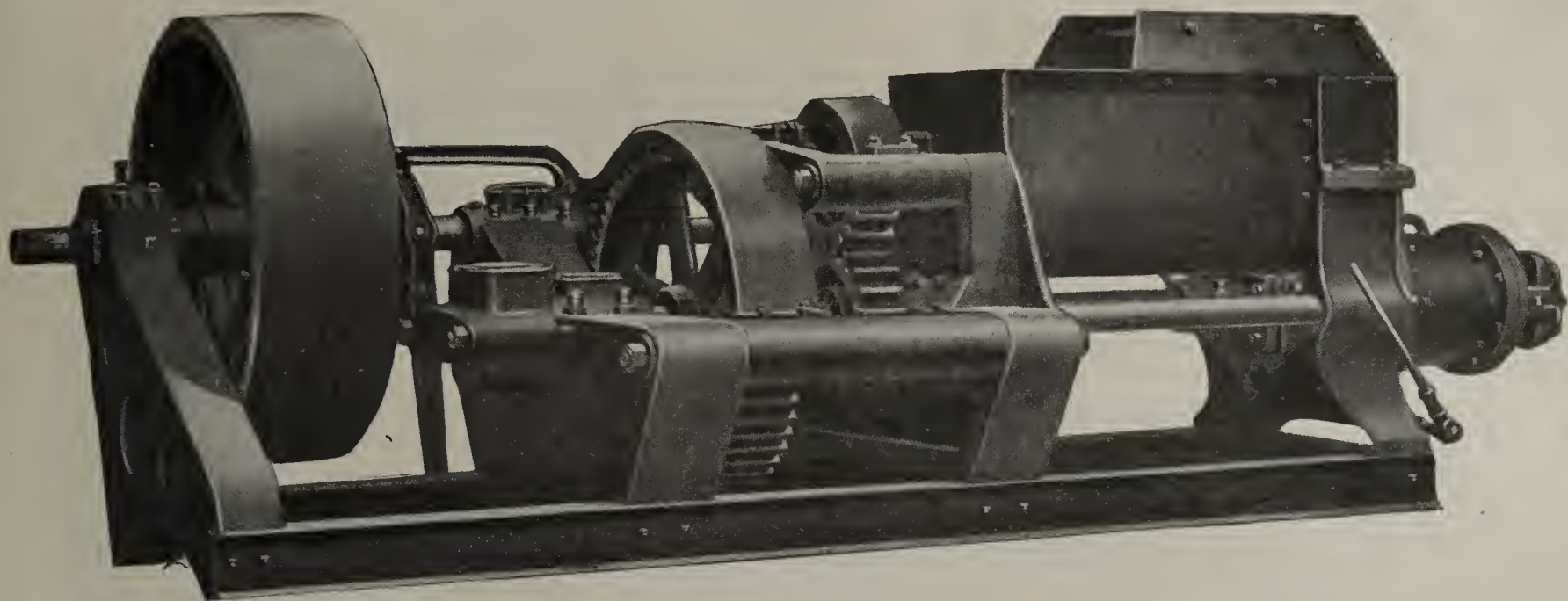
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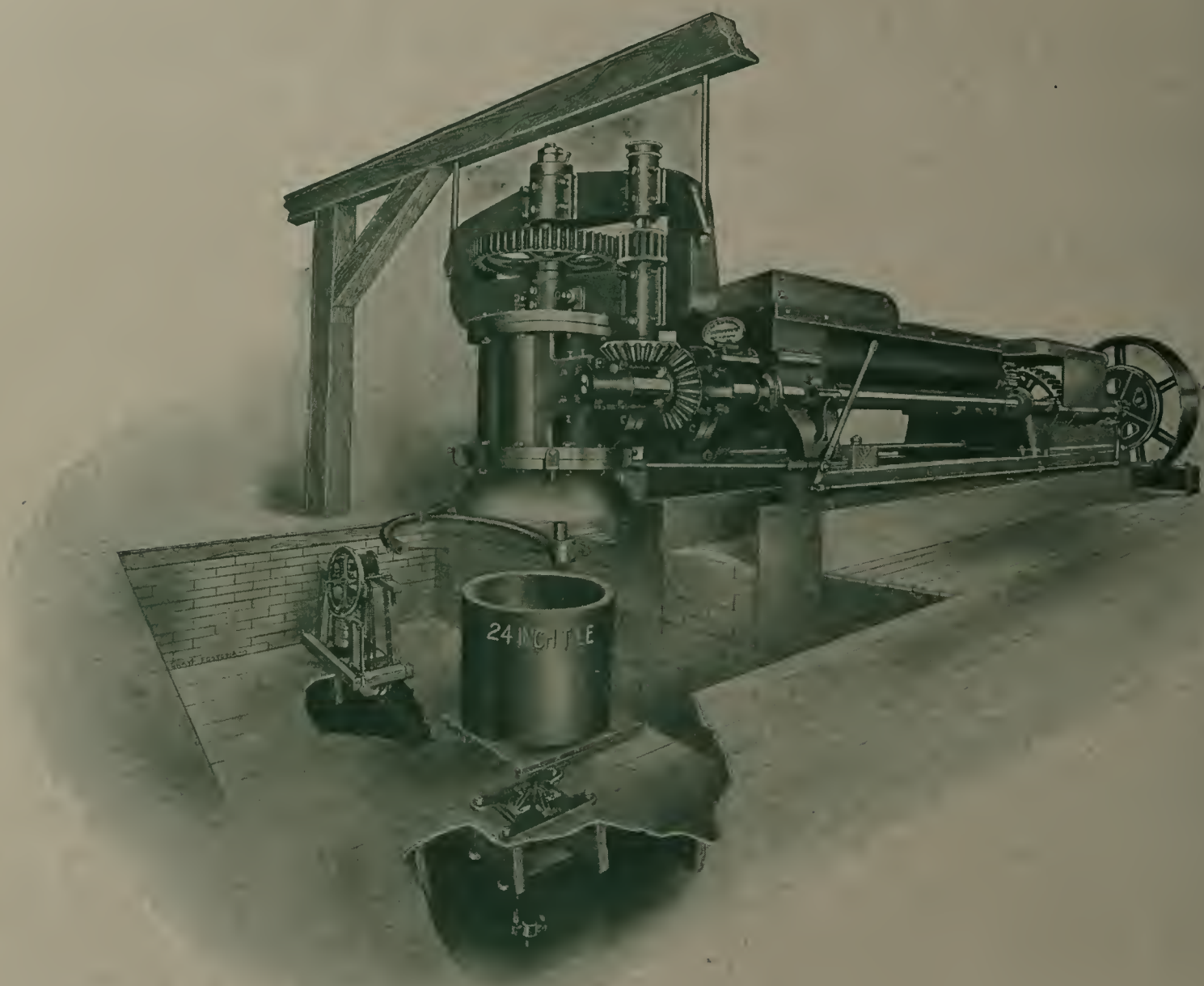
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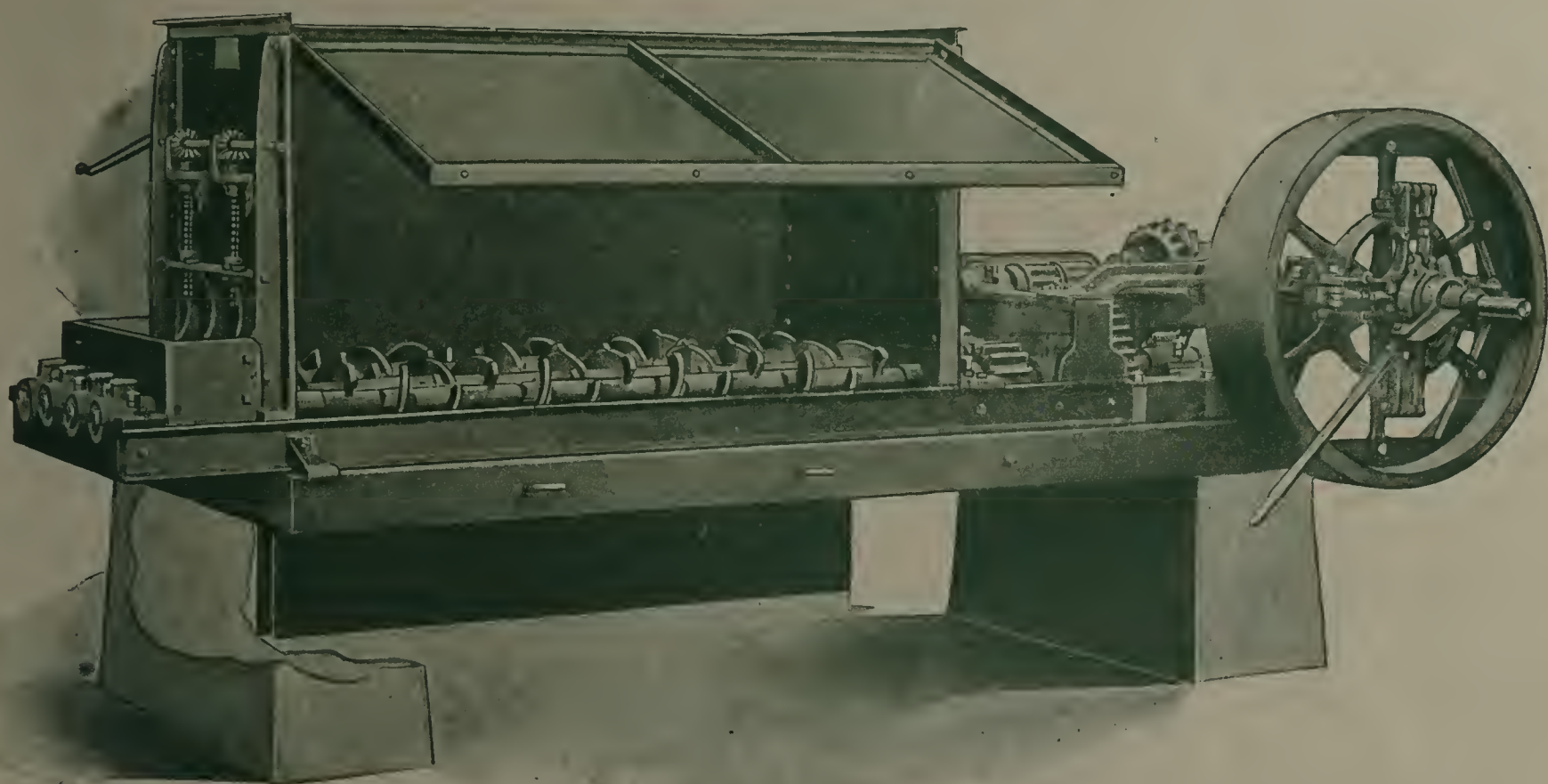
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